CHAPTER 1

INTRODUCTION,
OBJECTIVES
AND
RESEARCH METHODOLOGY

1.1   INTRODUCTION AND BACKGROUND

Globalisation has established new dynamics in many well-established industries. This has been the case in the automotive, communications, clothing, electronic, home appliance, photographic, steel, and virtually every other industry around the world (Hill 1994:5-11). This also applies to the global mining industry, because it has undergone considerable upheaval in recent times; in fact, during the past decade it has seen some of the greatest changes in its history. Commodity and other price fluctuations, exchange rate fluctuations, regulatory influences, global opportunities, global competition, mergers, takeovers, strategic alliances, restructuring and even a departure from the business scene are some of the critical issues that mining firms currently have to face on an ever-increasing scale. Amidst this complex environment, the struggle to create a sustainable competitive advantage has become a common denominator for many mining firms (Skirrow 2000:1).

The need for these firms to become and remain competitive in such dynamic circumstances is understandable. It is, however, a fact that competitiveness is not a natural property of an organisation. Becoming and remaining competitive requires a conscious and continuous design for competitive advantage (Dean 1995). This also applies to firms active in the global mining industry.

For centuries, the mining industry has been the very backbone of the civilised world. This is evident in the early development of resource-rich developed countries such as the USA, Canada and Australia (National Research Council 1990:57). It is also aptly illustrated in a developing country such as South Africa, where the mining industry made an important contribution to the national economy during the previous century. In 2003 alone, this industry contributed R 78.5 billion (US$ 10.4 billion) or 7.1% to the country's gross domestic product and an additional 8.0% through associated multiplier effects (Department of Minerals and Energy 2003/2004:9; Department of Minerals and Energy 2002/2003:6). In addition, the mining industry contributed 39.7% of the country's export earnings during 2003 (Econometrix Ecobulletin 2004).

As the world moved into the third wave of civilisation during the latter part of the previous century, revolutionary changes in information technology and knowledge diminished the importance of "old-world" industries such as mining and agriculture (Toffler, cited in Institute for Futures Research 2000:6-14). At present the mining sector's role in the global economy has diminished, and is fairly small in comparison with other sectors (see figure 1.1 below).

Figure 1.1: Worldwide foreign direct investment for 1997
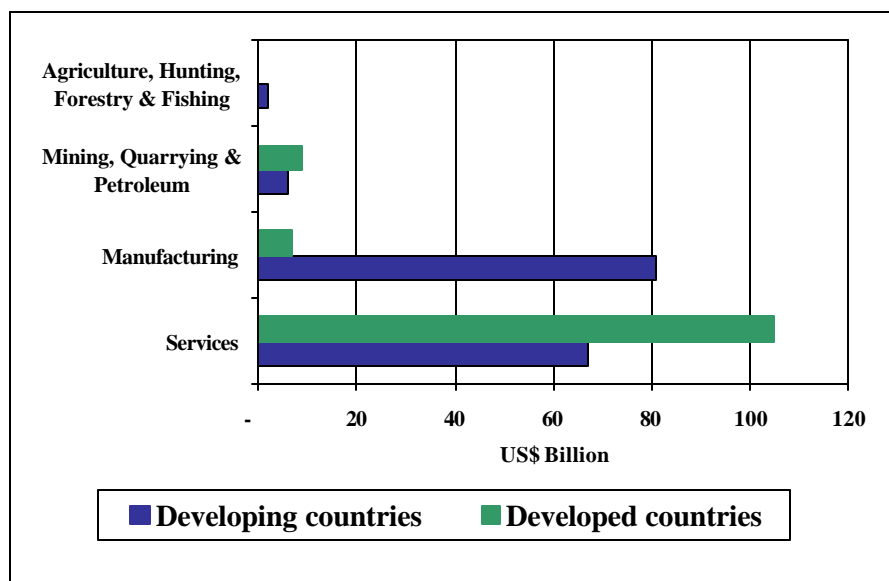
Source: Weber-Fahr (2001:6)

In the last decade, the mining industry entered an era of unparalleled uncertainty, and today is faced with a business environment so dynamic and unpredictable that firms can hardly afford to become complacent. Accordingly, a new breed of global mining firms is emerging in a world of shrinking opportunity, where only a handful of firms are likely to dominate the business landscape over the medium to long term (Skirrow, Binns, Albi & Souza 2001:2). This is already generally the case, since 50 of the largest mining firms in the world combined, represent 82% of the total market capitalisation of the global industry, consisting of approximately 400 listed firms (Royal Bank of Canada 2004; http://bloomberg 2004).

In this world of shrinking opportunity, Crowson (2003:2) emphasises the fact that the global mining industry does not exist in a vacuum, but is part of a larger world. In this regard, remaining informed about events in the external environment becomes in this regard an absolute imperative. Porter and Millar (Rouach & Santi 2001:552) point to the fact that information in the contemporary era is even changing industry structures and is altering the rules of competition. To succeed in such circumstances, it is critical that they establish a capability to continuously monitor and analyse the dynamics in the external environment. Such a capability could assist a firm to act in time upon any changes that may impact on its strategic thrust into the future. Hamel and Prahalad (1993:84) concur with this view when they argue that business risk recedes as a firm's knowledge about its external environment grows, and as knowledge grows, so does the firm's capacity to advance.

1.2   REASONS FOR THE STUDY

Given the above-mentioned synthesis, it is a fact that firms, including those conducting business in the contemporary global mining industry, operate in an increasingly information-intensive environment. Using information more "intelligently" makes a major contribution to firms' competitive advantage. Some of the most admired firms in businesses far removed from the so-called "information industries" owe most of their success to the clever use of information (Evans & Wurster 2000:12).

The information on which these successful firms have built their competitive advantage is, in most instances also available to less successful firms. This is because, apart from other established management support structures, many of the successful firms in the world rely on a practice known as competitive intelligence to collect and analyse information on an ever faster moving and less predictable external environment. The aim of such a capability is to obtain actionable intelligence in order to make correct decisions that will provide them with a competitive edge regarding forces in their competitive environment (Prescott & Miller 2001:xi). Fleisher and Blenkhorn (2000:2) concur that

accurate and timely competitive intelligence could mean the difference between correct and incorrect global strategic decision making. Competitive intelligence has various components and is best described by way of a continual process or cycle. The competitive intelligence cycle is depicted in the following figure:

**Figure 1.2: The competitive intelligence cycle**
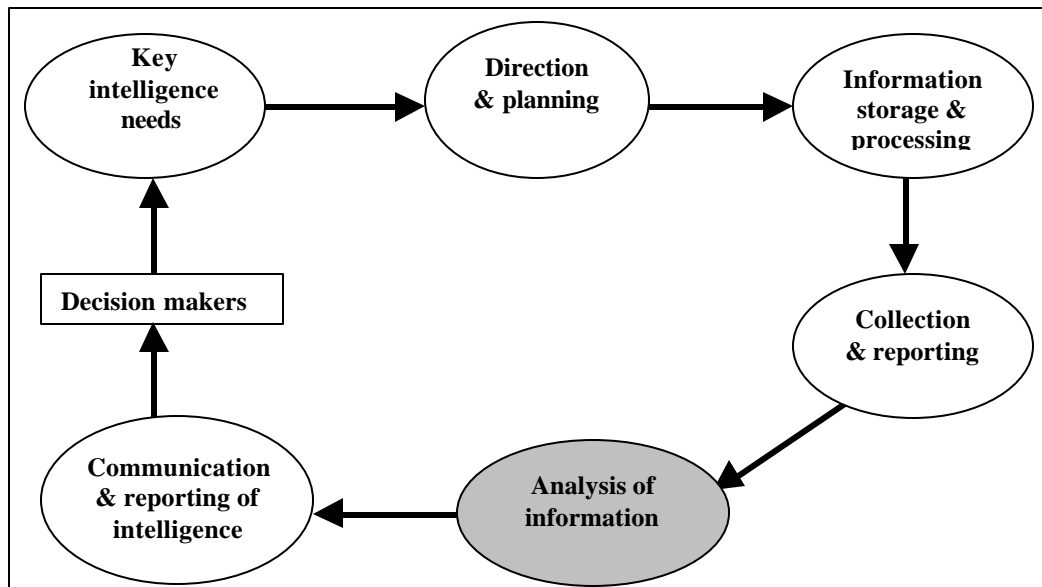
Source: Calof (2001:13); Fleisher & Bensoussan (2003:6)

The impetus for this study arises from preliminary research of the literature on an important phase of competitive intelligence, namely competitive analysis. This preliminary research has revealed that competitive analysis, as conducted by mining firms, is deficient and, in many instances, caught up in what Procter and Gamble would have described as the "old-world" method. Competitive analysis in this sense involves routine information needs and report generation. Such analysis tends to be too reactive for the dynamic and turbulent environment in which companies exist today (Prescott & Miller 2001:27). Most of the familiar "old-world" competitor-monitoring activities, which are supposed to alert management to danger, are based on sporadic project-driven

efforts. Furthermore, the reaction to competitive moves is slow and largely uncoordinated (Gilad 2001:6).

Without any evidence of extensive research on competitive analysis in the mining industry, there is a view that the competitive analyses conducted by mining firms relate to certain popular analytical techniques such as financial and operational analysis, and SWOT analysis, which focus largely on the tangible resources of the firm being analysed. Additional popular analytical techniques such as external environmental analysis (i e Porter's five forces analysis) focus strongly upon the "what" of the competitive situation at hand (Hamel & Prahalad 1993:75), and again underpin a strong tangible approach. However, any firm being analysed consists of various subsystems (Stacey 2003:24) or could be viewed as a bundle of tangible and intangible resources that should be organised, combined and deployed properly in order to become a source of sustained competitive advantage. This is of utmost importance because recent literature suggests that intangible resources are increasingly becoming critical drivers of competitive advantage (Haanes & Fjeldstad 2000:53). The following figure aptly supports this view because it indicates that intellectual (intangible) assets have become the major business driver in the modern economy.

Figure 1.3: Relative significance of intangible assets compared to tangible assets in business
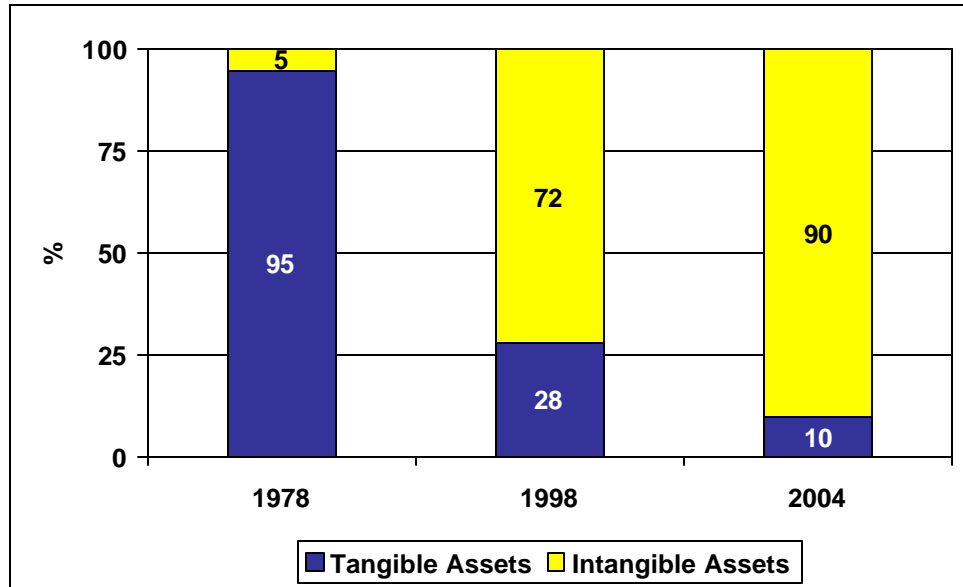
Accordingly, a much stronger focus on the total array of resources, and the intrinsic dynamics it activates in a competitive force, seems to be lacking in competitive analysis as it is currently conducted. In this regard, analytical emphasis along the resource-based view of strategy (Fleisher & Bensoussan 2003:207; Hamel & Prahalad 1993:75), and the consequential influence of both tangible and intangible assets and capabilities and competencies, could initiate a more realistic view of the future intent of a competitive force. These issues will be investigated in the research.

1.3 PROBLEM STATEMENT AND OBJECTIVES OF THE STUDY

1.3.1 Problem statement

Based on the preliminary research and given the dynamic and unpredictable external environment that is experienced in the contemporary global mining industry, the fundamental question to be investigated in this study can be formulated as follows:

To what extent do global mining firms conduct competitive analysis into the forces in their competitive environment, and can a dynamic competitive analysis model be developed for such firms in order to enhance their strategic decision making, given the dynamic activities of the forces in their competitive environment?

1.3.2 Objectives of the study

The primary or main objective of this study is:

- To develop a dynamic competitive analysis model for global mining firms in order to enhance their strategic decision making, given the dynamic actions of the various forces active in the competitive environment

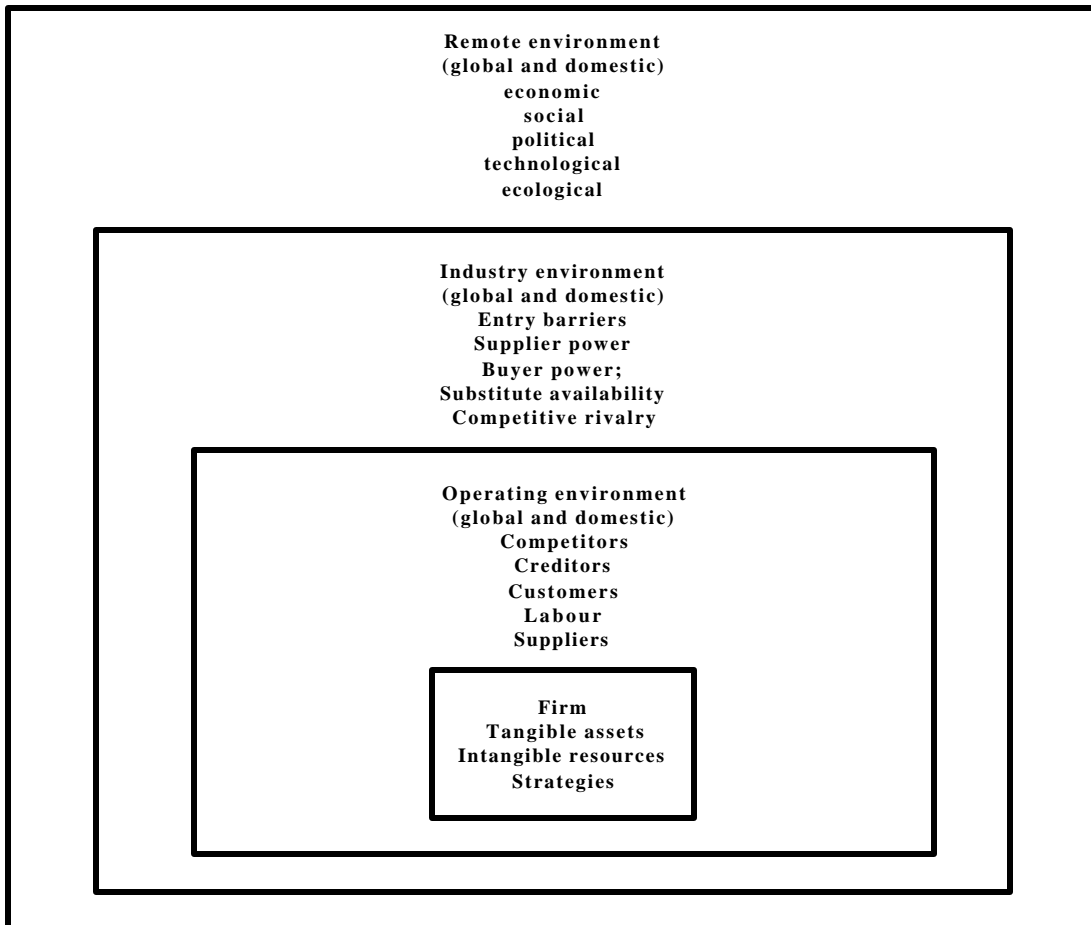The secondary objectives of the study involve the following:

- To develop an insight into the business characteristics and dynamics of the contemporary global mining industry

- To perform an in-depth study of competitive analysis, and determine the global trends in competitive analysis

- To determine whether there is a need for competitive analysis in global mining firms

- To promote an understanding of the way competitive analysis is applied in the global mining industry

- To determine the influence of competitive analysis on global mining firms' competitive learning and strategic decision making.

1.4 SCOPE OF THE STUDY

The study proposes to identify, compare and evaluate the most applicable ways in which competitive analysis, as part of a competitive intelligence process, can be conducted. An additional aim is to investigate the way in which competitive analysis is being conducted in global mining firms with regard to the various competitive forces in their external environment. This environment is depicted in figure 1.4 below.

Figure 1.4: The firm's external environment

Remote environment
(global and domestic)
economic
social
political
technological
ecological

Industry environment
(global and domestic)
Entry barriers
Supplier power
Buyer power;
Substitute availability
Competitive rivalry

Operating environment
(global and domestic)
Competitors
Creditors
Customers
Labour
Suppliers

Firm
Tangible assets
Intangible resources
Strategies

Source: Pearce & Robinson (2003:57); Haanes & Fjeldstad (2000:53); Hill (1994:22); Fahey & Randall (1994:198)

From figure 1.4 it is evident that any firm, including a global mining firm, has to operate as a system, consisting of various subsystems (departments and resources), within a larger suprasystem, in which various other systems (competitors, suppliers, customers, communities, governments, socially-conscious pressure groups and a myriad of others) are active, and which is constantly evolving over time (Stacey 2003:3;24)

In the competitive intelligence context, all these environments or the suprasystem, encapsulate the competitive environment. The competitive environment can be defined as follows:

> *The external environment in which the firm reacts to and endeavours to influence the different competitive forces active therein, in the process of conducting its business, focused upon the establishment of a sustainable competitive advantage.*

To place competitive analysis in context in the global mining industry, it is necessary for the study to focus on the key success factors for firms active in the global mining industry. The research will not attempt to explore the underlying technical, geological and engineering concepts that form the very basis of the mining industry, but instead focus on the business management issues that constitute success or failure. Furthermore, the empirical study will be confined to a sample of the largest global mining firms, determined according to market capitalisation.

1.5 COMPETITIVE ANALYSIS: THE CONCEPT

The main concepts of the study are discussed below.

1.5.1 Competitive analysis

The basic premise underlying the concept of competitive analysis is the inseparability of a firm, its competitive environment and its endeavours to survive and prosper in this environment. An understanding of the dynamics of the latter is a key element in the formation of a firm's strategic thinking. Competitive analysis could aptly be described as the analysis of any particular competitive force active in the competitive environment, and designed to help answer the question: "What is such a competitive force likely to do in a given situation?" (Oster 1999:412). It is furthermore important to determine how the

possible future moves of such a particular competitive force will affect the home firm (firm conducting the competitive analysis).

In the context of this thesis, competitive analysis could thus be defined as follows:

> *A step in the competitive intelligence process in which information about all the factors of a specific competitive force is subjected to systematic scientific and non-scientific examination, in order to identify relevant facts and determine significant relationships and to derive meaningful insight with regard to the future intent of such a competitive force. Such synthesised information should consequently stimulate management decision-making and action within the home firm.*

From this perspective of competitive analysis, it is evident that various analytical models and techniques could consequently be used during the competitive analysis process. Some authors are of the opinion that there are literally hundreds of these techniques available that can be applied in the context of competitive and strategic analysis (Fleisher & Bensoussan 2003:xviii). In addition, each of these analytical techniques has been developed for a specific purpose. However, Gilad (1998:31) notes that competitive analysis is not merely the application of analytical techniques, but, most importantly, involves the generation of insight, and therefore initiating a process of competitive learning. Insight is therefore based on a true understanding of the real underlying motives of a particular competitive force in the context of its tangible and intangible assets, as applied in the wider context of competitive environmental realities.

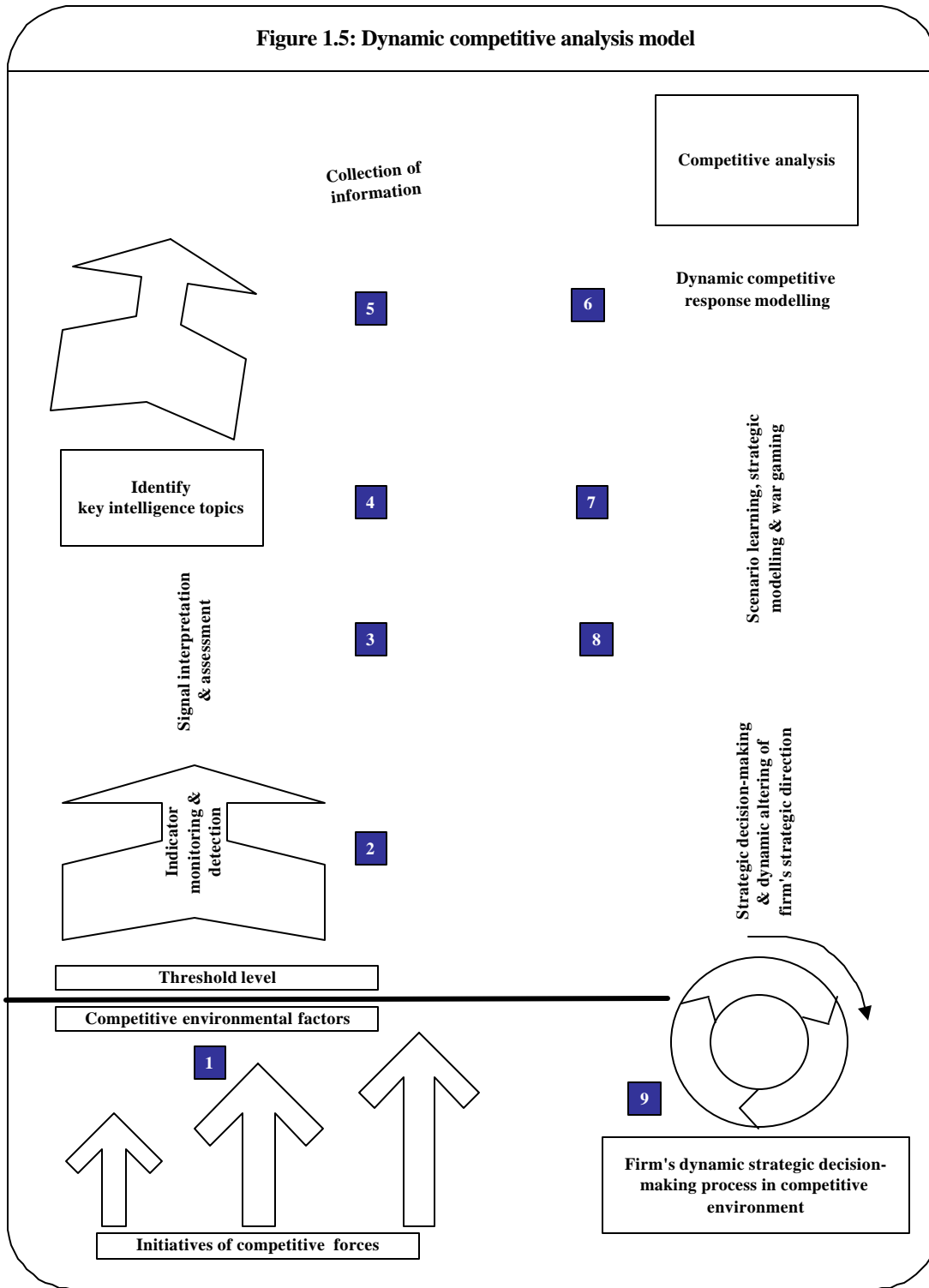According to Fahey (2000:4), the purpose of competitive analysis is not only to learn about competitors or the competitive forces at large, but also to promote thinking, interpretation and decision making about these competitive forces in order to eventually take action. The overriding purpose of competitive analysis is therefore to enhance linear as well as pattern thinking about the competitive force at stake (Kahaner 1996:96).

Tredoux (cited in Business Day 2002:16), however, argues that rapidly developing technology, a volatile environment and unforeseen events with international repercussions have largely invalidated conventional analytical tools such as Porter's five forces and the concepts of core competency frameworks. In response to this, a number of the more popular analytical techniques described in the literature will be evaluated in order to determine whether they still offer enough insight into the context of competitive learning. A much broader and dynamic approach to competitive analysis will thus be considered. This statement relates strongly to the primary objective of the study namely to develop a dynamic competitive analysis model for a global mining firm.

1.5.2   Dynamic competitive analysis model

As indicated, Procter and Gamble's "old-world" competitive analysis method has failed to live up to the demands of a constantly changing and dynamic competitive environment. In contrast to the "old-world" competitive analysis initiatives, in recent years the global consumer group, Procter and Gamble, has developed a competitive analysis capability focused on action, which includes **dynamic competitive response modelling** using **multifunctional teams** and **scenario planning.** This capability allows better preparation to combat competitive responses (Prescott & Miller 2001:27). Such a dynamic competitive analysis model, within the confines of the competitive environment, and on which this research will be focused, could conceptually be demonstrated by means of the following figure:

Figure 1.5: Dynamic competitive analysis model

Collection of
information

Competitive analysis

5

6

Dynamic competitive
response modelling

Identify
key intelligence topics

4

7

Scenario learning, strategic
modelling & war gaming

Signal interpretation
& assessment

3

8

Indicator
monitoring &
detection

Strategic decision-making
& dynamic altering of
firm's strategic direction

2

Threshold level

Competitive environmental factors

1

9

Firm's dynamic strategic decision-
making process in competitive
environment

Initiatives of competitive forces

1.6 RESEARCH METHODOLOGY

1.6.1   Introduction

The study will essentially focus on gaining insight into the most applicable competitive analysis techniques and the general business context and dynamics of the global mining industry, as well as the application of competitive analysis in the global mining industry, in order to develop a dynamic competitive analysis model for application by a firm conducting business in the global mining industry. This will be done in a qualitative manner. In addition, the study will have a dual approach, whereby nonempirical or conceptual research will be combined with empirical research.

The procedure used to achieve the stated objectives previously indicated, is summarised as follows:

- An extensive multidisciplinary literature study was conducted which included the following:

    - analysis of the business characteristics for the global mining industry

    - key success factors relating to the global mining industry

    - competitive analysis as part of a competitive intelligence process

    - an evaluation of analytical techniques that best serve the purpose of competitive and strategic analysis according to the DACSOMEF method in the context of competitive learning

The above-mentioned literature study will be addressed in chapters 2, 3 and 4.

- Empirical information was collected by means of a qualitative participatory questionnaire, which was submitted to respondents from a nonprobability purposive

sample comprising of 50 of the largest global mining firms, according to market capitalisation. The outcome of this empirical research will be addressed in chapter 6 of this study

- On the basis of the above-mentioned literature study on the global mining industry, competitive analysis and the empirical research on competitive analysis as applied in the global mining industry, a dynamic competitive analysis model was developed from an inductive perspective according to the principles of grounded theory. This model is presented in chapter 7.

1.6.2 The literature study

1.6.2.1 Source identification

An extensive literature search was conducted in order to identify the most recent developments in the field of study. This search was conducted with the aid of information obtained from the following sources:

- subject catalogues at various libraries

- the indexes of business periodicals

- a literature list compiled by the subject librarian at the University of South Africa

- the publication list of the Society of Competitive Intelligence Professionals (SCIP)

- competitive intelligence periodicals such as SCIP's *Competitive Intelligence Review* and *Competitive Intelligence Magazine*

- papers on competitive intelligence presented at various international conferences

- on line archives and data bases such as McKinsey Consultants, Corporate Strategy Board, Competia, Bloomberg, Hoovers Online and Yahoo Finance

- general publications and information in the specialised field of the global mining industry

- the annual reports of the firms included in the research population

- internet searches

1.6.2.2   *Phases of the literature study*

The literature study consisted of two major phases. The first phase focused on the business realities firms experience in the global mining industry. This is of particular significance in view of the dramatic changes currently occurring in this industry. In conjunction with this, the researcher endeavoured to determine the key success factors for a firm conducting business in the global mining industry.

In contrast, the second phase of the literature study concentrated on acquiring a sound theoretical foundation in the relevant concept of competitive analysis. The literature study was furthermore multidisciplinary, extensive and analytical-interpretive in nature.

1.6.3   The empirical study

1.6.3.1   *Reason for the empirical study*

In order to determine whether global mining firms are using competitive analysis to direct them in a turbulent competitive environment, an empirical survey primarily focusing on qualitative information was conducted. The personal experience of respondents in the different firms that form part of the research sample provided valuable inputs to achieving the objectives of the study.

1.6.3.2   *Research population and sample*

Different parameters such as market capitalisation or the value of mine production, can be used to determine a research population and sample in the global mining industry. It was decided that market capitalisation of globally listed mining firms would be the determining parameter in the research population and sample.

According to the Royal Bank of Canada (2004), the global mining industry consists of more than 400 listed firms (excluding privately-owned firms), with a combined market capitalisation of approximately US$ 500 billion. It was therefore decided that a nonprobable purposive sample (Welman & Kruger 2001:67) would be drawn from the research population. In an attempt to obtain representative empirical information on the application of competitive analysis in the global mining industry, was proposed that the research sample would be confined to 50 of the largest global mining firms, based on market capitalisation.

The dominance of the latter 50 firms is clearly emphasised because combined, they account for approximately 82% of the total market value of the global mining industry. These firms include 25 with a diversified corporate strategy, according to commodities included in their portfolios, and with geographical diversification in terms of their operations and the markets they target. Also included are 25 single-commodity firms that are either vertically integrated or diversified in terms of the geographical spread of their operations. The following firms will therefore be included in the research sample (see table 1.1 below).

Table 1.1: Nonprobable purposive sample of 50 large global mining firms with a market capitalisation of > US$ 1 500 million

No	Firm	Primary listing	Market capitalisation (US$ 000 million)	Corporate strategy
1	BHP Billiton	UK	58 000	Diversified
2	Rio Tinto plc	UK	42 100	Diversified
3	Anglo American plc	UK	33 000	Diversified
4	Alcoa	USA	28 600	Single-commodity
5	Newmont Mining Corporation	USA	19 000	Single-commodity
6	Alcan	Canada	17 200	Single-commodity
7	Cia Vale do Rio Doce	Brazil	15 700	Diversified
8	Norilisk NIC-MMS	Russia	13 700	Single-commodity
9	Barrick Gold	Canada	11 600	Single-commodity
10	Xstrata plc	UK	10 300	Diversified
11	Anglo Gold Ashanti	RSA	10 300	Single-commodity
12	Placer Dome Inc	Canada	8 700	Single-commodity
13	Anglo Platinum	RSA	8 500	Single-commodity
14	Phelps Dodge	USA	8 400	Diversified
15	Gold Fields Ltd	RSA	7 100	Single-commodity
16	Inco Ltd.	Canada	6 700	Diversified
17	Freeport-MCM	USA	6 200	Diversified
18	Impala Platinum	RSA	5 400	Single-commodity
19	Noranda Inc	Canada	5 000	Diversified
20	Alumina Ltd	Australia	4 800	Single commodity
21	Cameco Corp	USA	4 700	Diversified
22	Teck-Cominco	Canada	4 700	Diversified
23	Falconbridge	Canada	4 600	Diversified
24	WMC Resources Ltd	Australia	4 400	Diversified
25	Peabody Energy	USA	4 100	Single-commodity
26	Newcrest Mining	Australia	4 000	Diversified
27	Yanzhou Coal-A	China	3 900	Single commodity
28	Sumitomo Metals & Mining	Japan	3 900	Diversified
29	Antofagasta plc	UK	3 800	Single-commodity
30	Grupo Mexico-B	Mexico	3 700	Diversified
31	Outokumpu	Finland	3 200	Diversified
32	Consol Energy	USA	3 200	Diversified
33	Harmony Gold Mining	RSA	3 100	Single-commodity
34	Buenaventura-Com	Peru	3 100	Diversified
35	Lonmin plc	UK	2 700	Single-commodity
36	Goldcorp Inc	USA	2 600	Single-commodity
37	Glamis Gold Ltd	USA	2 500	Single-commodity
38	National Aluminium	India	2 400	Single-commodity
39	Kinross Gold	Canada	2 400	Single-commodity
40	Mitsubishi Materials	Japan	2 300	Diversified
41	Mitsui Mining & Smelting	Japan	2 200	Diversified
42	Kumba Resources	RSA	2 100	Diversified
43	Aber Diamond Corporation	Canada	2 000	Single-commodity
44	KGHM Polska Miedz	Poland	2 000	Single-commodity
45	Industrias Penoles	Mexico	1 900	Single-commodity

46	Vedanta Resources plc	UK	1 900	Diversified
47	Caemi Metal PRF	Brazil	1 800	Diversified
48	Sasol Mining	RSA	1 600	Single-commodity
49	Meridian Gold	USA	1 600	Single-commodity
50	Ivanhoe Mines	Canada	1 600	Diversified
Market capitalisation of 50 global mining firms			**408 300**	
Remainder of global mining industry			**91 700**	
Approximate market capitalisation of total global mining industry (416 firms)			**500 000**	

Sources: **Bloomberg (2004); Royal Bank of Canada (2004); http://www.hoovers.com (2004)**

1.6.3.3 *Research instrument*

The required data on competitive analysis as conducted by global mining firms were obtained by means of a qualitative questionnaire, specifically developed for the purpose of the study, according to the semantic differential. The following broad principles thus formed the basis of the questionnaire:

- the key success factors for firms active in the global mining industry

- the need for competitive analysis in global mining firms with regard to the competitive environment

- the key requirements necessary for successful competitive analysis in a global mining firm

- the competitive analysis process supporting strategic decision making in a global mining firm

- the influence of competitive analysis on competitive learning and strategic decision making in global mining firms

Before the final questionnaire was mailed to respondents, a provisional questionnaire was tested in a focus group. This group consisted of competitive intelligence consultants conducting business in South Africa and academics from Unisa's Department of Business Management. The questionnaire was also submitted to academics involved in the field of competitive intelligence at various other tertiary institutions. The refined questionnaire was then pretested in a selected group of mining industry experts of a particular South African mining firm that conducts business globally. In addition, the questionnaire was submitted to Unisa's Bureau of Market Research and other statistical consultants for their inputs on the statistical analysis.

During the design stage of the questionnaire, cognisance was taken of the fact that a truly world-class competitive analysis capability depends not only on the masses of information available to firms, but also largely on the analytical capability and innovativeness of the people involved in the process (Bell & Harari 2001:8).

1.6.3.4   Research process

As is indicated in table 1.1, the global mining industry is worth approximately US$ 500 billion and is active in more than 100 countries (World Bank 2002:1). In addition, more than 400 listed firms make up the entire industry, with the 50 mining firms included in the sample representing approximately 82% of the total industry, according to market capitalisation.

While the head offices of the latter 50 firms are situated in 13 countries, they have operational and marketing initiatives in most parts of the world. This phenomenon in itself creates its own complexity in the success of the empirical survey.

Hence reputable and well-networked individuals in the global mining industry were asked to assist to gain the necessary support for the study from the firms included in the research sample. The names of the individuals responsible in the different firms were obtained from the senior executives of the firms included in the research population. In

addition, preliminary letters were mailed to respondents in order to overcome their resistance and facilitate their cooperation in this regard. There was a strong possibility that, because of the probable confidential nature and newness of the research about competitive analysis in the global mining industry, the response rate of the identified respondents would be low. In an effort to counter this, great care was taken in the development of the questionnaire and in trying to persuade respondents that the information would be used in its generic context, and not to typify an individual firm's use of competitive analysis. In addition, a promise was made to share the results of the study with those respondents willing to participate in the study.

After establishing some sort of working relationship with the target individuals, questionnaires were mailed electronically or by mail. While observing the necessary confidentiality, a letter of introduction from Unisa's College of Economic and Management Sciences accompanied the questionnaire. A limited number of interviews were conducted with those respondents who requested either a personal or telephonic interview.

During the research process, care was taken to limit the bias of the respondents, the influence of evaluation apprehension, demand characteristics or social or cultural desirability effects (Mouton 2001:107). The completed questionnaires received were scrutinised for completeness and validity. The completed questionnaires were then submitted to Unisa's Bureau of Market Research and other statistical consultants for data analysis and interpretation, after which conclusions were drawn from the empirical part of the research. In this regard, appropriate statistical techniques in quantitative analysis were used, whilst care was taken to eliminate any conclusions not supported in the questionnaires, as well as any possible bias regarding the interpretation of results (Mouton 2001:110).

1.6.4 Developing a dynamic competitive analysis model

The primary objective of the study is the development of a dynamic competitive analysis model for a global mining firm. In order to achieve this objective, it is vital to take cognisance of the fact that a firm should be viewed as a system, consisting of various subsystems, and active within a larger suprasystem. Over the years, various authors have supported a systems view of the organisation (Beer 1972; 1979; Senge 1990; Ackoff 1999; Stacey 2003). The work of Beer (1972 & 1979) in particular, provides an insightful view of this matter.

According to Beer (1972:77), the firm, which is the entity that management controls and manages, acts in and reacts to the external (competitive) environment through the application of men, materials, machinery and money. A firm is much like the human body with its actions and reactions towards events in the external environment. Central to all actions by the human body are the nervous system and brain, and importantly, the flow of information between the different subsystems, whereby the body reacts to external events and influences (Beer 1972:89–102). The analogy between the human body and the firm thus seems logical.

Based upon the above-mentioned brief explanation of Beer's systems approach to a firm, it can be argued that if an organisation could be viewed as a system, consisting of various subsystems, which adapts dynamically to its external environment, the same argument should be relevant to competitive analysis about such an organisation or competitive force. In this context, a blood pressure test, although important, does not give a comprehensive medical overview of the body's current state of health and, importantly, how it would react in future (future intent). Hence a more comprehensive future-oriented approach to competitive analysis seems necessary.

This holistic view of competitive analysis of covering all parts of the competitive force in the analysis process formed an important point of departure in the development of the proposed dynamic competitive analysis model for a global mining firm. In addition, the

information gathered from the literature and empirical research formed critical additives in achieving the study's primary objective, namely the development of a dynamic competitive analysis model for a global mining firm. The following critical factors were included in the development of a competitive analysis model for a global mining firm:

- addressing the key success factors for a global mining firm in its endeavours to establish a sustainable competitive advantage in the contemporary global mining industry

- establishing a continuous competitive environmental monitoring capability, also known as a competitive early warning capability

- establishing a dynamic competitive analysis process in the context of competitive learning, focusing upon certain factors of the competitive force being analysed; these factors included the following:

    - its dynamic competitive environment

    - its tangible and intangible assets

    - its competencies and capabilities

    - its strategies

    - its organisational structure and corporate culture

    - its managerial mindset

    - its environmental links and networks

    - its future strategic intent

- provisioning for a process of war-gaming exercises, strategic modelling and scenario learning, with regard to the particular competitive force being investigated

- linking the competitive analysis findings and the outcome of the war-gaming exercises, strategic modelling and scenario learning regarding the future intent of any particular competitive force to the strategic decision making process of the home firm

According to the researcher, if the mentioned dynamic competitive analysis model could be developed in order to improve the effectiveness of strategic decision making in a global mining firm's quest for competitiveness and sustainable competitive advantage, the overall objective of the study could be achieved.

1.7   EXPECTED CONTRIBUTION TO KNOWLEDGE

It was envisaged that the study would contribute substantially to knowledge in the academic sphere of business management, specifically competitive intelligence. This was achieved through the qualitative analysis of the most recent trends in competitive analysis and the development of an optimum competitive analysis model for a firm conducting business in the global mining industry.

With the development of a dynamic competitive analysis model for a global mining firm, it was expected that a new realm would be created in the global mining industry whereby turbulence in the competitive environment is monitored, analysed and interpreted in order to adapt and create in-time winning strategies. This specific contribution of the study relates strongly to Laserre's (2003:434) statement that globalisation is progressing, and that truly global firms will be the only real victors of that progress through a more innovative approach to the changes brought about by the competitive environment.

Lastly, the study endeavoured to identify and confine areas in which future research is deemed necessary. The broad outline of the study is depicted below.

1.8   OUTLINE OF THE STUDY

Chapter 1:   Introduction, objectives and research methodology

Introduction

Reasons for the study

Problem statement and objectives of the study

Scope of the study

Competitive analysis: the concept

Research methodology

Expected contribution to knowledge

Outline of the study

Chapter 2:   The global mining industry

Introduction

The mining industry in a global context

The mining value chain

Traditional critical success factors in the global mining industry

Structural changes in the global mining industry

The new world order in mining

Future critical success factors for a contemporary global mining firm

The need for competitive positioning in the global mining industry

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CHAPTER 2

THE
GLOBAL MINING INDUSTRY

2.1   INTRODUCTION

Mining has been paramount to humans' development in the same way as their knowledge and use of minerals has been closely related to everyday existence and survival. Crowson (2003:1) argues that the history of mining is essentially that of civilisation itself.

In archaeological and anthropological terms this phenomenon was first strongly evident during the Stone Age (period between two million and 6 000 years ago), with the use of stone tools. The Stone Age was followed by the Bronze Age (approximately 3 500 BC) when humankind's technological development improved to the mining, smelting and casting of pure copper and bronze for use as tools and weapons (http://www.encyclopedia.com/html 2002).

The Iron Age (1 900 to 500 BC) followed the Bronze Age when iron emerged to supplant bronze as a more serviceable material. In technological terms, the Iron Age was known for its iron working techniques and rapid transmission of iron technology. The casting of iron, however, did not become technically useful until the Industrial Revolution from 1760 in Great Britain (http://www.encyclopedia.com/html 2002). Early explorers such as Christopher Columbus also played a major role in exploring the so-called "New World" for minerals. Columbus arrived in South America during 1493 on his second voyage to the "New World", with tools and 1 500 men to explore and mine for gold (Pieto 1973:20).

It was during the Industrial Revolution in England that rapid progress was made in the use of minerals for the creation of wealth, which evidently led to what Toffler (Institute for Future Research 2001:6-13) referred to as the start of the second wave of civilisation. This second wave of civilisation occurred in the building of new factories, mass production and mass consumption (Toffler, in Institute for Futures Research 2001:6-13). This industrial mass production and consumption spearheaded a growing demand for minerals as strongly expressed in the colonialisation and expansion drive of Great Britain

and various European countries such as Spain, Portugal and Belgium, and which culminated into the modern era.

Hence mining as we know it today, can be defined as follows (Bosson & Varon 1977:25; Resources Strategies: http:/www.risc 1999):

> *The discovery, development and exploitation of non-renewable and finite mineral resources where the development and extraction of such resources require heavy investment in infrastructure in order to acquire a sustainable comparative advantage through the sales of such resources to intermediate parties*

2.2 THE MINING INDUSTRY IN A GLOBAL CONTEXT

Although the origin of mining goes back millions of years, its modern structure is approximately 200 years old (National Research Council 1990:57). In the past, minerals were most commonly produced from deposits in or near the region in which they were consumed. Currently, in all countries around the world, mining firms and individuals dig minerals and metals out of the ground, satisfying a slow but continuously increasing demand from industrial production, agriculture, high-tech sectors and merchandise producers. About 50 of these countries can be regarded as "mining countries", and are well known for the sector's contribution to export earnings (World Bank 2002:1). The contemporary mining industry can thus be described as a truly global industry. However, mining operations, unlike operations in other industries, are confined to areas in which nature has created the ore reserves on which the industry depends (Malherbe 2000:84; Crowson 2003:1). These deposits are not randomly scattered throughout the globe, but their occurrence is governed by geography and geology.

Traditional mining countries such as the USA, Canada, Australia, South Africa and Chile still dominate the global mining scene (National Research Council 1990:57). These

countries, together with others such as Brazil, Russia and China, are the leading forces in contemporary global mining and exploration. From a product perspective, the mining sector is extremely diverse. There are at least 80 mineral commodities and seven principal classes of minerals (World Business Council for Sustainable Development 2002:6)

- base metals
- ferrous metals
- precious metals
- minor metals
- energy minerals
- construction minerals, and
- diamonds and precious gems

Some metals have been in use since the Iron Age and others only more recently (World Business Council for Sustainable Development 2002:6). Depending on the mineral concerned, they can exist in a variety of forms, ranging from highly concentrated veins or lodes of almost pure metals or minerals to widely spread grains in the host rock (Crowson 1998:62). This fact played a major role in the development of the industry in certain countries. To the countries blessed with mineral resources, in many instances, these resources are regarded as national assets. This has resulted either in state ownership of mining assets or a strong state involvement in the regulation of the industry at a certain stage of most countries' development (Kirkby 2002). This state involvement was particularly evident until the beginning of the 1990s and added to the complexity of the industry.

Through its pioneering role, the mining industry initiated a multiplier effect for capital investment, heavy engineering and supporting industries, which ultimately generated the income that built consumer industries and financed manufacturing sectors. Mining also played a major role in improving infrastructure. Roads and rail links often need to be established, water and power supplied, and the "human" infrastructure improved through

the provision of medical and educational facilities (Hinde 2001:5). This development is strongly evident in the development of Australia, where the mining industry was seen as a benefactor for the country as a whole. It generated wealth, helped to improve the standard of living, provided jobs and was the spur to the fastest period of migration the country had ever experienced (Blainey 1993:372).

Against the backdrop of this developmental role of the mining industry, an estimated 30 million people are currently still involved in large-scale global mining operations, representing 1% of the world's workforce. A further 13 million people are estimated to be involved in small-scale mining. Including dependants, approximately 300 million people in the world rely on mining for their livelihood. However, as is the case of many other industries, employment in mining is decreasing as automation increases and mines in industrial countries are closing down. (World Business Council for Sustainable Development 2002:6). Of significance is the fact that mining production is increasingly concentrated in developing countries. Weber-Fahr (2001) emphasises this fact by classifying mining as an emerging economy industry. See figure 2.1 below.

Figure 2.1: The global mining industry's share from emerging economies: according to certain commodities
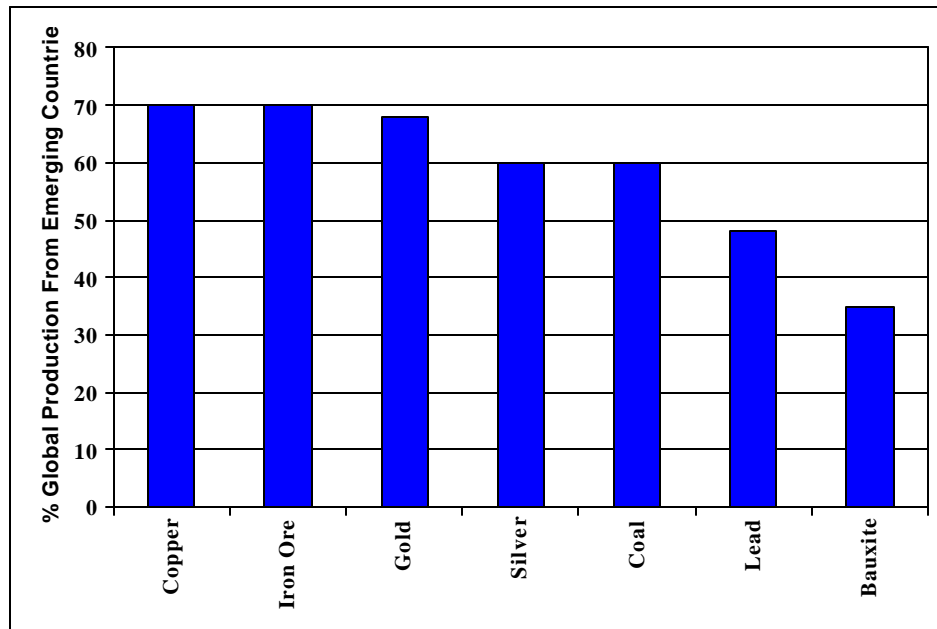
Source: Weber-Fahr (2001:17)

These emerging economies owe a major part of their export earnings to mining operations. A vibrant mining industry also tends to generate large fiscal income. In 34 countries, minerals account for at least 25% of merchandise exports (World Business Council for Sustainable Development 2002:6). These countries are diverse in their geographic location and their level of development and governance. According to the Raw Materials Group (2001:20), of the 25 largest mining firms in the world, 19 are based in industrialised and six in developing countries. However, most of these industrialised firms have mining operations in the developing countries. The following table emphasises the impact of mining income on the export earnings of developing countries.

Table 2.1: Mining exports and gross domestic product for certain developing countries

	Country	Mining exports as % of total country exports: 1990-1999	Gross domestic product per capita: 1999 (US$)
1	Guinea	84.70	1 300
2	Democratic Republic of the Congo	80.00	600
3	Niger	70.60	1 000
4	Botswana	70.00	6 600
5	Sierra Leone	50.00	510
6	Chile	46.60	10 100
7	Ukraine	40.00	3 850
8	Ghana	34.00	1 900
9	South Africa	30.00	8 500
10	Kazakhstan	23.20	5 000

Source: World Bank (2002:17);

http://www.cia.gov/cia/publications/factbook/geos/gv.html (2002)

In terms of the global financial markets, in 2002, the mining industry was quite insignificant as indicated in the following table.

**Table 2.2: The globally listed mining industry vs global equity market, 2002**

	Total market capitalisation (US$ billion)	Minerals market capitalisation (US$ billion)	Percentage of total market capitalisation
Global Equity Markets	18 600	300	2%
Australia	380	46	12%
Canada	540	45	8%
South Africa	150	40	27%

Source: Bloomberg (2002)

Since the collapse of the "high-tech" bubble during the early 2000s, mining firms' share prices have recovered marginally (Crowson 2003:219). However, the minerals and mining sector's diminishing influence on the global economy is still evident in a comparison between the 10 largest mining firms' combined market capitalisation with a few individual firms in other business sectors (see figure 2.2 below).

Figure 2.2: Market capitalisation of the largest global mining firms
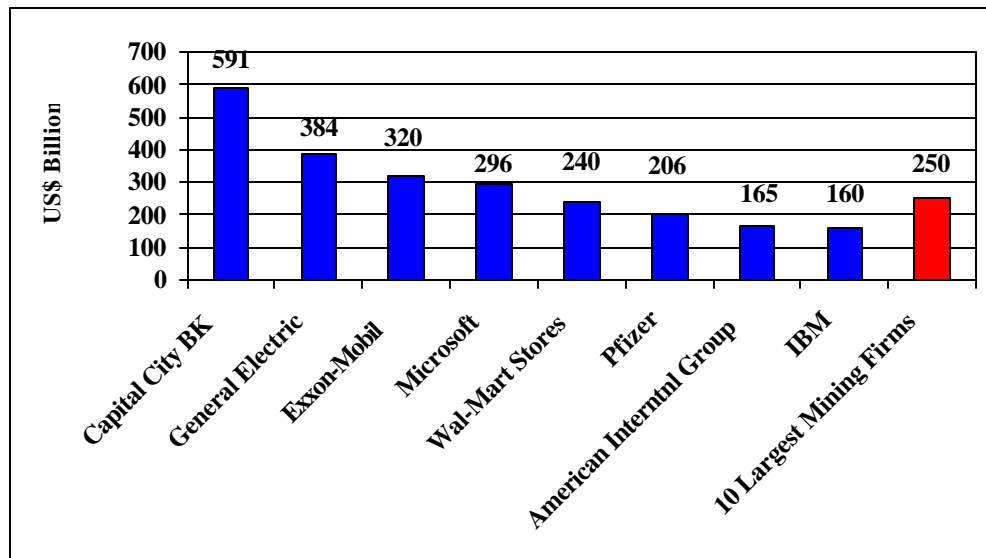
Source: http://finance.yahoo.com (2004); Royal Bank of Canada (2004)

2.3   THE MINING VALUE CHAIN

As indicated above, through the years the mining industry has developed into a diverse industry. It has also developed extensively along its value chain, as illustrated in table 2.3 below.

Table 2.3: The mining value chain

		Activity
1		**Locate**
	Definition	To determine the presence of a viable mineral deposit containing saleable product/s
	Input	Suspected mineral deposit
	Output	Mineral resource estimate
	Participants	Geological exploration team
2		**Valuate**
	Definition	The determination of the profitability of a project, based on the identified mineral resource
	Input	Mineral resource model
	Output	Bankable feasibility
	Participants	Geological and business development team and/or contractors
3		**Establish**
	Definition	The planning and execution of the mine plan
	Input	Bankable feasibility
	Output	Ore-body exposed and ready to exploit
	Participants	Design team, construction contractors, mining contractors
4		**Mine**
	Definition	To safely remove the mineral resource containing saleable product/s
	Input	Exposed ore-body containing mineral resource
	Output	Quantified ore-body stockpile
	Participants	Mining team or contractors
5		**Transport**
	Definition	The removal of the mined ore-body stockpile and transport to destination
	Input	Quantified ore-body stockpile
	Output	Stockpiled ore-body containing tonnage at average grade
	Participants	Mining team or contractors
6		**Beneficiate**

	Definition	The optimal extraction of the saleable product/s and safe disposal of residues
	Input	Quantified ore-body stockpile
	Output	Saleable products
	Participants	Plant team or operating contractor
7	**Market**	
	Definition	To maximise profit from the sale of the identified product/s
	Input	Saleable product/s
	Output	Revenue and profit
	Participants	Marketing team
8	**Divest**	
	Definition	Curtailment of operations
	Input	Revenue and profit
	Output	Change in economic parameters
	Participants	Board decision, including purchaser of the asset based on due diligence or feasibility

Source: http://www.mbendi.co.za/indy/ming/p0010.htm (2002)

Although this value chain forms the basis on which the mining industry could be analysed, it is necessary to take cognisance of the fact that information is changing industry structures and alters the rules of the way business is being conducted. It is also affecting the entire process whereby mining firms create value. In addition, information permeates a firm's value chain at every point, transforming the way value activities are performed, as well as the nature of linkages between them. In addition, information affects individual activities and, through new information flows, enhances a firm's ability to exploit links between activities, both inside and outside the firm (Rouah & Santi 2001:552).

2.4 TRADITIONAL KEY SUCCESS FACTORS IN THE GLOBAL MINING INDUSTRY

2.4.1 Introduction

From the early days of the modern mining industry's 200-year history (National Research Council 1990:57), risk and mining were closely related. The geological uncertainty of mineral deposits, the political reality influencing operations, and the characteristics of mineral markets and prices have caused the mining industry and mining firms to operate at extreme levels of risk (Bosson & Varon 1977:25). Prospectors, with their very basic equipment, played a major role in finding valuable outcrops of minerals throughout the world (Blainey 1993:372). Against this scenario, most mining firms started out as single-owner or small family-oriented firms in competition with many other wealth seekers and firms. According to Tanzer (1980:58), it was mostly by good fortune, entrepreneurial genius or ruthlessness that certain small firms emerged from the risk and competitive reality as the successors.

In analysing the successes experienced during the early days of the modern mining industry, certain definite key success factors, some as important today as they were during the early days, can be highlighted.

2.4.2 The influence of certain individuals

The calibre of certain individuals and their style of management had an all-encompassing impact on the success of individual mining firms. Certain prominent personal capabilities and competencies were important during the early years of the mining industry.

2.4.2.1 *The exploratory approach*

In most instances during those early days, exploration and mining development took place in a large and exciting world that needed a pioneering spirit, persistence and some strong risk-taking characteristics. Many wealth seekers travelled from Europe and Great

Britain to continents and countries like North and South America, South Africa and Australia to seek their fortune. Many fortune seekers who left Europe and Great Britain for countries like Australia simply never made it, because they died during the dangerous sea journeys to the new mining "meccas" (Blainey 1993:38). The people who survived these journeys included prospectors, mine operators and promoters, technicians (engineers, and the like), and the men who laboured to extract minerals from the earth (Pieto 1973:19).

2.4.2.2 Intuition and courage

According to Pieto (1973:19), the early prospectors and miners were rare and complex men who blended intuition and skill, technical competence and perseverance, imagination, enthusiasm, caution and a zeal for travel and discovery. They were also determined, courageous, patient in adversity, vital and generous in success, and always deeply in love with their profession. Most of these early miners did not acquire their knowledge in lecture rooms or books, but through life experience.

2.4.2.3 Good people skills

Although many of the successful early mining fraternity were complicated individuals, sound people skills were a vital prerequisite for business success. Ernest Oppenheimer, the founder of the current day Anglo American, for example, had a strong people orientation. These skills include being a good listener and having a keen talent for using other people's expert knowledge for own advantage (Jessup 1979:29). In this regard, Oppenheimer always looked for the most knowledgeable people to lead his exploration and mining teams.

Oppenheimer also made use of influential men with a great knowledge of business and people and a vast experience of the public gallery in South African politics, to work behind the scenes for him during those early days in order to advance his business interests (Jessup 1979:111).

2.4.2.4   *Business acumen*

In South African terms, individuals such as Cecil John Rhodes, Barney Barnato, Solly Joel and Ernest Oppenheimer as the early promoters and mine operators, had a profound influence on the establishment of the mining industry in the country.

Cecil John Rhodes, the person who had a major influence on the creation of the South African diamond industry, was said to be a well-read visionary with an astute business sense. He also had big ambitions, but with his feet firmly on the ground. Ernest Oppenheimer, largely also fits the same mould. He was described as a person with a strong imagination and vision. Apart from being a dreamer, Oppenheimer was a pragmatic and realistic individual (Jessup 1979:80).

In addition, Oppenheimer had an astute ability to read the realities of the business environment such as moves from rival firms or political developments, and to quickly adapt on the situation (Jessup 1979:80).

2.4.3   The influence of the mining house

The success of the individual wealth seekers or family mining businesses had created a situation in which the risk experienced in the industry required an ability to move beyond family control (Tanzer 1980:60). Although important, it was obvious that the acquisition of mining rights alone was not enough to ensure success. A stronger capability in risk management, finance, administration, planning and share market dealing would be necessary for continuous exploitation of larger mining projects (Jessup 1979:104).

These needs gave rise to the establishment of the major mining firm or mining house, because it had the capability to minimise the risk involved in the process of bringing metals from ore deposits, exploration and mine developments through mining, mineral processing, metallurgy and semifabrication, to distribution and marketing. The shape of the mining house structure reflected the industry's fundamentals during its first decades: massive capital demands driven by deep-level mining, vulnerability to rising labour costs,

and the need for scarce skills. The mining house played a critical role in the effective and rapid mobilisation of capital and labour during the "bursts of development" (Malherbe 2000:66).

Fortune magazine described the mining house in 1946 as follows (Malherbe 2000:67):

> *In a way these corporations resemble investment banks: they finance and float new enterprises.*

Anglo American was the first South African mining concern to create a mining house. Most South African mining firms followed the Anglo American example to operate according to the mining house model. This model entailed the establishment of a mining finance firm whose responsibility was to invest and make loans available to mining firms in the group. The finance firm also provided management, administrative, accounting, bulk purchasing and technical services model to the various mines in the group. The individual mines were primarily production units with hardly any say apart from being responsible for the day-to-day operations (Jessup 1979:275).

The major mining firms or mining houses concluded that one of the main methods of combating risk and stabilising and increasing profitability was to extend the scope of the firm by horizontal and/or vertical integration (Tanzer 1980:59). In this regard, the mining houses used the wealth created in one commodity to extend mining activities into other mineral sources (Jessup 1979:225).

For more than a century, the mining houses dominated the mining industry (Malherbe 2000:66). Implicit in this principle is the fact that during the 1950s, a few pre-dominantly North American firms dominated the global mining industry. That dominance was expected to remain unchallenged, but many of the major firms of that era have since been taken over or have completely disappeared. During the late 1960s and throughout the 1970s, the prevailing trend was towards rising state ownership, as foreign assets were

nationalised (Crowson 1997:235). In South African terms, the mining house structures remained the same for nearly a century because the corporate and industry structure of the mining houses in 1990 was virtually identical with that in 1946. According to Malherbe (2000:66), the mining houses were also notable for their continuity. However, the scenario changed rapidly during the 1990s since there were no remaining traditional mining house in South Africa.

One of the primary reasons for this development was the influence of globalisation on the industry and in South African terms, the reintegration of the country into the world community and thus also into global capital markets (Malherbe 2000:71).

2.4.4   The domination of the industry

Domination of the industry, and more specifically, the dominance of supply, were of major importance during the early days of the modern mining industry. In this regard, the mining industry was still dominated by mining firms, from the USA in particular but also from Britain and Europe, by the end of World War II. The management style of these firms was furthermore mostly based on total or controlling ownership of global operations (National Research Council 1990:10).

From an industry domination perspective, a lesson can again be learnt from Ernest Oppenheimer. By 1918 his mining group controlled four of the 11 gold mining firms operational on Johannesburg's Far East Rand. The firm also had minority interests in other firms (Duncan 1984:47). Through such a strategy, Oppenheimer ensured strong control over the gold supply and thus profitability. With his project opportunity analysis, backed by his personal intuition, business acumen and involvement from knowledgeable individuals, Oppenheimer ensured that the mining propositions, which he targeted, were the best high-grade deposits.

2.4.5   Technology

Although the mining industry can be viewed as a technological industry, because a mineral deposit can only be considered an ore reserve if the technology is available to process it into a commercially usable commodity, the technology, especially during the early days, was relatively simple. In this regard, many mining processes still in use today, can be traced back to the beginning of industrialisation (Tanzer 1980:191). Dynamite, compressed-air-driven tools and most of the crushing and grinding machinery in use today were all developed before 1900 (National Research Council 1990:57).

Access to the technology and equipment was, however, a vital factor that influenced the successful or unsuccessful exploitation of a resource. During the latter part of the 20th century, technology, research and development have become increasingly important for mining firms to enable them to reach deeper and lower yield deposits, necessary to create a competitive advantage over competitors in the marketplace.

2.4.6   Transport infrastructure

The transport requirements of minerals are as diverse as the range of minerals in the world itself. However, the development of the mining sector in most countries also required the development of the transport infrastructure to service it. This is especially true during the production phase, because transport is needed to move the production output from the mine to markets. Because many mining outputs are bulky, the transport requirement is large. In many instances, new transport links, harbour facilities and associated services have to be developed before any mining operations can proceed (Lloyd 1984:226).

2.5   STRUCTURAL CHANGES IN THE GLOBAL MINING INDUSTRY

2.5.1   Introduction

After the Great Depression and World War II in the mid-1940s, the world economy lay largely in tatters. The huge demand for new homes, roads, factories and other goods around the world fuelled rapid economic growth. This meant a strong growth in the demand for mineral products and a mining industry that began to experience a boom period (Tilton 1992:1). This phenomenon greatly accelerated the depletion of higher-grade mineral ore reserves in the USA and Canada. The USA began a 20-year period of economic growth, consuming minerals and metals at rates that threatened to outstrip production. Geologists and engineers from the USA and Europe moved out across the world to find new deposits and build new mines and plants. Much of this new production was consumed by the recovery and rebuilding in Europe and Japan (National Research Council 1990:10).

During the period 1945 to the 1970s, the mining industry was characterised by a high degree of concentration and strong barriers to entry related to an oligopolistic-type environment. (De Sá 1988:257). This is evinced by the fact that by the end of World War II the mining industry was dominated by mining firms from the USA, Britain and Europe (National Research Council 1990:10). These circumstances were the major contributing factors to the relative stability and solid returns experienced in the industry during that period.

Some deep-rooted structural changes were, however, initiated during the 1970s, which had a major impact on the way business was conducted in the global mining industry.

2.5.2   Structural changes in the 1970s

During the 1970s, a number of factors contributed to changing patterns in the mining industry. World economic growth rates levelled off quite considerably and the demand

for minerals became more unstable. These events roughly coincided with the energy crisis of 1973. Sharp increases in energy costs and wages drove mining and processing costs upwards. Metals and minerals prices started to decline. Growing nationalism in developing countries, combined with an interest in a larger share of the benefits of their natural resources, led to an increase of national control of their basic mineral resources. Most foreign-owned mining firms in the Third World had been expropriated by the early 1970s (National Research Council 1990:10).

Many "nationalised" Third World producers, however, struggled to keep up with these global forces. Commercial banks and multilateral lending agencies also continued to fund new projects. Overproduction and excess capacity caused a major shift in the profitability of metals and minerals in general (National Research Council 1990:13). Furthermore, increased taxation, nationalisation and strong involvement of the governments of developing countries in mining projects during the 1970s, reduced the control of the major companies over these assets. This also had a major impact on the profitability of the major mining firms.

To this end, government involvement drastically weakened the barriers to entry into the industry and smaller mining firms started to enter it. This increased competition led to a modification of the strategies by the leading global mining firms. Finding it increasingly more difficult to sell their entire production, price discounts by mining firms, became a general trend with the subsequent constraint on profit margins. Cost of capital (needed for equipment and infrastructural developments) also increased dramatically. These factors are regarded as the root cause of the rapid modification of the relative competitive position of producers, which was exacerbated during the 1980s by a wide range of exchange rate fluctuations (De Sá 1988:259). The profit margins of firms in the mining industry subsequently came under severe pressure. These factors led to a dynamic process that ultimately provoked an irreversible weakening of the competitive position of many mining firms and started the modification of the industry structure.

The major global mining firms were in many instances constrained to wait for economic recovery in order to re-establish their profit margins. Substitution, particularly with regard to certain metals like steel, also became the order of the day during this period. Decreased profit margins and escalating investment risk led to a retreat of the major mining companies as they decided that profit margins hardly justify further capacity expansion. All these factors contributed to an increase in risk and uncertainty in the mining industry (De Sá 1988:260).

2.5.3   Structural changes in the 1980s and 1990s

Following the uncertainties and changes experienced during the 1970s, two additional periods of structural change followed. This continued structural change altered the rules of engagement in the mining industry even further. These changes can broadly be divided into changes experienced during the 1980s and 1990s, and are summarised below:

Table 2.4: Structural changes in the mining industry during 1980s and 1990s

Changes	Decade of the 1980s	Late 1990s to 2000
Macro-economic	▪ Global macro economic reform ▪ Liberalisation ▪ Privatisation of state-owned enterprises	▪ Dominance of markets ▪ Shrinking government involvement ▪ Decentralisation
Government's role in mining	▪ Owner/operator of mining assets	▪ Regulator/administrator
Private sector in emerging economies	▪ Bystander in emerging economies	▪ Leading force in investment ▪ New responsibilities ▪ Role of non-governmental organisations
Environment	▪ Awakening & acceptance	▪ Beginning to integrate
Social focus	▪ Benign neglect	▪ Awakening & acceptance

Source: Weber-Fahr (2001:19)

From the above-mentioned table it is evident that because of the global macroeconomic reform experienced during the 1980s and 1990s, many governments that had previously viewed metals and minerals as national assets, started a privatisation drive of state mining assets. This scenario narrowed down the direct state involvement in the industry. It also changed the role of private mining firms from being an "external bystander" to becoming the leading force in investments and decision making. This was particularly so in emerging and developing economies. Since mining operations by their very nature mining have a considerable impact on the environment, environmental issues also became a matter of concern.

During the 1980s and 1990s, government involvement in global mining continued to decline. Primarily because of the global forces affecting them, the role of governments in mining changed in most instances to that of administrator and regulator. Private mining firms played a leading role with their involvement and investments. Domination of the industry again became an important prerequisite for the survival of mining firms. This was deemed necessary because a fewer players could effectively control prices and markets (Crowson 1997:235). This matter is a departure from the perfect competitive model with many sellers and buyers.

According to Malherbe (2000:73), an additional but critical drive for the global mining industry during the 1990s was a reinforced and vigorous cost focus.

2.5.4   The changing demand for mineral products

In most instances, the demand for mineral products is not based on the intrinsic nature or value of these minerals but on their properties in specific end-uses. These end-uses are closely linked to the needs of the global population. It therefore stands to reason that the global economy is the key driving force in the demand for minerals and mining products (Crowson 1998:3) because the key global events have a direct and major impact on the mining sector. In this regard, society today is highly dependent on the use of minerals for energy generation and transmission, mobility and transportation, information and

communication, food supply, health delivery and a myriad of other services. Mineral use is also essential in terms of livelihoods and economic development through employment and income generation (World Business Council for Sustainable Development 2002:8).

Consumer preferences, per capita income, consumption and demography exert a strong influence on the goods and services that use minerals. It is thus self-evident that the larger the world's population, the greater the implicit demand for the full range of goods and services and therefore also for minerals will be (Crowson 1998:4&6). Other intrinsic factors in the global economy such as technological changes in end-uses, government activities through policies, regulations and major structural events such as the energy crisis during the mid-1970s all contributed to the growth or slowdown in the demand for minerals (Crowson 1998:46). Crowson (1998:60) summarises this fact as follows:

> *The many factors that influence the level and trend of demand for minerals and metals form a seamless web. Each strand is closely intertwined with many others in a complex but orderly fashion*

The trends in world metal demand after World War II showed remarkably steady rates of increase until about 1974, when a significant slowdown in world economic growth became evident. Since then the consumption of the major minerals and metals has stagnated, showing new and lower trends with much variability (Roberts 1988:231). Roberts (1988:245) generally concluded that the slack world economic growth experienced since 1974 is one of the main reasons for the reduced need for metals and minerals. Tilton (1992:4), however, viewed this global economic slowdown only as part of the problem because he placed much emphasis on the shift towards a postindustrial society and the growth of the service sector in the USA and other developed countries. The development of plastics, composites, ceramics and other advanced materials also contributed to the substitution of certain minerals.

In addition to the slowdown in the demand for minerals, the fluctuations in the world GDP are strongly mirrored in the mining industry, and in many instances in magnified

form with regard to metals consumption. This fluctuation scenario contributes largely to the levels of uncertainty experienced in the mining industry. These fluctuations are illustrated in the figure 2.3 below.

Figure 2.3: Annual changes in global GDP and consumption of selected metals
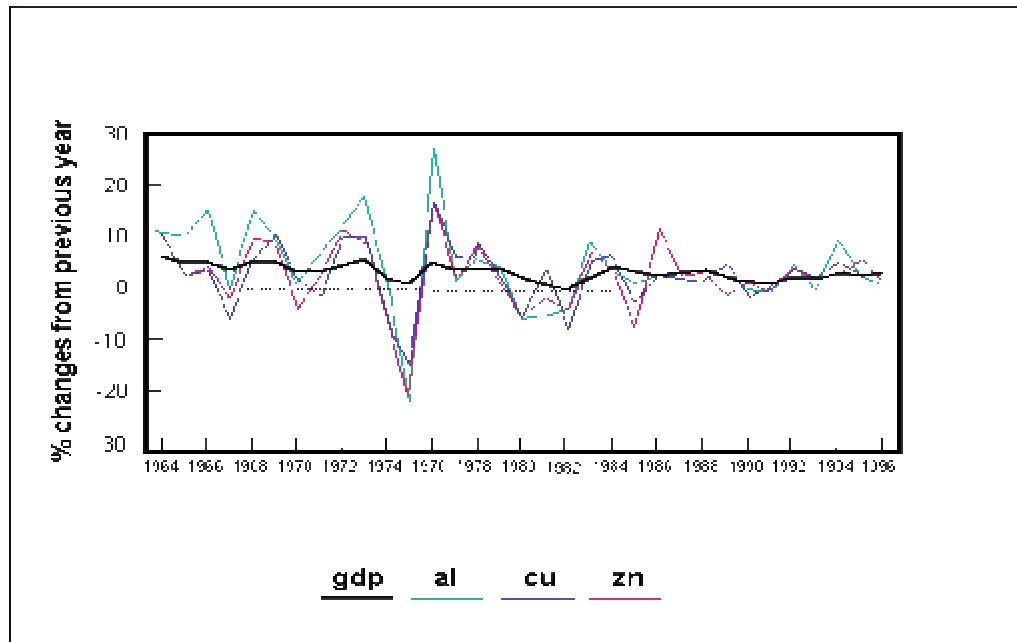
Source: Crowson (1998:17)

Keys to figure 2.3

|			
gdp:	*gross domestic product*	*al:*	*aluminium*
cu:	*copper*	*zn:*	*zinc*

This scenario contributed largely to the increasing uncertainty in the global mining industry. Crowson (1997:232) highlighted the fact that many mining companies are technologically driven and obsessed with their operations and relative operating costs, while they sometimes forget that other firms are following similar policies which may work temporarily, but which do nothing to ensure that there is always enough demand to absorb ever-expanding supplies.

2.5.5   The changing supply of mineral products

The abundance or relative scarcity of each mineral in the earth's composition, governs its availability and economics. Of more importance however, is the manner in which these deposits can be extracted economically. Technological developments in exploration, extraction and processing of minerals during the latter part of the 20th century raised the productivity of the basic factors of production and ensured that mines remained viable even in the face of hostile economic or market conditions (Crowson 1998:61). Factors such as the changes in the recycling and reuse of minerals have also influenced supply. Various social and environmental factors have also placed limits on the long-run availability of minerals from primary resources. These include the energy required to extract material from increasingly low-grade ores and societal viewpoints of the acceptability of the impacts of mineral production (World Business Council for Sustainable Development 2002:8).

These production and supply trends had a strong influence on the price of minerals (Malherbe 2000:26). These trends are indicated in figure 2.4 below, in which a weighted index of the production and prices for a parcel of 50 minerals after 1979 clearly shows the impact of rising production levels on mineral prices.

Figure 2.4: Weighted index of the volume of production and prices for 50 minerals products (1979-1999)
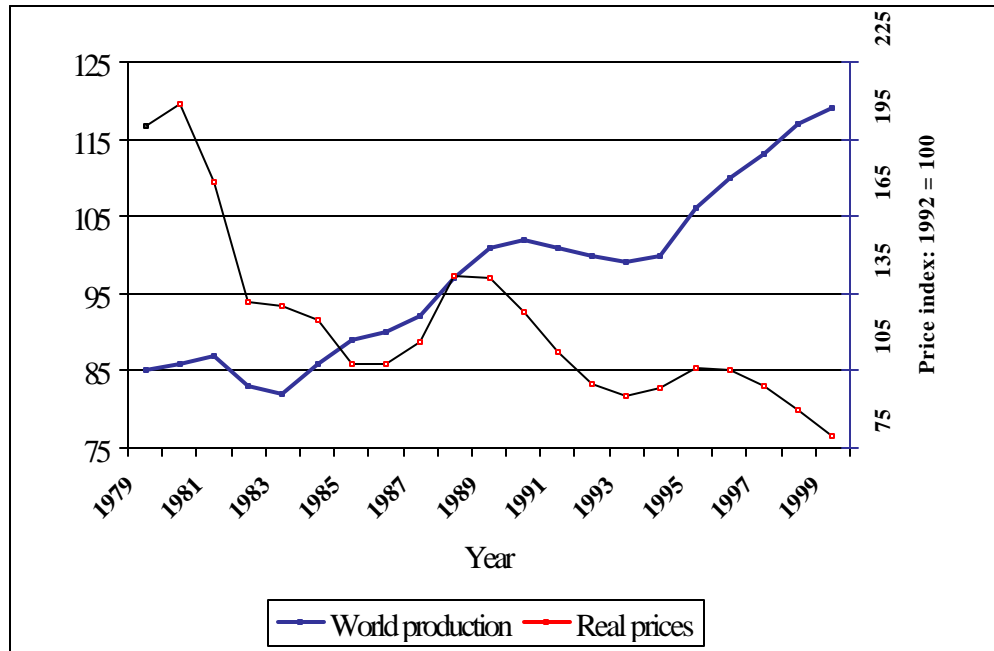
Source: Crowson (2001:xxxii)

Viewed over the long term, the prices of minerals have fallen relative to the cost of other goods in the world economy and to the cost of labour. Lower prices also had an impact on the modest returns of the mining industry over the period 1980 to 2000, because the industry achieved a real return on capital invested of only 5% globally, and destroyed value during long periods when capacity adjusted tardily to unfavourable price conditions (Malherbe 2000:25). According to Bosson and Varon (1977:19), the mining industry has a strong tendency to overreact to the business cycle and hence the business environment.

HSBC Simpson McKie (1998:201) supports this view in emphasising that commodity markets are typically oversupplied and there is always somebody desperate enough to sell at a low price, bringing the entire industry's profitability down. Another contributing factor is the simple implicit belief of many mining firms that supply creates its own

demand. This view was severely flawed and in many instances, the major reason for the problems experienced (Malherbe 2000:25).

Catalytic to the foregoing, swing production or the reopening of closed mines or the opening of mines that were under a "care and maintenance plan" could considerably disrupt the supply-demand balance in a particular commodity (Crowson 1998:85). Humphreys (2002:8) contends that mining firms should be disciplined in the supply of commodities to the market in order to ensure greater stability in prices. One influential way of installing some discipline in the supply of commodities to world markets was through consolidation in the industry.

The price of commodities therefore fluctuates considerably from one period to the next (see figure 2.5 below) whereas costs tend to remain relatively stable. This resulted in large profit instability (Adams 1991:100), and added much uncertainty to the industry.

Figure 2.5: Nominal mineral prices (1975–2004)
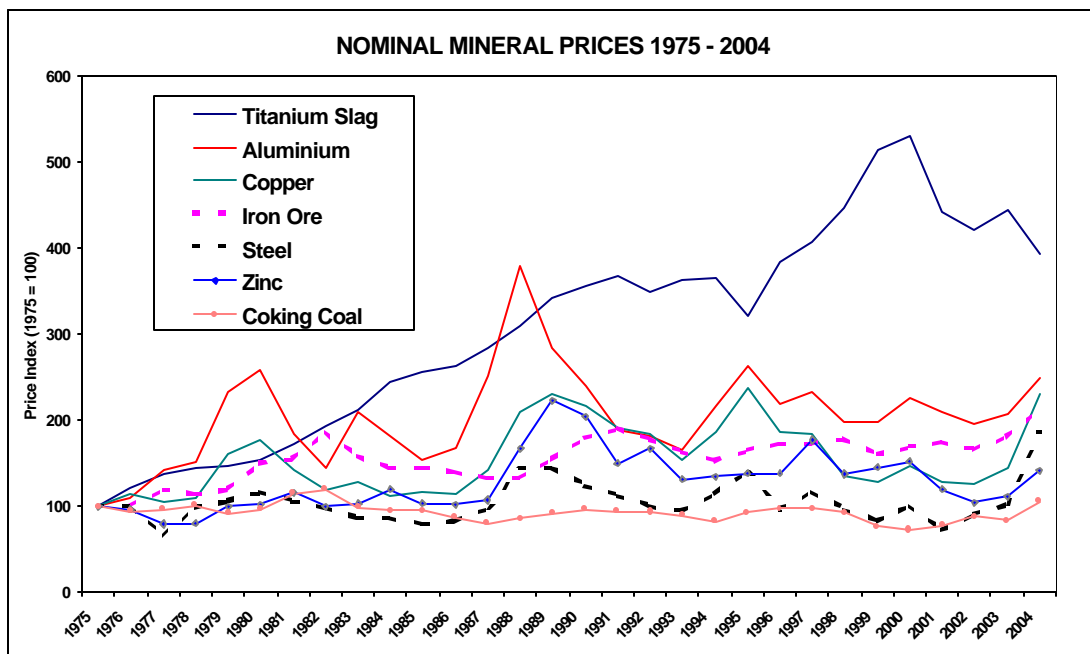
Source: Kumba Resources (2004:7)

As shown in the above figure, commodity price cycles are an important reality in the mining industry. This is because of the deep-seated causes of the cycles that have result from the following (Malherbe 2000:28):

- General economic cycles have a disproportionate effect on mineral prices and profits.

- Cyclical upturns cause exaggerated price rises, which, in turn, lead to over-investment in capacity.

- Mines are forced to cut production when prices fall.

There is also a strong human element in the cyclical nature of the industry and the price of commodities in particular. In good times, mining firms make individual decisions to develop a source of supply. With more than one mining firm adopting the same view, it was a regular occurrence for several new mines to open at the same time, resulting in oversupply or excess capacity in a specific commodity (McClement & Cranswick 2001). Malherbe (2000:28) concurs in stating that price cycles in the mining industry in many instances offer a convenient alibi for poor management decisions. Invoking a future rise in prices readily defends ill-advised expansions or acquisitions. Because of widespread underperformance compared to other equity classes, the entire mining sector has for long periods lost favour with investors. In many instances, cyclical recoveries in the mining industry have been interpreted as a shift in the underlying economics of a mineral, which they rarely are.

An important underlying prerequisite of this dynamics seems to be the knowledge about what other competitive forces are doing and what the ruling market dynamics in the competitive environment are.

2.5.6   Increased technological innovation in the mining industry

In one sense, technology is the very heart of the mining and mineral industry. Despite this, in the past the mining industry has generally been perceived as not being a "high technology" industry. The main reason for such a view was that in the early days mining technology was relatively simple and the processes used could be traced back to the origin of industrialisation (Tanzer 1980:191). In the past, mining firms generally did not rely that heavily on technology to uphold their competitive position. Of greater significance was control and access too inexpensive labour and high-grade deposits.

This strategy has changed since the 1980s, with much greater emphasis being placed on technological changes that improve cost-effective mineral supply (Tanzer 1980:192). The National Research Council (1990:3) supported this view that a technology-based strategy could improve the long-term competitiveness of a company involved in the minerals and metals industry. Technology can thus contribute to competitiveness by increasing productivity or product quality, by addressing circumstances unique to a process, company or country, or by assisting producers to adapt to changing consumer demand. These technological improvements are in many instances readily available for most companies. Survival and profitability for mining firms have, in many instances, become a matter of moving down the cost curve faster than the competition (HSBC Simpson McKie 1998:200).

The mining industry's continued ability to produce more output at lower cost and market prices in the face of geological difficulties has furthermore been spurred on by relentless technological innovation. On-going technological advances have lowered the cost of finding, mining and extracting minerals (Malherbe 2000:92). Technological advancements have ensured that global mining resources have increased rather than declined. Exploration costs have been decreasing with the use of satellite images and information technology. Cost-effective and global exploration has led to deposits being discovered much more quickly. Geographical information systems allow a wide range of geological and other attributes to be mapped accurately at a dramatically reduced cost

(Malherbe 2000:92). This is strongly evident in a comparison of proven world reserves of various commodities in 1950 and 1990, as depicted in table 2.5 below.

Table 2.5: Proven world reserves of various commodities, 1950 and 1990 (million metric tons)

Commodity	1950	1990	% change
Bauxite	1 400	21 500	1 436
Chromium	70	420	500
Copper	100	350	250
Iron ore	19 000	145 000	663
Lead	40	70	75
Manganese	500	980	96
Nickel	17	59	247

Source: Kahn, Brown & Martel (1990:92); President's Material Policy Commission (1952:27); Energy Statistics Resources Book (1991:143 & 151)

Technological advancements have also played a major role in the prospecting of large and remote regions. At the same time, successive improvements in metallurgy have enabled the profitable extraction of minerals from uneconomical deposits (Malherbe 2000:27).

Given the difficulty and costly nature of exploration and starting new mining projects, during the last decade, most of the major mining firms have preferred acquisitive opportunities, rather than exploration as a growth strategy. These firms have preferred to source the world for merger opportunities in order to enhance their profitability (Gottliebsen 2001). Ridker and Cecelski (1988:93) are of the opinion that since exploration and mining development are costly, little effort is made by mining firms to find proof of new resources, if reserves that are already known are considered adequate to meet the demand for the next 10 or 20 years. To this end, there is strong evidence of such a strategy when global exploration budgets are examined (see figure 2.6 below).

Figure 2.6: Estimated worldwide nonferrous exploration expenditure (1993–2003)
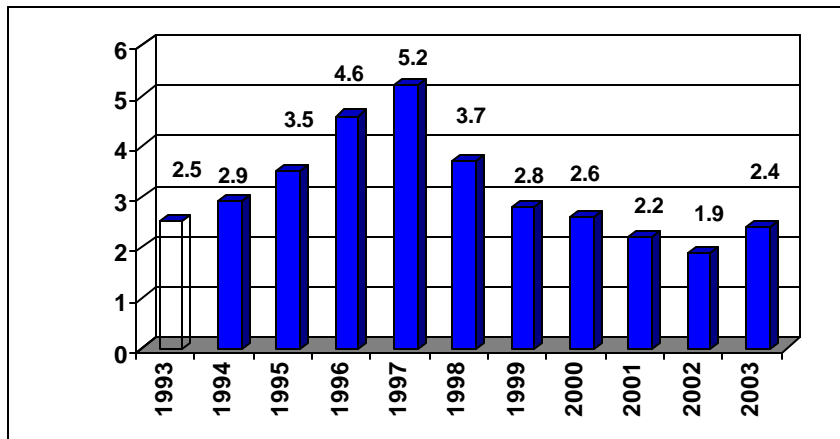
Source: Mitchell & MacLellan (2002); Clifford (2004:14); Cox (2004:5)

The periodic cutback on exploration costs, during the period 1998 to 2003, should be viewed against an increase in merger and acquisition initiatives in the global mining industry during the same period. Many global mining firms were of the opinion that exploration was a far more costly initiative for continued growth than was the case with acquisitions. This is strongly evident in the fact that during 2001 mining firms around the world spent more than US$ 40 billion in acquisitive moves (Ericsson 2002), compared with the US$ 2.2 billion for nonferrous exploration.

2.5.7   Increased financial pressure on the mining industry

The mining industry is a capital-intensive industry with a high degree of risk attached to the outcome of new projects. In most instances, mining firms do not have the financial means to finance exploration, expansion and development projects from internal sources. The financing of such projects with external financing from international capital markets has thus become vital.

For historic reasons, the mining industry has often been accused by the investment fraternity of "digging too many holes and returning less than its cost of capital". There is

ample reason for such a statement because the *Wall Street Journal* (Resources Strategies 1999) found that over a period of 10 years, eight of the 25 worst performing firms on the New York Stock Exchange were in the metals and mining industry. MacDonald (2001) concurs in stating that an investment in the mining industry for the period from 1980 to 2000, would have realised a real return on investment of only 5% per annum. The following figure confirms this statement.

Figure 2.7: Mining sector's return on investment (1984–2004)

Source: Clifford (2004:4)

Because of these factors, combined with the stronger growth experienced in other sectors during the 1990s, the mining industry has, largely, been marginalised by the investment fraternity (Skirrow, Binns, Albi & Souza 2001:4). It thus became essential for the mining industry to maintain financial discipline and utilise capital efficiently in order to attract capital from a highly competitive financial marketplace (McClement & Cranswick 2001). These authors (2001) also contend that the days of the small mining firms attracting significant investor attention are dwindling. Most global investment funds have simply found it too difficult in practice to invest in smaller firms because of low liquidity. This

phenomenon has to a certain extent instigated the continuous consolidation process experienced in the global mining industry since the 1990s.

2.5.8   The changing corporate structure of the mining industry

During the period after World War II, the USA, Britain and Europe were the dominant producers of minerals. They also formed the major markets for these minerals. Large mining firms from these countries controlled the supply and prices of most mineral commodities. North American mining firms, in particular, dominated the global mining industry during the 1950s. The USA however, lost its dominant position during the 1980s (National Research Council 1990:13&14). Japan and China also became the most prominent markets for many commodities.

During the 1980s and 1990s, many mining firms came under constant pressure from the macroeconomic realities and the strong demands on better returns from institutional shareholders. These firms had to adjust and thus responded in various ways as explained below.

2.5.8.1   *The productivity drive in existing operations*

Faced by falling prices and devastated profit margins, mining operations around the world responded by managing cost per unit of output down. The following techniques were commonly used (Malherbe 2000:73&74):

- right-sizing businesses (including withdrawal from unprofitable operations)

- applying cost-saving technologies

- changing work organisation and employee incentives

- outsourcing

▪ merging contiguous properties in order to reduce operating costs.

This drive to continuously improve operations is depicted in figure 2.8 below.

Figure 2.8: Decline in copper mine production costs (1970–2000)
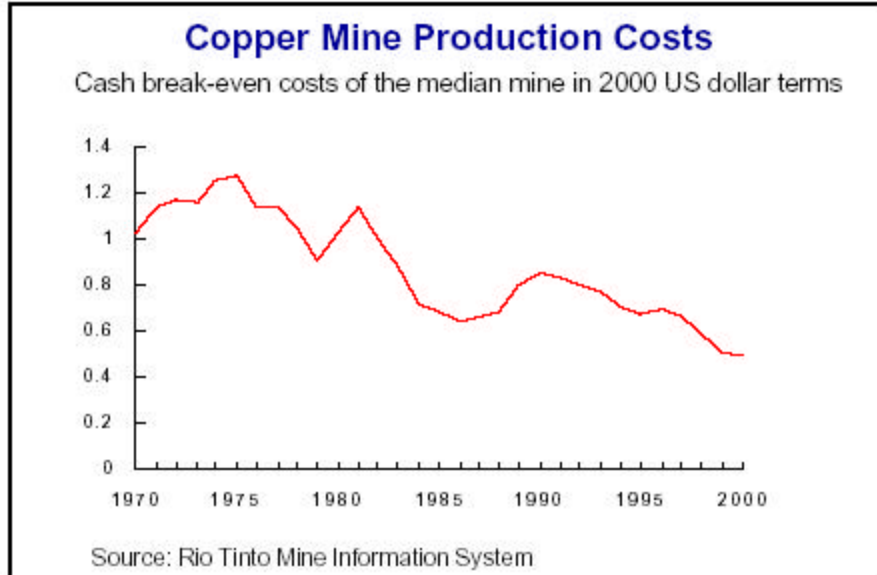
Source: Humphreys (2001:7)

2.5.8.2   *Building on distinctive capabilities*

Mining firms concluded that they could not be involved in everything, that is, in every imaginable commodity. The global mining firms identified their core competencies and divested from noncore activities. Corporate activities were initiated and a reallocation of assets and activities to firms with the most appropriate capabilities ensued. These reallocations initiated the merger activities experienced in the mining industry during the 1990s (Malherbe 2000:76).

2.5.8.3   *The rise of the junior mining firms*

Many of the forces that have transformed the mining industry - such as new technology, the focus on cost and the restructuring process – have created opportunities for smaller

firms. Various small mining specialists that concentrated on niche operations, markets or services came into being. The following are examples of these niches (Malherbe 2000:80–81):

- exploratory junior mining firms

- firms that operate profitably on smaller reserves

- marginal deep-level mining specialists

- mining contractors

2.5.8.4   *The creation of new major global mining firms*

In their quest to develop a global presence, mining firms have little choice about where to locate their production facilities, because they are compelled to go where the deposits are scattered around the world (Malherbe 2000:84). With the advent of globalisation, many firms adapted to the changing business conditions by seeking opportunities outside their countries of origin. This happened partly because of pressure from global institutional investors demanding improved returns on investments in mining, combined with increased competition between one another and for project funding. The major firms consequently reacted in various ways as outlined below.

- concentrate on huge projects

- adapt to the realities of the commodity cycle

- develop a strong capital-raising capability that demands profitable financial returns (Malherbe 2000:83–88). In this regard, a new management approach resulted in the rise of global mining firms during the contemporary era. The management of global mining firms acted differently to their predecessors because they placed greater

emphasis on profits rather than building new production facilities (Gottliebsen 2001).

▪ Many firms relocated their primary listings to stronger financial markets. South African mining firms such as Anglo American and Billiton are clear examples of this phenomenon. These firms also followed the broader international restructuring developments, although these developments were more gradual with much of the major restructuring happening during the 1990s, after South Africa's re-introduction into the global arena (Malherbe 2000:83–88).

2.6   THE NEW WORLD ORDER IN MINING

2.6.1   The influence of globalisation

The fundamental nature of many of the world's industries is changing. The pace of this change is relentless and is ever increasing (Hitt, Ireland & Hoskisson 1999:10). Several factors have been influential in this regard, one of which, and possibly the most important, is the emergence of the global economy, with the opening of domestic markets to foreign firms and a resultant increase in the level of competition. According to Lasserre (2003:12) globalisation has become a necessity for most firms because of the convergence of the variety of forces it has affected. It comes as no surprise that globalisation has reshaped the competitive landscape of firms and will continue to do so in the near future (Hitt, Keats & De Marie 1998:24). A new world order is thus being created for firms around the world operating in all industries. Govindarajan and Gupta (2001:2) no longer see globalisation as an option but as a strategic imperative for all but the smallest corporation. This is also true of every mining firm.

The mining industry, which to a certain extent has always been perceived as an "international industry", did not escape the forces of globalisation. A case in point is the minerals mined in one country – that is, iron ore in Brazil and Australia are sold to

Chinese, Japanese and Korean steel producers (CVRD 2003; Humphreys 2003:8). In addition, Japanese trading firms have equity shareholding in iron ore and coalmines in Brazil and Australia (Mitsui 2003:120&122; Caemi 2004:1). The influence of globalisation on the mining industry, however, is most evident in the wave of consolidation that has swept through the industry since the early 1990s (Kirkby 2002).

2.6.2   Mining industry consolidation

In practice, the contemporary global mining industry's overall concentration is not materially different from what it was 20 to 50 years ago. What has changed however, are the firms involved. During the 1950s, a few predominantly North American mining firms dominated the global mining industry. That dominance was expected to remain unchallenged, but many of the major firms of that era have since been taken over or have completely disappeared (Crowson 1997:231).

During the late 1960s and throughout the 1970s, the prevailing trend in the global mining industry was towards rising state ownership, as foreign owned assets were nationalised. In developed countries such as Australia and Canada, this resource nationalism was asserted through restrictions on foreign ownership of mineral assets. There were fears that international mining firms would be squeezed out of business, and that there would be an absolute dearth of investment leading to a scarcity of resources. During the late 1970s and early 1980s, the remaining private sector mining firms were fast falling under the control of the major oil firms. That further added to the mining industry's fears for its future (Crowson 1997:231–238).

During the early 1990s, the privatisation of many state-owned mining firms in developing countries started the consolidation process in the mining industry. Many countries became much more receptive to the notion of foreign investors exploiting their mineral deposits. According to Govindarajan and Gupta (2001:10), this notion of the free market ideology is one of the key drivers of globalisation. The increasing involvement of major mining firms in projects in the developing world led to a higher degree of investment in

new mining capacity. The major global mining firms, assisted by the multilateral aid and investment guarantee agencies, invested in mining assets or merged these developing country assets into their own portfolios (Malherbe 2000:29). According to Gottliebsen (2001), this first phase in the contemporary consolidation process experienced in the global mining industry was followed by four more recent consolidation phases after 1997. These phases are outlined in table 2.6 below.

Table 2.6: Mining acquisition activities: four recent phases

Phases	Period	Activities	Companies involved
1	1997–1999	South African groups restruc-tured & relocated to London	▪ Billiton ▪ Anglo American
2	1999	North American copper consolidation	Phelps Dodge/Cyprus Grupo Mexico/Asarco
		North American aluminium consolidation	Alcoa/Reynolds Alcan/Alusuisse
3	2000	UK major mining firms' acquisition initiatives	15 transactions worth US$ 15 billion
4	2001-current	Major global mining-deals	BHP/ Billiton Anglo American/De Beers Norilisk/Stillwater Mining BHP Billiton/WMC Resources

Source: Barta (2004:1); Stillwater Mining (2003:1); Hall (2004:1); Gottliebsen (2001:1)

These acquisitive activities had a major influence on the shape of the contemporary mining industry. Figure 2.9 below provides an indication of the value of merger and acquisition activities in the mining industry during the period 1995 to 2002.

Figure 2.9: Value of global mining mergers and acquisitions (1993-2002) (US$ billion)
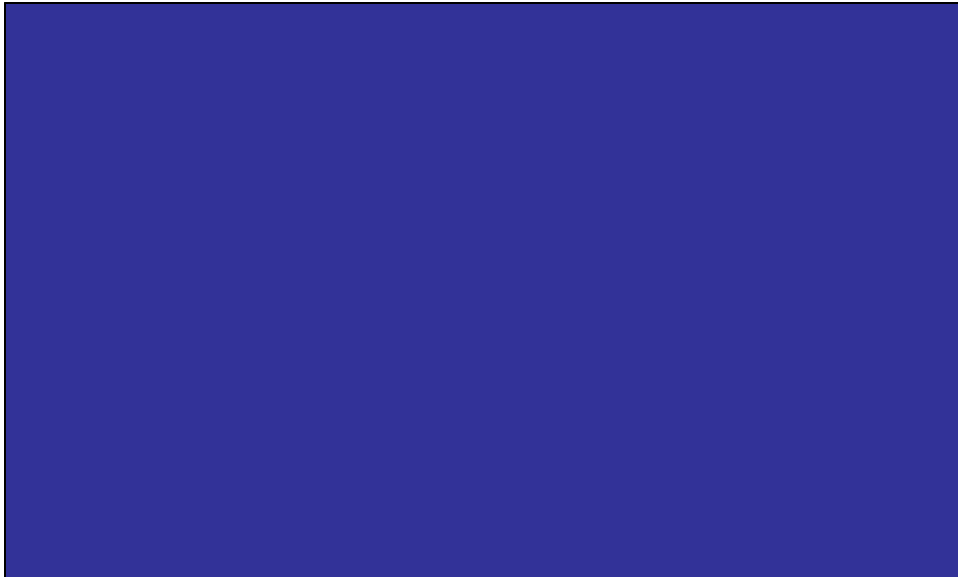
Source: Hall (2004); Raw Materials Group (2001); Ericsson (2002)

Although 2001 was a record year in mining consolidation, worth more than US$ 40 billion, it represented only 1.7% of the total value of all mergers and acquisitions in the world (Ericsson 2002). However, with a total industry market capitalisation of between US$ 250 and US$ 300 billion during 2001, it is apparent from the above-mentioned graph, that consolidation has been a key influence on the shape of the contemporary mining industry. The likely outcome is that the directions taken by the major mining firms will increasingly set a pattern for the future direction of the industry as a whole. Gilbertson (Richardson 2001: 3) aptly summarises this situation when he says:

> *The mining industry appears to have entered an era of unparalleled consolidation, with smaller firms disappearing, and larger ones growing in size and influence. Increasingly it seems that the metals and mining business, with the possible exception of aluminium and gold, is likely to be dominated*

by a small number of very large, multi-commodity firms, operating internationally.

There are various reasons for the more recent merger activities experienced in the global mining industry. Some of the primary reasons for this consolidation process were as follows:

(1) Long-term view. Consolidation provides an opportunity for a stable cash flow necessary to take long-term views on every aspect of business, be it economic, environmental, social or customer-related (Kirkby 2002).

(2) Profitability and investment performance. Profitability and investment performance has been fundamental drivers of consolidation among mining firms (Malherbe 2000:87). Anderson (Gottliebsen 2001) summarises this in stating that

… the aim with any merger is getting as good return on your capital, expanding the firm and increasing shareholder value.

This phenomenon is furthermore strongly emphasised when the Hirschman-Herfendahl Index (HHI) is applied (Bennett and Lawcock 2002:42). The latter index is a measure of the average share of firms in a given market, weighted by firm size. It ranges from zero, for a perfect competitive market, to 10 000, for a market that is 100% monopolised. If a market has an HHI exceeding 1 800, as does iron ore, it is considered to be concentrated. This is indicated in figure 2.10 below.

Figure 2.10: Consolidation outcome in the mining industry (HH Index)
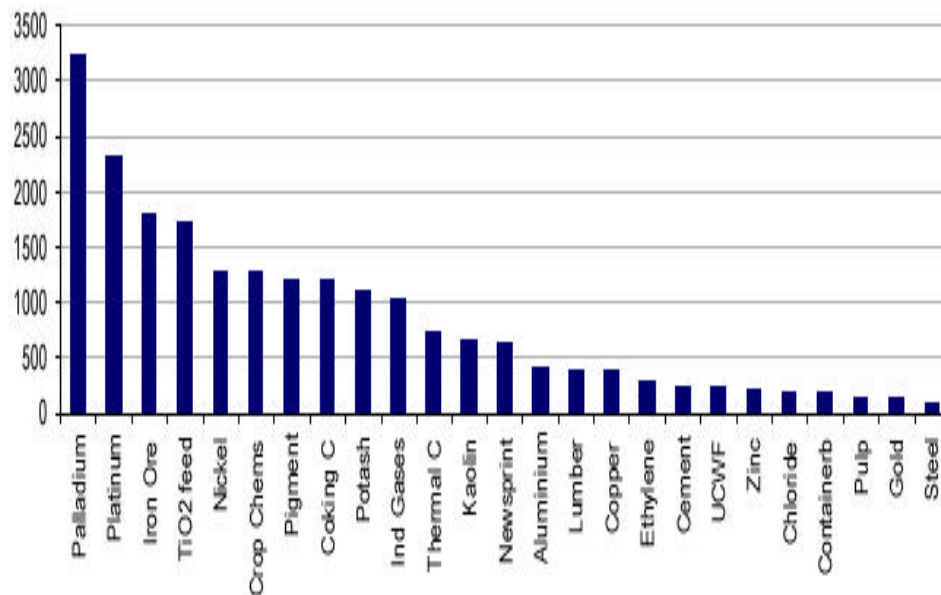
Source: Bennett and Lawcock (2002:42)

Implicit in this concept, is the fact that highly concentrated sectors in the mining industry enjoy superior returns to those industries that are less concentrated. Furthermore, commodities that enjoy superior returns are those that are contract traded and not exchange traded – that is commodities that are priced on a contract basis rather than on actively traded exchanges such as the London Metal Exchange (Bennet & Lawcock 2002:41).

(3) Size. During the last decade, the size of a firm and the liquidity of its shares were regarded by institutional investors, as being of increasing importance for international recognition. Pyper (2001) contends that in order to attract reasonable interest from global investors, a mining firm should have a market capitalisation of at least US$ 10 billion to show up on the "radar screen" of major investors.

(4) Underperformance. Falling share prices of mining firms, especially during 2000, contributed to the fact that many firms became much "brighter" prospects for take-overs (Gottliebsen 2001).

(5) Investment performance. Poor investment performance of single commodity firms in the past was also an important contributing factor to the consolidation process in the mining industry. With only one outlet for cash flow, single-commodity firms tend to over expand when the commodity price is relatively high, and then face "cash starvation" and capital write-offs when prices inevitably decline. According to Gilbertson (Gottliebsen 2001), this scenario, which is typical of the minerals resources industry of old, drove shareholders to distraction.

(6) Availability. Owing to mining firms' concentration on key competencies, various firms, and assets from firms, were available to other firms.

(7) Escalating cost and complexity. As size became increasingly characteristic of the most efficient mining assets, only large firms could implement such major projects. Anderson *(Gottliebsen 2001:2)* again emphasises this fact when he says:

It now takes a bigger entry to get into the mining business. So it takes bigger players to start a project and bring it to capacity.

(8) Strategic shift. In order to create profit growth in the eyes of the investment community, "greenfields" exploration and expansion were probably regarded by mining firms as being much more costly than growth through acquisitions (Tomlinson 2001).

(9) Funding. Owing to strong initiatives by the merchant banking fraternity, funding was available to merger projects that met their stringent financial criteria (Gottliebsen 2001).

(10) Greater influence on commodity prices. Consumers prefer to have multiple sources of supply, leading to possible surplus capacity in a particular commodity. Through consolidation, firms can thus exert greater influence on commodity prices (McClement & Cranswick 2001).

Given these reasons for consolidation, the mere fact that the global merger and acquisition failure rate is estimated at between 50 and 70% (Darveau 2000), it is apparent that a new complexity has been added to the mining industry. Stewart, CEO of the defunct mining firm Pasminco (2001), emphasised this fact in the following statement:

> *The acquisition of Savage (mining firm with zinc and lead operations in the U.S.A.) was absolutely not a good thing for our firm … it was a bad decision.*

According to Darveau (2000), there are four major reasons for merger and acquisitions failures, namely:

- unpredictability

- agency problems

- misguided managers

- failure to grasp and articulate the strategic intent behind the deal

Three of the above-mentioned reasons appear to be information related. The importance of information on the competitive environment, and in particular competitive information about the target firm, have thus developed into a critical success factor for mining firms deciding upon an acquisitive growth strategy.

The merger and acquisition activities indicated in figure 2.9 had also complicated the operational environments for mining firms. In order to take advantage of the

opportunities for economies of geographic scope, mining firms had to learn more effective ways of coordinating operations in many different countries. This often required complex structural arrangements. Globalisation has created a greater number of stakeholders and contingencies with which top management in mining firms had to deal (Hitt et. al 1998:149). The mining industry thus had no choice but to manage the competitive issues brought by globalisation (Kirkby 2002).

The flow of competitive information on the dynamics of the competitive environment is therefore an important prerequisite for creating a competitive advantage. Global presence per se does not guarantee a global competitive advantage. Gupta and Govindarajan (2001:45) argue that global presence presents a firm with five value-creation opportunities, namely:

- Adapt to local market differences.

- Exploit economies of global scale.

- Exploit economies of global scope.

- Tap optimal locations for activities and resources.

- Maximise knowledge transfer across locations regarding operational issues and, most definitely, the competitive environment.

Building such a global presence, however, gives a firm the right to play the game. It says little about whether and how such a firm will actually win the game. Transforming global presence into global competitive advantage requires systematic analysis, purposeful thinking and careful orchestration. It is also a continuous process. Without a rigorously disciplined approach, global presence can easily degenerate into a liability that distracts management and waste resources. The result can increase the risk experienced by such a

firm and even develop into a loss of competitive advantage in the domestic market (Govindarajan & Gupta 2001:46).

2.6.3 Risk and increased competition in the global mining industry

Tanzer (1980:56–58) argues that risk has largely been part of the mining industry for most of its existence and that it is particularly evident in the search for exploration of ore bodies necessary for sustained long-term production. Apart from these geological unknowns, the characteristics of mineral markets and mineral prices, as well as the political realities in the countries where mining firms are operationally involved, cause the mining industry to operate at substantial levels of physical, commercial and political risk for many years (Bosson & Varon 1977:25).

However, there is nothing that suggests that the mining industry is inherently more risky or more competitive than any other industry (Klinger 2002). In this regard, as indicated above, the most important and pervasive force changing and challenging the business environment over the past four decades has been globalisation. Falling barriers of trade and international capital flows have opened up new business opportunities, at the same time, transforming the competitive structure of most industries (Grant 1998:332). This has also been experienced in the global mining industry. According to Kirkby (2002), the mining industry has no choice but to manage the competitive issues brought about by globalisation. It has to do this while the industry represents a relatively small part of the global economy.

Against this background, Gottliebsen (2001) contends that the major mining firms of today act very differently to their predecessors because they are largely profit-driven and not merely in the business to build new production facilities. This approach is much more in line with Sloan's view that the strategic aim of a business should primarily be to earn a return on capital (Grant 1998:17). This drive by the major global mining firms for sustained profitability from operations and markets spread around the world has created a much more dynamic, complex and competitive business environment. The dynamic and

complex nature of this environment requires strategic flexibility, speed and innovation to manage discontinuities and unpredictable changes in their external environments in order to create or maintain their competitive advantage (Hitt et. al 1998:26).

Fleisher and Bensoussan (2003:7) argue that the global economy is increasingly being characterised as a knowledge economy. A paradigm shift has thus occurred as the world moves further away from the industrial economy paradigm that dominated the last two centuries. The latter two authors also hold that no longer can organisations expect to compete by means of outmoded rules. In this context, initiatives by competitive forces may not even appear logical, insightful or even ethical, yet remain legal. Because of this global competitive scenario there is a greater need to thoroughly understand the intent of the various competitive forces active in the competitive environment, as well as the complexity it creates in the wider business context. To sustain a competitive advantage in such circumstances, global mining firms need to apply knowledge uniquely, in order to create order out of the prevailing chaos and complexity.

2.6.4   The post-2000 balance of power in the global mining industry

The extent and influence of globalisation and the consolidation process experienced in the mining industry during the period 1990 to 2004, has once again left an industry dominated by a few large firms. The emergence of the current major global mining firms and the large chasm that is forming between them and the rest of the industry is aptly illustrated in figure 2.11 below.

Figure 2.11: The 30 largest global mining firms according to market capitalisation (2004)
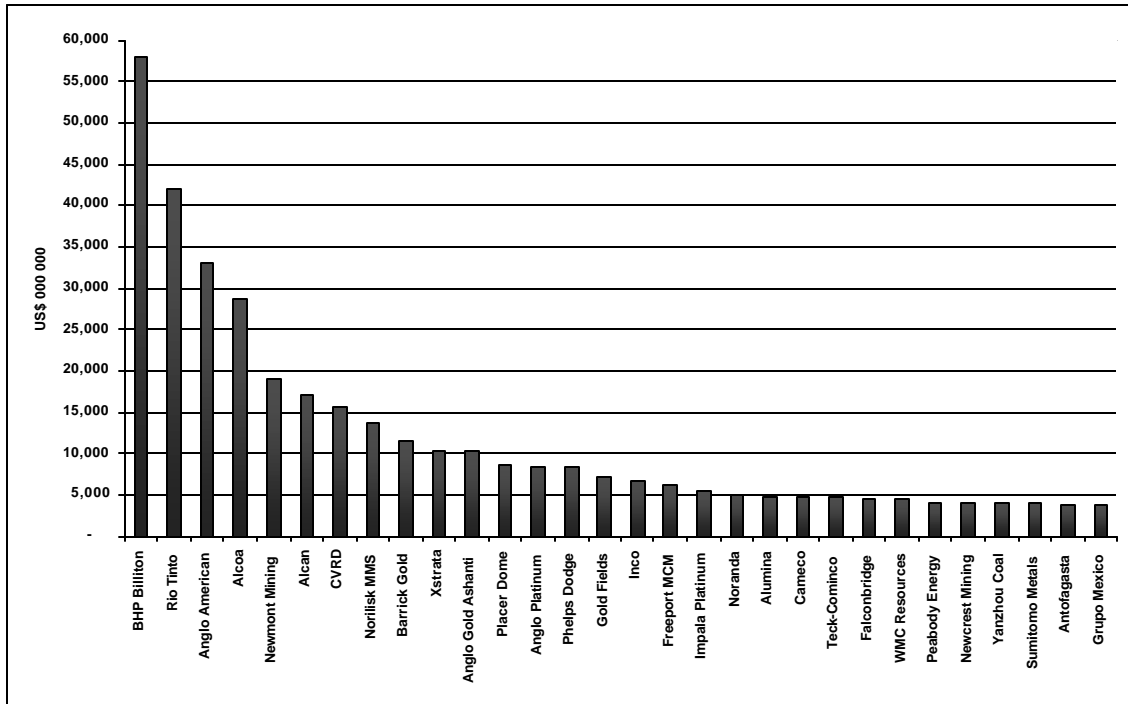
Source: Royal Bank of Canada (2004:1)

From the above figure, it is clear that the rules of the global mining industry are being rapidly rewritten. Schuitema (2001:2) emphasises this fact in the following statement:

> *Consolidation in the mining industry that is currently at an advanced stage, is heading towards a future dominated by eight to 10 major global diversified firms. These would include those in Eastern Europe and Russia, with more than US$ 10 billion in market capitalisation and a few single commodity producers.*

Kirkby (2002:2), Clifford (2001:4) and Gilbertson (Richardson 2001:1) also support this view when they argue that the likely future outcome of the global mining industry will increasingly be determined by the direction taken by the major firms. This seems to be a

reasonable assumption. The effect of globalisation on the mining industry is thus clear, with the major firms dramatically increasing their global operational and marketing involvement. This development is emphasised by the fact that in 1995 the five largest mining firms accounted for approximately 33% of the market capitalisation of the total global mining industry. In 2004 the five largest global mining firms accounted for between 50 and 60% of the total market capitalisation of the entire global mining industry (Clifford 2004:13; Royal Bank of Canada 2004). To a large extent, the same evolution is eminent in various mineral-consuming sectors.

The advent of global competitive forces that manage and compete on an integrated global basis are a vital impetus for other firms to develop a stronger global approach (Yip 1995:2). This also applies in the mining industry. Hill (1994:161) confirms that a game of global business chess is developing because the major firms want to create and sustain a dominant position. Apart from the major mining firms that continuously have to be aware of opportunities and threats in the competitive environment, medium-sized mining firms find it difficult to conduct business in an industry with a continuous bipolar structure (Clifford 2001:4).

As stated in chapter 1, the emphasis during the empirical part of this study will be on 50 of the largest global mining firms, according to market capitalisation. These 50 firms represent 82% of the total market capitalisation of the global mining industry (Royal Bank of Canada 2004) and in varying degrees all have a strong global approach to the business of mining and mineral processing. These firms have each developed a particular global strategy in order to reach their own particular strategic objectives.

Certain firms such as the aluminium and gold producers have strategic objectives that focus all their attention on one single commodity (Alcoa 2003; Alcan 2003; Barrick Gold 2003), with geographical diversification, and in some instances, a strong vertical integration to their business landscape.

Other firms have decided upon a strong diversified commodity, operational and market strategy (BHP Billiton plc 2003; Rio Tinto plc 2003; Anglo American plc 2003). According to Harper and Viguerie (2000:1), such a diversified strategy makes sense when firms and industries mature. They argue that a diversification strategy helps firms to survive, at the same time also allowing them to drastically improve their shareholder returns.

2.7 FUTURE KEY SUCCESS FACTORS FOR A CONTEMPORARY GLOBAL MINING FIRM

2.7.1 Introduction

A natural sequence of the different strategic objectives evident in the contemporary global mining industry is the fact that the development of a sustainable competitive advantage is largely influenced by the personal view of the executive teams of the wide array of factors impacting on their particular firms. In broader terms, these influences and factors can be divided into more traditional ones, which are still is highly influential, and those that have occurred in the industry in more recent times.

According to the National Research Council (1990:100), competitiveness in the minerals and metals industries hinges on many factors, including control over labour costs, taxes, ore grades, exchange rates, cost of capital, subsidies, tariffs and technology for mining and mineral processing. Other important factors are access to cost-effective and efficient transport, the cost of such transport to markets (Lloyd 1984:226), the marketability of products on domestic and international markets, and most definitely, increased competition from other suppliers (Centre for Resource Studies 1978:11). However, these "traditional competitive issues" are not the only ones. A much stronger marketing orientation, cognisance of the influence of the financial fraternity, regulatory forces and the wide array of other stakeholders are becoming increasingly more important for mining firms to evaluate them to create that elusive sustainable competitive advantage. In

addition, the dynamic realities of the competitive environment are indeed hindering such an objective.

Such circumstances create an environment characterised by intense and rapid competitive moves in order to build advantages and erode the advantages of rivals. This consequently speeds up the dynamic strategic interactions among competitive forces. Although these competitive moves may not be as intense in the global mining industry as in certain consumer goods sectors, its impact may be just as harmful. The hostile take-over proposal by Harmony Gold on the larger Gold Fields is a case in point (Townshend 2004; Cahill & Bailey 2004).

Against this competitive environmental reality experienced in the global mining industry, Gupta and Govindarajan (2001:8) have identified four constructs of globality, necessary for any firm, wishing to create a global competitive advantage. These constructs are depicted below.

Figure 2.12: Govindarajan and Gupta's (2001) four constructs of globality
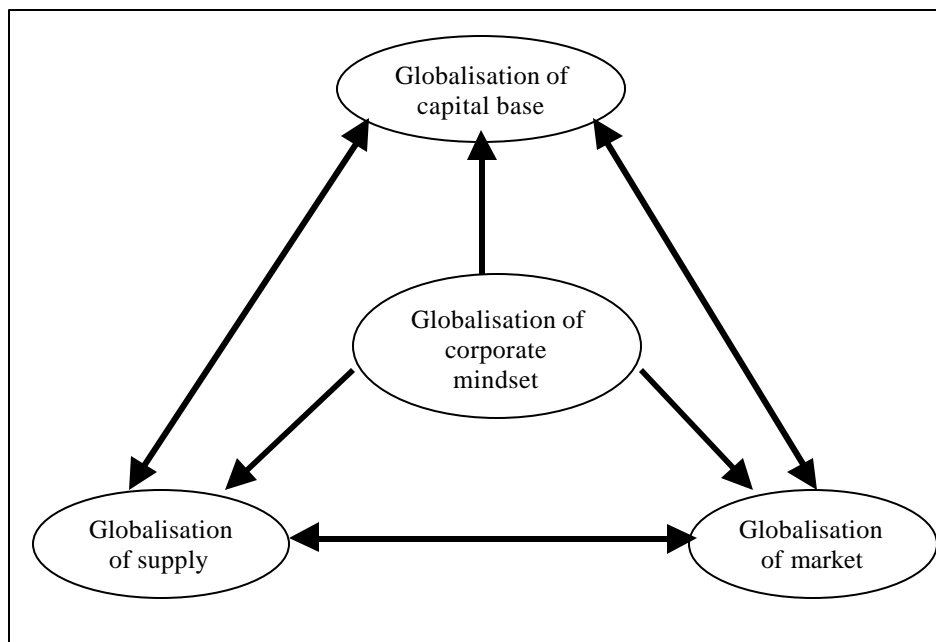
Source: Govindarajan & Gupta (2001:8)

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In view of the traditional key success factors discussed in section 2.4, and the new world order emerging in the global mining industry, certain key success factors seem appropriate in the global mining industry of the future. These key success factors will be discussed in the context of Govindarajan and Gupta's four constructs of globality as set out below.

2.7.2   Globalisation of supply

This entails the following:

- access to large, long-term ore bodies, which can be operated at low cost

- global synergies between operations

- continued cost reduction and continuous operational improvement drive

- continued focus on technological developments regarding the improvement of processes, reduction of cost and early adaptation to changing market needs

- controlled exploration

- controlled and synergistic acquisitions

- access to effective and logistical support

- sustainable development and emphasis on sound environmental management

2.7.3   Globalisation of markets

This involves the following:

- visionary capability regarding the future supply-demand scenario and a capability to adapt to sudden changes

- a strong marketing orientation in order to create a sustainable competitive advantage

- marketing of products according to customer needs and not according to operational capabilities

- long-term focus upon customer needs and a drive towards the co-creation of value with customers.

- dominance of global sales in identified commodities

2.7.4 Globalisation of capital base

This concerns the following:

- a positive image in the eyes of and continued backing by the investment fraternity

- access to cost-effective and competitive financing

- financial returns according to accepted global financial market expectations.

2.7.5 Globalisation of corporate mindset

This entails the following:

- cognisance of and adaptability to the dynamics of globalisation and being a global player

- global organisational and managerial capabilities in order to operate and market across countries, continents and time zones

- networking capabilities with regard to good relations with suppliers partners, customers, competitors, regulators and the general public

- the capability to understand the future intent of the various competitive forces active in the competitive environment

- the capability to determine and change the rules of engagement regarding the global competitive scenario

- a dynamic global business strategy, based upon the above

A comprehensive evaluation of how globalised global mining firms truly are, in the context of Govindarajan and Gupta's four constructs of globality, falls largely beyond the scope of this thesis. It does, however, provide ample opportunity for future research.

2.8   THE NEED FOR COMPETITIVE POSITIONING IN AND FOREKNOWLEDGE OF THE GLOBAL MINING INDUSTRY

The dynamics and complexities of the competitive realities experienced in the competitive environment intensified substantially during the last decade in virtually all industries and all parts of the world. Few industries remain in which competition has not intruded on stability and market dominance (Porter 1998:1).

Klingner (2002) contends that in the past, mining firms were not that skilled at reading these competitive trends and forces affecting the industry. The need for competitive positioning thus speaks for itself. Against this reality, Porter (1998:1) emphasises the fact that no firm can afford to ignore the competitive environment and thus the need to

compete. Every firm should thus try to understand and master competition. In this context, Clifford (2004:3) summarises the need for continued competitive positioning in the following statement:

> *There have been dramatic, transforming changes to the minerals industry:*
> *ownership, location, technology, regulation, globalisation, etc. However, one*
> *important change has been the realisation that mining is a business like any*
> *other. (Apart from the requests from other stakeholders), you have to compete*
> *for investors, not only against other mining firms, but also against businesses*
> *in other sectors.*

According to Skirrow et al (2001), in order to master these competitive realities, a new breed of "dominant global firms" is emerging in a world of shrinking opportunity. Mining firms thus face significant uncertainty, ambiguity and an increasing number of strategic discontinuities in the contemporary competitive landscape. This highly turbulent environment produces almost perpetual disequilibrium (Hitt et al 1998:25). Firms can no longer expect to be stable and long-lived. This new global competitive environment dictates that firms have to compete against a small number of other global firms (Porter 1998:291). The successful global competitive forces should thus perceive competition as global and formulate strategies on an integrated, global basis. Such a firm needs to change the rules of the competitive game (Porter 1998:294). In these circumstances, the matters of risk and uncertainty are central to all decisions and initiatives.

To achieve a global level of operational and market participation, as the contemporary global mining industry requires, a significant global monitoring system with regard to the competitive environment is critical (Yip 1995:59). As a catalyst to the foregoing, the nature of the forces in the new competitive landscape requires a continuous rethinking of current strategic actions, organisation structure, communication systems, corporate culture, asset deployment, investment strategies, in short, every aspect of a firm's operation and long-term health (Hitt et al 1998:26).

Foreknowledge of future possible outcomes with regard to developments in the competitive environment is thus essential. Once again Clifford, chairman of Rio Tinto plc (2004:11) aptly summarises the matter in the following statement:

> *Outside of the mining industry, few people realise the extent of forward planning and the constant reassessment of infrastructure and resources that makes it possible to respond effectively to global opportunity.*

2.9 A DYNAMIC COMPETITIVE ENVIRONMENTAL APPROACH BY GLOBAL MINING FIRMS

It is clear that global mining firms have realised that they have to "invigorate" their way of thinking in their approach to the competitive environment. In this regard, global mining firms will still place much emphasis on their tangible resources. However, this will hardly be enough. In a world of shrinking opportunity, mining firms should thus develop additional competitive initiatives from their intangible resources in order to stay abreast of any competitive initiative (Haanes & Fjeldstadt 2000:53). According to Govindarajan and Gupta (2001:8), the development of a truly global corporate mindset, is essential in this regard.

Part of such a global corporate mindset is the ability to dynamically monitor and analyse events and actions by forces in the competitive environment. There are, however, limited examples in recent literature of such an approach followed by mining firms. This will therefore be a vital aspect of discussion during the empirical part of this study.

One example of such a dynamic approach to events in the competitive environment is evident in Glencore, the privately owned Swiss trading firm's approach to global business. This firm, with its extensive involvement in the mining industry, has been unlike any other conventional mining firm and has set world standards in the knowledge of what is happening in the industry. According to Glasenberg, CEO of Glencore

(2001:174) the firm's multicommodity trading activities provide it with better market intelligence than any of the major mining firms. For example, he contends that his firm knows everything about every ship leaving China with coal. This has not only enabled the firm's trading arm to generate profits, but has also helped the various mining operations to achieve higher prices for their sales than other producers.

In addition, the largest mining firm in the world, BHP Billiton plc, has developed an extensive monitoring and evaluation capability as illustrated in the following statement (Gottliebsen, 2001:2):

> *We have got a room full of targets (for merger and acquisition purposes) and we are looking at everything in the world. We have a database that lists almost every firm you can conceive of and has a tab on it that says what would the rationale be of looking at this firm in just simple dilution; how would it be if we acquired it.*

Clifford (2001:8), CEO of the second largest mining firm in the world – Rio Tinto plc – summarises the fact that global mining firms will have to be continuously better informed about events in their competitive environment as follows:

> *The major mining firms depend on information, information technology and modern communications to keep them competitive.*

This argument accords with Bouthillier and Shearer's (2003:xvi) view on conducting business in the contemporary global business environment:

> *Doing business without tracking competitive forces is extremely risky. The globalisation of markets accompanied by rapid changes in technology have increased the competitiveness in most industries. The fact is that information-related activities are now deemed to be critical success factors within organisations.*

In conclusion, it is evident that the fundamental concept underlying the above-mentioned trends is the fact that a mining firm does not exist in a vacuum, but is profoundly affected by diverse influences and discontinuities from its competitive environment, in particular the initiatives of the myriad of competitive forces active in this environment. Fleisher and Blenkhorn (2001:3), support this notion that management and strategic failures of organisations are frequently associated with the inability to anticipate rapid changes in markets, respond to new proliferating competition or reorient technologies and the strategic direction of their business towards changing customer needs and new industry standards. Consequently, the theorem propounded in this thesis that a global mining firm should consider establishing a dynamic capability to continuously monitor and analyse the turbulence in the competitive environment, seems realistic.

2.10 SUMMARY AND KEY FINDINGS

The history of mining is essentially that of civilisation itself because its origins can be traced back millions of years. Its modern structure, however, is approximately 200 years old, and has always been closely related to risk. The third wave of civilisation, which rests upon the pillars of information and knowledge, is thus creating a new world order in which the mining industry's influence in the global economy is rapidly diminishing.

To this end, global mining firms face significant uncertainty, ambiguity and an increasing number of strategic discontinuities emanating from the contemporary global competitive landscape. In such turbulent circumstances one could expect the competitive environment to produce almost perpetual disequilibria. Implicit in this principle is the fact that global mining firms can no longer expect to remain stable and infinitive.

Competitiveness in the minerals and metals industries in these circumstances, therefore hinges on many factors. Apart from adhering to Govindarajan and Gupta's (2001) constructs of globality, relating to global supply, global marketing and developing a

global capital base, a mining firm has to take cognisance of the dynamic realities of the competitive environment. It also has to develop a global corporate mindset in order to achieve strategic competitiveness through the development and implementation of value-creating strategies. In this context, mining firms have in the past not been that adept at reading these competitive trends and forces affecting the industry.

Against the backdrop of these competitive realities, various authors argue that a new breed of "dominant global firms" is emerging in a world of shrinking opportunity, where a few large firms will determine the future outcome of the industry. This new global competitive environment dictates that firms have to compete against a small number of other global firms. In addition, they have to take cognisance of the influences of the diverse range of other forces active in the global competitive environment. In such circumstances, the matters of risk and uncertainty become even more central to all decisions and initiatives. This also relates to the typical long-term nature of most strategic decisions being taken in the global mining industry.

The effect of globalisation and competition on the mining industry is thus clear, with the major firms dramatically increasing their global operational and marketing involvement. In such a world of shrinking opportunity where mining firms have a global level of operational and market participation, firms have to develop additional competitive initiatives from their intangible resources in order to stay abreast of any initiative by any force in the competitive environment.

In this regard, knowledge-related activities are now deemed key success factors in this so-called "old world industry". Hamel and Prahalad (1990) concur with this view when they argue that business risk recedes as a firm's knowledge about its competitive environment increases and as knowledge grows, so does the firm's capacity to advance. As a catalyst to this view is the fact that a significant global monitoring and analytic capability with regard to the actions and intentions emanating from the forces in the competitive environment is essential.

The theorem propounded in this thesis that a global mining firm should consider establishing a dynamic capability to monitor and analyse the actions and intentions of the various competitive forces in the competitive environment, seems realistic. This specific contribution of the study relates strongly to Lasserre's statement that globalisation is progressing, and truly global firms will be the only real victors of that progress through the adoption of a more innovative approach to the changes effected by the competitive environment.

CHAPTER 3

COMPETITIVE ANALYSIS

3.1 INTRODUCTION

In the space of a few decades, the orientation of the global economy has shifted its focus from production to selling, to marketing and, today, to a business environment in which globalisation and competition are predominant factors. Compared with previous eras, organisations across industries and along the various value constellations have had to broaden their horizons considerably in these modern times. The choices and decisions available to organisations within such a widened and dynamic expanse are inevitably made in the context of limited knowledge of all the relevant facts. Reasons for such a phenomenon are based upon the dynamic nature of the environment in which organisations exist, certain human limitations, and significantly, the availability and usage of information (Oster 1999:ix).

Roukis, Conway and Charnow (1990:77) place the importance of information for the modern organisation in context when they argue that the exciting thing about information is that it creates change. The modern organisation experiences this phenomenon of change on a continuous basis because it forces such an entity into a series of radical and generally involuntary transformation. McGonagle and Vella (1996:3) hold that this transformation is the direct result of the explosion of raw information now available to organisations. However, it is no secret that the information on which many successful organisations have built their competitive advantage in the global business arena, is in most instances also available to organisations that are far less successful. This is because many of the successful organisations in the world, apart from relying on other established management support systems, depend on a practice known as **competitive intelligence** to collect and analyse information, and to illuminate the unknown in an ever-faster moving and less predictable external environment, for the purpose of management decision making. Various macro forces in the competitive environment, which upset the stability of organisations, as well as the increasing need of these organisations to be globally competitive, are fuelling this enhanced status of competitive intelligence.

According to Grant (1998:25) and Fleisher and Blenkhorn (2001:ix), the management fraternity in organisations need to be dynamic, flexible, innovative and much more cognisant and vigilant than ever before in recognising and understanding changing industry contexts, structures and dynamics. Fleisher and Blenkhorn (2003), also emphasise the fact that management and strategic failures of organisations are frequently associated with the inability to anticipate rapid changes in markets, to respond to new proliferating competition, or to reorient technologies and the strategic direction of their business towards changing customer needs and new industry standards.

In the context of management decision making, the need to be informed about these dynamic developments in the external or competitive environment speaks for itself. Analytical support to management in such an environment should also adhere to the dynamics experienced in the competitive environment. Grant (1998:25), however, highlights the fact that analytical approaches to management in the past have, unfortunately, been castigated for being static, conservative, risk averse, inflexible, short term, and detrimental to innovation. In this context, it is thus important to develop a dynamic and entrepreneurial approach towards analysis that will support management decision making in organisations. The objectives of this thesis entail a deeper understanding of competitive analysis as part of a competitive intelligence process, and a study of the way competitive analysis is being applied in the global mining industry. It, furthermore, includes the development of a dynamic competitive analysis model, for specific application in a firm active in the global mining industry.

Consequently, it is against the backdrop of the foregoing, that the objectives which focus specifically on competitive analysis, will be addressed in this chapter. The aim of the first part of the chapter is thus to determine the need for competitive learning in the competitive context in which organisations find themselves. The focus will also be on competitive analysis as part of a well-developed and structured competitive intelligence capability in order to initiate the process of competitive learning. The second part of the chapter examines global trends in competitive analysis. The final part of the chapter presents an optimum competitive analysis model for a global mining company in the

context of competitive learning, and its vital position in such a company's strategic framework.

3.2 COMPETITIVE REALITIES

The impact of globalisation, increased competition and organisations' quest to create a sustainable competitive advantage in a dynamic and uncertain environment have been dominant themes in management studies for many years (Lasserre 2003; Govindarajan & Gupta 2001; Hitt et al 1999; Grant 1998; Porter 1980, 1986, 1998; Tyson 1998; Hax & Majluf 1996; Prahalad & Hamel 1990). The trend towards globalisation, which is present in all significant business activities, has thus initiated a dramatic increase in the intensity and diversity of competition (Hax & Majluf 1996:xiii). Porter (1998:1), the doyen of the study of competition whom the subject has intrigued for nearly three decades, contends that competition has intensified dramatically over the last decades in virtually all parts of the world. He goes on to say that very few industries remain in which competition has not intruded on stability and market dominance.

Various reasons can be advanced for this growing phenomenon. During the latter part of the previous century, a number of broad macro forces exacerbated currents and cross-currents that led to widespread globalisation and growing international competition. These macro forces have created a business and economic environment filled with discontinuity, complexity and uncertainty. These forces include fluid political developments, slowing world economic growth, new forms of protectionism and regulation, regionalism, growing rivalry among governments to attract foreign investment, falling tariff barriers and barriers to trade, fluid global capital markets and exposure to volatile exchange rate fluctuations. Organisations have encountered these macro forces at the same time as they have encountered much uncertainty at industry level. A catalyst to the foregoing is the opening of global markets, new global competitors in domestic and foreign markets, industry consolidation, alliances among

organisations from different countries and the growing sophistication of customers across industries (adapted from Porter 1986:2–4; 1998:154; Hoyt 2002; Mogul 2002).

In addition to these factors, the phenomenal advancements in technology which, in turn, have generated major advances in logistics, computer capabilities, communications, the Internet explosion and global travel have, in many instances, further eroded the comparative advantage of organisations across the globe.

Hitt et al (1998:22) argue that the forces of change experienced by the modern organisation with regard to globalisation and competitiveness rival those prevalent in the Industrial Revolution and their impact is likely to rival major advances in history such as the development of the light bulb, telephone, printing press and personal computer. It is thus clear that no firm can afford the luxury of ignoring the need to adapt to changes in the competitive environment and to become competitive. Every firm must try to understand and master competition (Porter 1998:1). Consequently, as today's global competitive climate is faster paced than any other in recorded history, the dynamic and complex nature of this climate requires flexibility, speed and innovation. Organisations are constantly repositioning themselves to stay ahead of or make up ground on the forces in the competitive environment.

It is generally accepted that in the face of this myriad of forces, change and uncertainty will become even stronger in future, with many additional forces and subforces of uncertainty emerging in times to come. It is thus of critical importance that organisations take cognisance of the fact that organisational health and longevity are dependent on such an organisation's ability to adapt to the changing business environment. Fleisher and Bensoussan (2003:11) contend that organisations must now have better tools of a strategic and competitive nature to their disposal than was previously the case. In addition, an organisation needs to develop a culture of competitive learning, which should include systematic analysis and purposeful thinking about competitive forces in the competitive environment, in order to create and sustain a competitive advantage.

3.3 COMPETITIVE LEARNING

The mystical term "competitive advantage" to which most free-market-oriented organisations continuously strive, has traditionally been defined in terms of the attributes and resources of an organisation that allow it to outperform others in the same industry or product market (Grant 1998:174; Kay 1994; Christensen & Fahey 1984; Porter 1980). In the quest of various organisations to develop a competitive advantage over rival organisations and in the context of other competitive forces, additional flux and imbalance are created in the competitive environment. In this search for a competitive advantage, a dynamic process between organisations in an industry is being activated where equilibrium is never reached, and in the course of which, industry structures are continually reformed.

As a catalyst to the foregoing is the fact that ambitious, intelligent and entrepreneurial organisations are not satisfied with adhering to the game's prevailing conditions because they want to set the rules of engagement, or at least influence the rules in a major way. They also recognise that flux breeds opportunity, which should be exploited before other organisations take the initiative (Fahey 1999:13).

However, the ability of organisations to develop a sustainable competitive advantage is increasingly rare. A competitive advantage laboriously achieved can be quickly lost (Duncan 1998). The development of a competitive advantage is unavoidably dependent on and predicted in terms of learning. Amongst other issues, it is essential that organisations constantly monitor and learn about the competitive environment, and consequently initiate action on the basis of insight gained. Gilad (1994:5), however, emphasises the fact that the competitive environment continuously sends out signals about change, trends, prospects, threats and weaknesses. Early on these signals are weak, ambiguous and hidden. In the context of a **learning organisation** (Senge 1990), an organisation that harnesses the power of continued learning can fight decline and create a sustainable competitive advantage. Fuld (1995:417) however, is of the opinion that there is no excuse for competitive surprises. The professional sports industry is a case in point

and has long recognised the value of "learning about the dynamic changes within the competitive environment" and the need to adapt strategies accordingly and continuously (Tyson 1998:4).

Competitive learning or the learning capability of an organisation about events in the competitive environment, can be defined as follows (Fahey 1999:25):

> *Continuous learning about change in and around competitors, customers, suppliers, distribution channels, alliances, technology, and the social, political and economic milieu, which should furnish the organisation with an understanding or insight of the current and future competitive context, as well as supplying key inputs in developing alternative futures, which can be translated into business environment opportunities.*

The above-mentioned definition infers that the outputs of competitive learning in an organisation should be integrated into decision making and should thus guide action. Competitive learning therefore should not stop with the generation of knowledge alone, but must be action-oriented. However, because of its pervasiveness, discontinuity and unpredictability, competitive learning is a complex process. An organisation must continually relearn what changes are occurring in the competitive environment, what forces are driving it and what the impact of these might be.

In the absence of systematic attention to learning, knowledge in an organisation quickly becomes obsolete, skills stagnate and capabilities and competencies deteriorate. Owing to this phenomenon, Fahey and Randall (1998:156), concur that the single greatest liability of management teams in many organisations is that they confront complex dynamic realities with an approach designed for simple static problems. The latter two authors, consequently, argue that the basic purpose of a learning organisation is to continually expand and create its future. Against these realities, competitive learning should have the following implicit characteristics (Fahey 1999:33-34).

- Because it occurs over time, competitive learning should be a continuous process. It is thus a journey and not a destination, because change in the organisation's external and internal environment, is unrelenting, pervasive, and unpredictable. As soon as learning begins to stagnate, an organisation's knowledge begins to slide into mythology.

- Competitive learning should be a cognitive process. In such an environment, analysts and decision makers intend to make sense of the world around them. In this regard, they select and order data; they attribute meaning to data; they draw inferences from incomplete data and partial analysis; and they continually challenge their prior stock of knowledge.

- Competitive learning should be a collective process. True learning about the competitive environment occurs when individuals share their knowledge, challenge each other, and reflect on each other's judgments and assessments.

- Competitive learning should not be disassociated from decision making. Learning and doing are inseparable. Knowledge generation and knowledge use are inextricably interrelated. Learning generates knowledge that is embodied in action; action, in turn, generates further knowledge and learning.

- Competitive learning should not merely be about accumulating data about the competitive environment, no matter how new it is or unrelated the different pieces are. Real knowledge and insight come from capturing underlying structures: patterns that are revealed through ordering, selecting and interpreting data.

- Competitive learning is not an end in itself. Its intent is to improve the understanding of the interface between the organisation and its competitive environment.

Fahey (1999:43–46) is furthermore of the opinion that four distinct types of competitive learning can be identified. In this regard, figure 3.1 illustrates the various types of competitive learning.

Figure 3.1: Types of competitive learning

```
                    ┌─────────────────────────┐
                    │   Descriptive learning   │
                    │ (learning about individual│
                    │    competitive forces)   │
                    └─────────────────────────┘

┌──────────────────────┐              ┌──────────────────────┐
│ Comparative learning │              │  Augmented learning  │
│   (learning through  │─────────────▶│  (learning about the │
│ comparison of competitive│          │ competitive environment )│
│       forces)        │              └──────────────────────┘
└──────────────────────┘

                    ┌─────────────────────────┐
                    │      Self-learning       │
                    │  (learning about one's own│
                    │          firm)           │
                    └─────────────────────────┘

                    ┌─────────────────────────┐
                    │    Creating strategies   │
                    │     for a sustainable    │
                    │   competitive advantage  │
                    └─────────────────────────┘
```
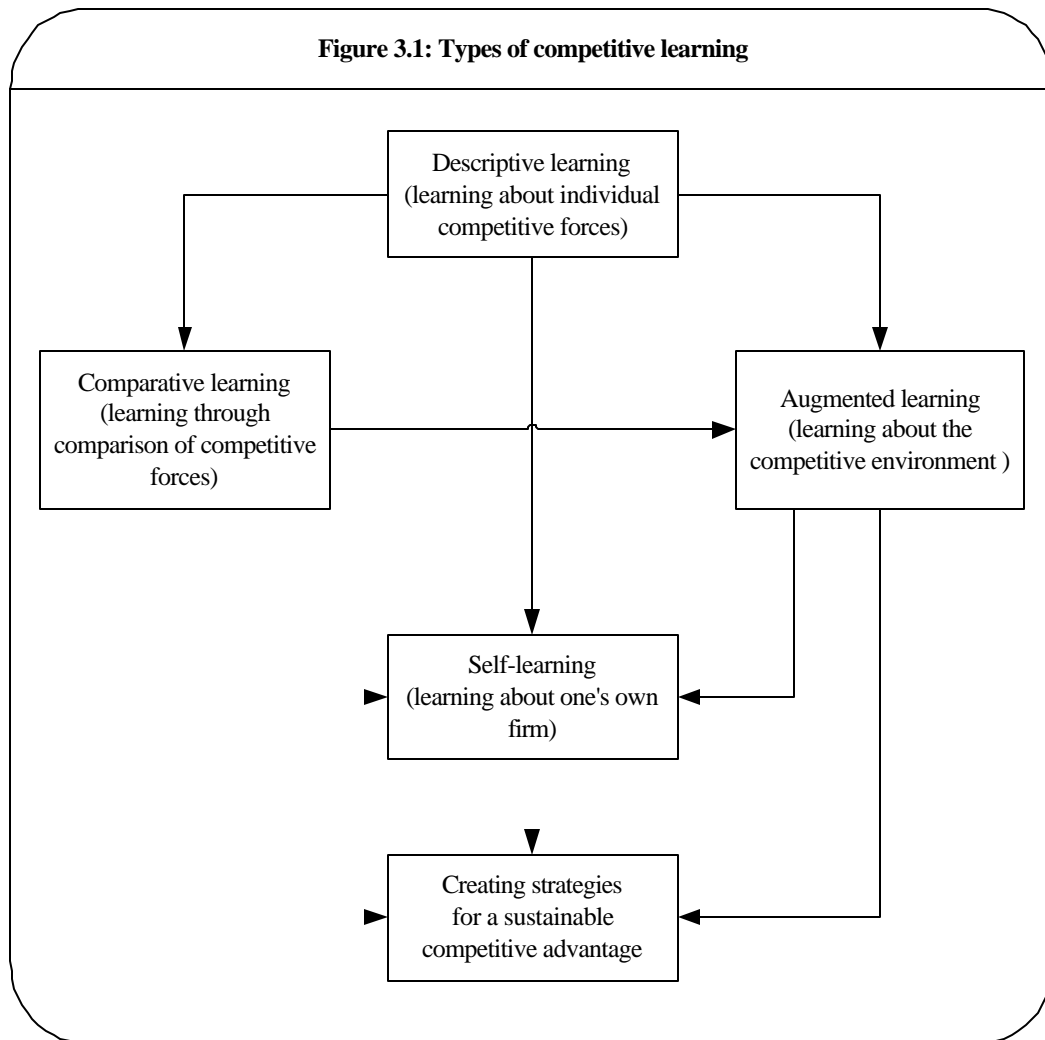
Source: Based upon and adapted from Fahey (1999:44)

According to Fahey (1999:44), competitive learning should be a consequential process that starts with the very basic form, descriptive learning, and ultimately evolves into self-learning which should develop into the creation of strategies for sustainable competitive advantage. The various types of competitive learning entail the following:

Descriptive learning is learning about an individual competitive force and is the most basic level of competitive learning. It involves capturing and processing data and information about a competitive force in order to describe and delineate its innumerable facets and features. Descriptive learning furnishes the inputs to comparative and augmented learning.

Comparative learning occurs when two or more competitive forces are compared and contrasted. Comparative learning generates insights and inferences that cannot be derived by examining individual competitors in isolation. Contrasting rivals' assumptions sometimes leads to fundamental questioning of one competitive force's strategy which until now seemed to have been in order.

Augmented learning refers to knowledge generated about the competitive environment surrounding the company and the other competitive forces.

Self-learning is the combined result of descriptive, comparative and augmented learning. Self-learning, furthermore, originates when one's own organisation is being compared with one or more of the competitive forces in the competitive environment. Through the comparison of itself with current and future competitive forces, a company is able to challenge and critique its strategies in the marketplace, its most pervasive operating norms and its most deeply held knowledge.

It can generally be accepted that the experience of each type of competitive learning in organisations occurs in an isolated fashion. Against the backdrop of the foregoing, it is noteworthy that competitive learning should be a structured, dynamic, and significantly, a conscious process. Only in this way can an organisation augment its stock of competitive knowledge and create a competitive advantage. In an organisation's quest for **competitive learning**, the practice of **competitive intelligence**, of which **competitive analysis** is a key part, can aptly be applied to illuminate the dynamic and uncertain environment in order to develop key inputs, which can be translated into opportunities.

3.4 COMPETITIVE INTELLIGENCE AS A MEANS OF COMPETITIVE LEARNING

Although competitive learning should form an implicit part of organisational decision-making, and specifically the strategic decision-making process, in many instances individuals and groups in organisations, pay little attention to explicitly reviewing, criticising and augmenting their stock of competitive knowledge. Gilad (1996:73,111) holds that a firm that wishes to develop a competitive learning capability, and for that matter to establish a competitive advantage, needs a powerful, systematic, company-wide process devoted to the identification and deciphering of weak, ambiguous environmental signals early enough. To this end, organisations are increasingly relying on a frequently misunderstood practice known as **competitive intelligence**.

For the purpose of this study competitive intelligence could be defined as follows (Adapted from Gilad 1996:115; Tyson 1998:3; Fleisher & Bensoussan 2003:6):

> *A structured, systematic, ethical and dynamic process that involves gathering bits and pieces of information about competitors, customers, suppliers, potential acquisition candidates, joint venture candidates, strategic alliance partners, and other competitive, economic, regulatory, and political forces that might have an impact on the organisation. The collected data and information should consequently be analysed and transformed by way of a dynamic learning process in order to acquire foresight and strategic knowledge about the future intentions of any competitive force that may impact on the current competitiveness and future competitive ability of the organisation. To this end, the acquired insight should eventuate into action.*

Although the above-mentioned definition indeed covers a wide field, it encompasses the arc of involvement of any firm in a dynamic and uncertain competitive environment. McGonagle and Vella, (1996:13) further emphasises this fact when they argue that competitive intelligence is a function that is truly without boundaries. Such a competitive

intelligence process should, furthermore, be an integral part of the firm's overall strategic management process to enable it to avoid surprises and take appropriate and timely strategic action.

However, it should come as no surprise that Shaker and Gembicki (1999:9) argue that executives in organisations in the modern era consistently work with massive amounts of raw data, small amounts of value-added information and very little intelligence. Competitive intelligence, properly managed, reverses this traditional trend towards data and information and redirects it towards actionable intelligence. To this end, figure 3.2 graphically illustrates the critical role competitive intelligence should play in re-engineering the management decision-making process, from a reactive approach to one based upon intelligence.

Figure 3.2: Competitive learning through competitive intelligence

Reactive decision making		Intelligence-based decision making
5%	**Intelligence** (information which is actionable and has foresight)	55%
15%	**Information** (analysed data, value-added)	25%
80%	**Data** (public and published)	20%
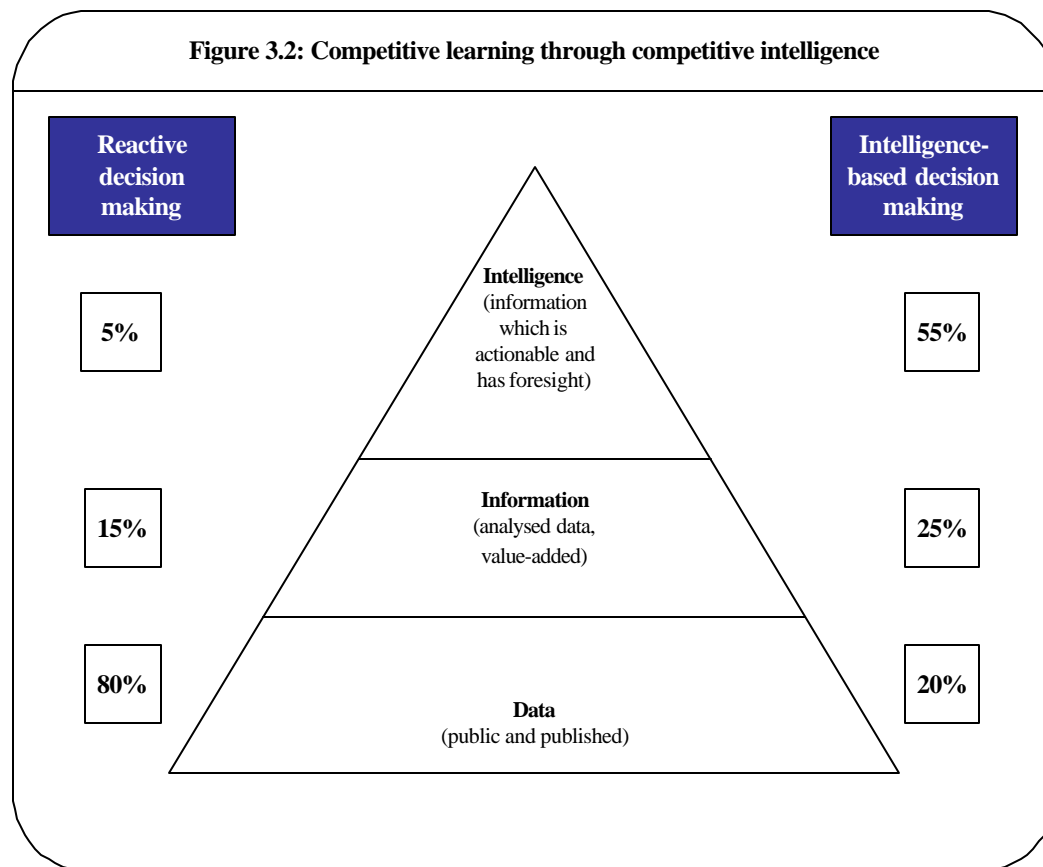
Source: Based upon and adapted from Shaker & Gembicki (1999:9&10)

Implicit in this matter, Shaker and Gembicki (1999:10), argue that the focus of competitive intelligence should thus be to re-engineer the organisation's information infrastructure in such a way that senior management work primarily with intelligence in a continuous competitive learning process, in their quest to develop and sustain a competitive advantage. However, as early as 1984, Sammon, Kurland and Spitalnic (1984) stated the following:

> *… by the 1980s, many business managers were wondering why it (strategy) worked so poorly. Part of the answer may be that strategy without intelligence had become a contradiction in terms.*

Now, 20 years later, this statement proves even more apt as many strategic business failures around the world have resulted from a fundamental lack of diligence and, for that matter, competitive learning. Indeed, the reality of this postulation is strongly supported by Pauker, Whitaker, McCauley, Piper and Teoh (2000) who note the following:

> *The accelerating speed and complexity of change in the business environment places a heightened premium on timely, rigorous understanding of developing threats and opportunities. Consequently, the success of incumbent organisations increasingly depends on aggressive and systematic competitive intelligence efforts to support strategic decision-making.*

However, before elaborating further on the discipline of competitive intelligence, and the analytical part thereof, it is necessary to understand its genesis and evolution in global terms.

3.5 THE HISTORY OF COMPETITIVE INTELLIGENCE

Competitive intelligence, as practised in organisations around the world today, is often viewed as a relatively new business discipline that gained prominence during the 1980s. However, its practical origins date back decades, even centuries. Sun Tzu, a Chinese warrior, who lived around 400 BC, was one of the first humans to realise that competitive learning, or in his case, **foreknowledge**, was an essential element in the art of war. The Chinese warrior wrote the following thousands of years ago (McNeilly 1996:40; Shaker & Gembicki 1999:4):

> *What enables the wise commander to strike and conquer, and achieve things beyond the reach of ordinary men is foreknowledge. This foreknowledge cannot be elicited from spirits, or from gods, or by analogy with past events, nor from calculations. It must be obtained from men who know the enemy situation.*

The writings of Sun Tzu, *The Art of War*, have influenced Chinese and Japanese military thinking for over 2 400 years, and even in recent times, this classic work was required reading for all Mao Zedong's lieutenants (Clauser & Weir 1990:7).

In addition to this ancient prelude to intelligence, various intelligence-related cases have since emerged in history. During the first century BC, Mithradates, a one-man intelligence staff and an intellectual genius who mastered 22 languages, collected his basic intelligence firsthand by wandering on foot through Asia, while his army constituted the gravest threat to the Roman Empire in the Mediterranean. In addition, during the Biblical period, and specifically during the Jewish exodus from Egypt, their leader, Moses, sent spies into the promised land of Canaan to gather foreknowledge on its inhabitants. At a later stage, Judas Iscariot was bribed into revealing Christ's location.

Thus, from 400 BC, during the Biblical period and well into the Middle Ages, there is increasing evidence of intelligence as a necessary prerequisite for successful warfare. To

this end, Alexander's empire could not have survived as long as it did without his lieutenants possessing a knowledge and understanding of the customs of the conquered people. Scipio, the nemesis of Hannibal, was equally adept at using information about the enemy's disposition to his own advantage, while the Roman general Suetonius Paulinus who, with 10 000 men defeated 230 000 Britons in 62 AD, was a former intelligence officer in Africa in 47 AD. His descriptions of the terrain and habitants – presumably intelligence studies – played a major role in his success. Other warlords who made use of intelligence include Hannibal, Genghis Khan and Vegetius. From the Middle Ages to the Renaissance, however, little was recorded about the production or utilisation of intelligence (Clauser & Weir 1990:6–8).

In more recent times, during the two World Wars and the Cold War era of the 20th century, there was again ample evidence of the need for and usage of intelligence to acquire foreknowledge and outmanoeuvre the enemy. Markus Wolf, chief of the foreign intelligence service of the German Democratic Republic (STASI), and perhaps one of the most influential intelligence operatives during the Cold War era (Wolf 1997:xii,2) argued that intelligence initiatives were responsible for Europe's longest era of peace after the fall of the Roman Empire.

There is also evidence that intelligence has been an integral part in certain commercial and nonmilitary initiatives. Marco Polo, Christopher Columbus and Vasco da Gama (Studwell 2003:6&7) and The British East India Company and other commercial ventures of earlier years saw it as a critical prerequisite to their successes. In addition, it was and even remains today, an important element in the activities of the Catholic Church (Shaker & Gembicki 1999:4). It is thus apparent that the primary stimulus for intelligence in the history of countries and commercial and nonmilitary institutions, was the need to acquire "foreknowledge" or to promote **competitive learning** about the competitive situation at hand, and thus to act decisively upon it.

From its strong origins in the fields of the military and espionage, competitive intelligence as a distinct field started out in the business environment as a specialised

activity residing under marketing research and known as **"marketing intelligence"** during the 1960s. In this role, specialised tools of investigation were applied (many of which were inspired by espionage) to examine the marketplace (Walle 1999). William Kelley's book, *Marketing intelligence: the management of marketing information* (1965), introduced the field of intelligence, while his influential article in the *Journal of Marketing* (Kelley 1968) provides a short account of the links between espionage and competitive intelligence. Kelley's work was followed up with Richard Pinkerton's influential five-article series (Pinkerton 1969) in *Industrial Marketing* entitled "How to develop a marketing intelligence system." These documents are representative of the pioneering intellectual foundations of the field of competitive intelligence. One major reason for the divergence of competitive intelligence away from marketing research is the need for a "real-time" update of activities in the business environment, because marketing research allows an organisation to react to circumstances, whilst competitive intelligence provides signals or early warning indications to act in anticipation of the intended moves of a competitive force (Codogno 2001:23).

The next generation in the evolution of competitive intelligence, and perhaps the real intellectual and academic origins of the discipline, manifested itself in the work of Michael Porter. Porter's (1980) first book, *Competitive strategy: techniques for analysing industries and competitors*, and his later book, *Competitive advantage: creating and sustaining superior performance* in1985, focused attention on the fact that competitive intelligence was a much needed business function. However, Porter's work primarily provided guidelines on how to process existing intelligence information in useful ways, and tended to covertly assume that intelligence information (and/or the tools required to professionally gather it) already existed (Walle 1999).

Walle (1999) also emphasises the fact that after the 1980s, competitive intelligence continuously came to be regarded as a valuable independent organisational activity. This happened mainly because of the role of the Society of Competitive Intelligence Professionals (http://www.scip.org), and the influence and drive of esteemed competitive

intelligence authors, academics and practioners such as Leonard Fuld (1985), Kirk Tyson (1990), Jan Herring (1993), Ben Gilad (1994) and John Prescott (1993).

One vital criterion regarding the evolution of competitive intelligence as an independent business management function, and possibly the major differentiation it has with intelligence in the confines of the military and espionage environments, is that competitive intelligence should always be a legal and ethical process. Hence, competitive intelligence does not rely on industrial and commercial espionage, or any other unethical means of acquiring information. It uses available public information of which there is a surprising amount, in part due to the proliferation of information sources. Stemming from this, competitive intelligence could be perceived as the application of the ethical processes developed in the traditional intelligence arena. This matter is strongly supported by the Society of Competitive Intelligence Professional (SCIP), whose endeavours, and those of its members, are based upon a strict code of ethics (White 1998).

In a continuation of the evolution of competitive intelligence, in more recent years, various authors (Tyson 1998:1; McGonagle & Vella 1996:15; Fleisher & Bensoussan 2003:7) have emphasised the fact that competitive intelligence, as practised in organisations around the world today, has been influenced more recently by the disciplines of economics, strategic management, marketing and marketing research, and the library and information systems. In addition, the fields of psychology and interpersonal communications have also had an impact on the discipline of competitive intelligence. According to various authors (as cited above), the competitive intelligence discipline continues to evolve from its original roots in other functions, into a separate function in many organisations. These authors contend furthermore that competitive intelligence today has enough conceptual, historical, developmental and empirical support to stand on its own as a fully-fledged management function.

There is no doubt that the sequel to these developmental issues, will in years to come, develop into a scenario in which organisations will have no option but to view

competitive intelligence as a separate and critical management function, without which an organisation cannot compete in a dynamic and uncertain global arena. Furthermore, the level of sophistication of the competitive intelligence discipline is also expected to evolve over the coming years. Walle (1999) concurs with the foregoing statement when he observes that external circumstances experienced by organisations, coupled with the internal development of the competitive intelligence discipline, have given it enough prestige and clout in today's corporate world. The discipline of competitive intelligence has thus come a long way since the 1960s and 1970s when it was perceived in the business arena to be an afterthought of marketing research. However, the development of the competitive intelligence discipline into a formal and independent management function between the other management functions, falls beyond the scope of this study. It, could, however be a viable topic for future research.

3.6   COMPETITIVE INTELLIGENCE IN A GLOBAL CONTEXT

3.6.1   Introduction

As early as 1993, Prescott and Gibbons (1993:xv) wrote:

> *Competitive intelligence is conducted by businesses throughout the world. The level of sophistication seems to be linked to the stage of economic development of a country, the importance of an industry within a country, the cultural propensity of individuals to search for information on the evolution of industries and competitors, the availability of information technology, business-government relationships, and the globalisation of particular firms.*

This concurs with Hannon and Sano's (1995) observation that competitive intelligence is commonly practised in countries that fought or have been fighting a war for their survival. Japan, Korea, France, Germany, Israel and Sweden, which are all countries with sophisticated intelligence networks and capabilities, are a case in point. Many of these intelligence capabilities have, over the years, been transferred to the commercial and economic realm. In a more recent study by Miller and Calof (Miller 2000:27), it is

evident that the top five countries in which competitive intelligence is best practised in terms of comprehensiveness and depth, are, in rank order, Japan, the USA, Germany, France and the UK. Again, the country's level of development and sophistication in the global context seems to be a determining factor for the application of competitive intelligence. Thus, the development of competitive intelligence in a global perspective is an extensive topic for potential further research. In this study, however, the status of competitive intelligence in only certain countries will be addressed.

3.6.2   Japan

As a corollary to the foregoing, Japanese firms in particular have been extremely inquisitive about and eager to improve the understanding of the competitive environment in which they operate. The history of Japan illustrates this point well.

In elaborating on this phenomenon, Gilad (1996:132–136) and Hansen (1996:1), concur that Japan is an inspiring power of competitive intelligence, with the Japanese government playing a major role in providing competitive intelligence to Japanese firms through such agencies as MITI, JETRO and other government bodies. At the corporate level, the Japanese trading houses or so-called "sogo shosas", have in particular, a strong competitive intelligence focus. The nine largest sogo shosas, among them Mitsubishi, Mitsui, Sumitomo and Nissho-Iwai, have about 60 000 employees in 2 200 foreign and domestic offices. Each one of these employees is expected to carry the collection of competitive data as part of his or her job description. According to experts, executives at Mitsui, exchange 80 000 messages every day on a satellite network connecting Mitsui's 200 overseas offices. It would seem that the vast majority of these messages are related to competitive intelligence.

In addition, one of the overriding tasks of the Japanese trading house is to smooth the way for affiliated companies to conduct business in the domestic and global business environment. According to Kahaner (1996:165), trading organisations do not produce equipment or machinery. Instead, they are defined by ideas, intellectual property and

information. Gilad (1996:136) draws the following conclusion about the Japanese competitive intelligence demeanour:

The strength of the Japanese is in their massive human infrastructure that sends in bits and pieces of competitive data in a continuous flow. It acts like a giant net that ensures very little can be or will be missed. This is the infrastructure that almost guarantees competitive learning.

Kahaner (1996:161) gives credence to Gilad's contention of the Japanese competitive intelligence scenario in stating that to the Japanese, the gathering of information is a noble calling and complements the idea of *kaizen*, or constant and continuous improvement.

3.6.3   South Korea

South Korea has a similar scenario to that in Japan. Samsung, for example, perceive information to be their number one asset. The organisation's executives regard their future success as dependent on their ability to collect and react to competitive intelligence (Gilad 1996:130).

3.6.4   Israel

In Israel, the country's history and the sheer understanding that the fate of its four million citizens depends on its intelligence capability, create a fertile ground for the spread of competitive intelligence techniques in the business community. Furthermore, most senior Israeli businessmen have been officers in the Israeli military. According to Gilad (1996:137), these people bring to their organisations a deep appreciation of the value of competitive learning.

3.6.5   The USA

In a study conducted in the USA by the Futures Group (Miller 2000:22), it was found that 60% of the sampled US businesses have established a competitive intelligence function. In terms of finances, 66% of the sampled businesses had annual revenues exceeding

US$ 1 billion and 28% exceeding US$ 10 billion. Furthermore, the top US organisations conducting competitive intelligence include, in rank order, Microsoft, Motorola, IBM, Procter and Gamble, General Electric, Hewlett Packard, Coca-Cola and Intel (Miller 2000:22). It thus came as no surprise when in December 1998, the *Wall Street Journal* (Thomas, in Miller 2000:23) stated:

> *In the corporate world, competitive intelligence has emerged as a must-have tactical tool, every bit as important as, say, a good marketing department.*

It is thus clear that the proactive, competitive and successful US organisations all have a strong belief in the value of competitive intelligence.

3.6.6   Sweden

In Sweden, most large organisations such as Volvo, Saab, Electrolux, ABB, Gambro, Nobel Industries, Astra, Skandia Group, SCA, Nokia and Televerket conduct competitive intelligence. According to Kahaner (1996:188), Swedes seems to feel that their political and economic security is always in jeopardy. A way to keep the country secure is to employ intelligence. In a strange way in Sweden, competitive intelligence is perceived as a humanitarian or nonmilitary method to ensure national peace and tranquillity, and is a national imperative.

3.6.7   France and Germany

In France, the government works closely with corporations to collect competitive information on the business environment. Kahaner (1996:190), however, concurs that the French are sometimes involved in illegal means of conducting competitive intelligence.

German organisations, in contrast, have a long history of competitive intelligence, dating back to the 15th century. However, in modern Germany, the discipline of competitive intelligence is being accepted more slowly by industry than in other European countries owing to the stigma of intelligence being equated with spying (Kahaner 1996:192).

3.6.8   Developing countries

Although a number of empirical studies have been conducted on the evolution of competitive intelligence in a specific developing country (Svetozarov 2002:24; Flint 2002:40; Calof & Viviers 2001; Tao & Prescott 2000:65; Muller 1999:74; Baranauskas, 1998:41), no comprehensive study for competitive intelligence in the developing world has yet been completed. Tao and Prescott (2000:65), however, concur that it is essential for organisations in developing countries to understand the competitive forces and the discipline of competitive intelligence in order to compete and cooperate with their counterparts in the developed world.

In a global context, Miller (2000:24) concludes that an organisation's respect for knowledge is strongly mirrored in the extent to which its national culture regards information and education. It also comes as no surprise that innovative firms in general develop a stronger tendency towards practising competitive intelligence than less innovative organisations. In addition, many organisations under siege from corporate activity, technological advancement or market and regulatory threats, may suddenly realise the need for competitive intelligence. Hence now, at the advent of the 21st century, it is increasingly apparent that organisations around the world are beginning to realise the growing need for competitive learning and competitive intelligence. Inadvertently, this will gradually also be the case in the developing world.

3.7   COMPETITIVE INTELLIGENCE IN THE ORGANISATION

The application of competitive intelligence in organisations is first and foremost a cultural phenomenon that should be deeply embedded in the **learning organisation** and **competitive learning**. In this regard, management support at the highest level is a critical prerequisite. However, many organisations have stumbled onto the discipline, quite coincidental, forced into it by the intervention of external forces. This situation, by its very nature, entails a reactive involvement in the discipline that does not exacerbate proactive competitive learning. One of the greatest obstacles to adopting a less optimal

approach has been and remains many executives' lack of focus upon the competitive environment and an understanding of how and where to use competitive intelligence in the organisation (Gilad 1998:13).

3.7.1   Development

According to Tyson (1998:3&4), the competitive intelligence process has evolved slowly in most organisations around the world. A review of the intelligence process in various organisations suggests that there are four developmental stages in this evolution process, as indicated below.

- **Stage 1** organisations have no particular strategic management or competitive intelligence activities. Most intelligence in phase 1 in organisations exists in the heads of employees who, in many instances, ultimately leave the organisation.

- **Stage 2** organisations have a part time person, a full-time person, or perhaps two full-time people assigned to gather and analyse intelligence. This usually assumes the form of a limited library or research process. Phase 2 organisations also begin to experiment with strategic planning, although this may consist only of an executive retreat or so-called gap analysis.

- **Stage 3** organisations represent those with a competitive intelligence process in place. They routinely gather and analyse business information. They have established a process for competitor, product, technological, and other intelligence. This information becomes a continuous input for the strategic management process. However, the strategic management and competitive intelligence processes of phase 3 do not yet interact.

- **Stage 4** organisations are those with both a comprehensive competitive intelligence process and a strategic management process working together effectively. These companies have started to develop Intranet solutions and have fine-tuned their overall procedures for gathering and analysing competitive intelligence.

3.7.2 Application

In a situation which Tyson describes as the fourth phase of development of a competitive intelligence capability in an organisation, it should be part of the mainstream business functions and strongly integrated with the organisation's strategic management process (Hovis 2000). However, Sawka (Miller 2000:44) argues that in today's fast-paced business environment, there should be a balance between the strategic and tactical application of competitive intelligence, as increasingly more intelligence needs surface in the wider organisation context. Consequently, more organisations are placing the competitive intelligence function as close to the decision-making process as possible, which makes it totally demand-driven (Miller 2000:45). This is extremely important because competitive intelligence, like strategic and management decision making, is a continuous and dynamic process.

In addition, there is no doubt that because of the discipline's versatility, it could aptly be applied in the broader business context. The intelligence process can therefore support key decisions in numerous departments. In many organisations, it no longer serves strategic needs alone, but is applied for tactical sales and marketing support, mergers and acquisitions, alliance studies, technology evaluations, as well as human resource and financial decisions. Without allowing it to be used freely by every functional and business group in the organisation, the competitive intelligence function should focus upon the most important issues impacting on the organisation's current and future prosperity.

3.7.3 Location

Owing to the versatility issue discussed above, the question arises: where does one position such a capability? The following figure provides a basic framework in the pursuance of the best location for a competitive intelligence function in an organisation:

Table 3.1: Locating the competitive intelligence unit: an organisational framework

Location	Strategic vs tactical	Corporate organisational structure	Locus of Decision making
Centralised	Weigh toward strategic focus	Strong corporate staff	Little empowerment
Decentralised	Weigh toward tactical focus	Highly autonomous Strategic business units	Complete empowerment
Hybrid	Mix of strategic and tactical needs	Balance of power among corporate and divisional staff	Consensual decision making

Source: Sawka (Miller 2000:47)

In addition, there are a number of criteria to consider when deciding where to locate the intelligence function. This includes a company's organisational culture, external environment and, importantly, locus of decision making (Sawka in Miller 2000:54). However, Codogno (2001:26) emphasises a vital fact when he argues that competitive intelligence should be positioned above interdepartmental rivalries because it has to play a leadership role to promote information and knowledge sharing between all areas in the organisation. Again, Sawka's view underscores the fact that the competitive intelligence function should be placed as close to the decision making process as possible (Miller 2000:44). Given the right culture and senior management support, the competitive intelligence process can help an organisation to remain strong during bad economic times, and to flourish when the economy improves.

3.7.4 Functioning

Owing to the size of the typical global organisation, competitive intelligence should not operate in isolation. If an organisation has more than one competitive intelligence unit or functionary, these units or individuals should support each other in a coherent manner with regard to early warning, collection, analysis and sharing of resources and knowledge. Consumer group, Procter and Gamble, has consequently developed a hybrid model, which is partially centralised and decentralised. This model is known as a hub and

spoke competitive intelligence model. Conceptually, with such a model, people and resources are moved around as needs occur, while they are in constant contact regarding key intelligence topics and information collection.

According to Pepper (1999:4), the hub is important in providing the benefits of scale in purchases and in having a common mission and standardised processes across the whole organisation. The spoke is equally significant, specifically for flexible knowledge in the individual business units or staff functions, as well as ownership and responsibility. Lastly, such a model provides diversity of ideas and approaches. An example of a competitive intelligence hub and spoke model is depicted in figure 3.3 below.

Figure 3.3: A typical competitive intelligence hub and spoke model
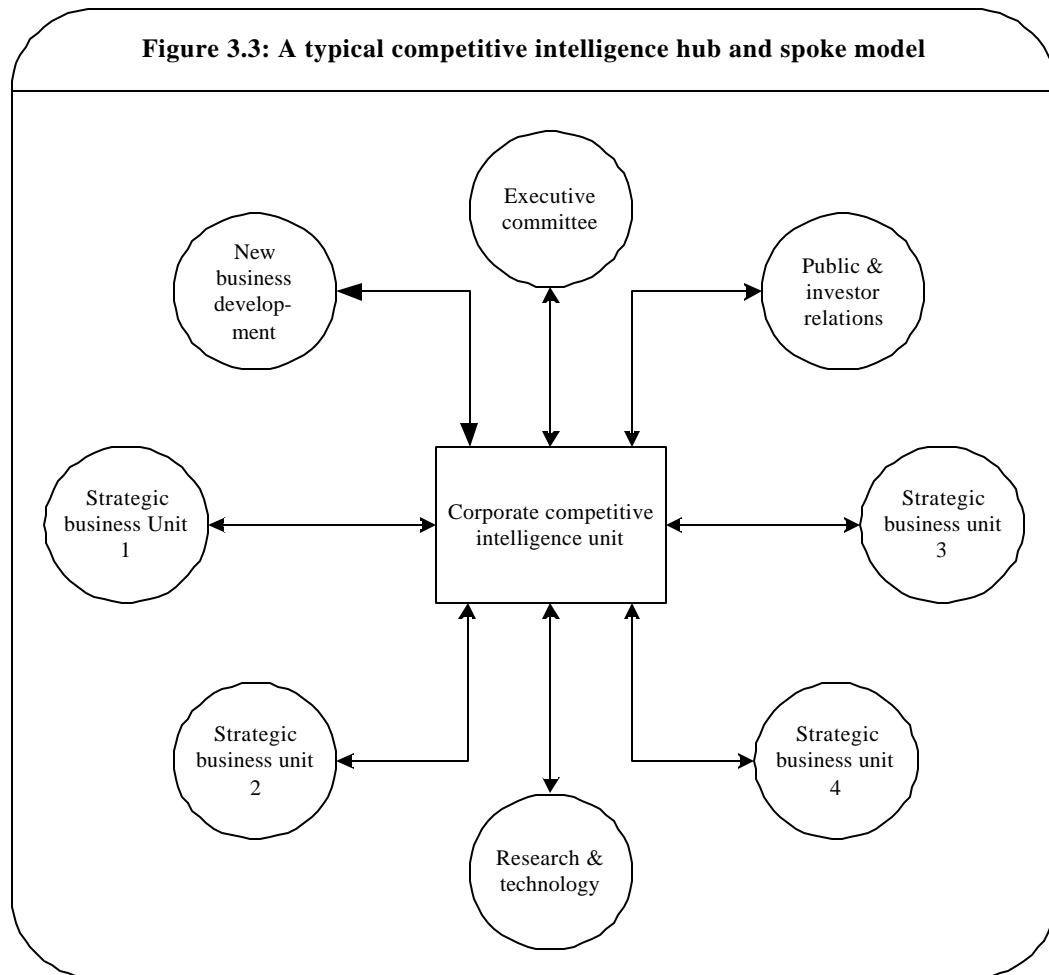
Source: Based upon and adapted from Prescott & Miller (2001:28)

3.8   THE COMPETITIVE INTELLIGENCE CYCLE

3.8.1   Introduction

From the genesis and evolution of competitive intelligence, it is apparent that the discipline made its entry into the business environment in an unstructured and coincidental fashion. However, from its inception within the confines of the military and espionage, there is ample evidence that it should be applied in a structured and systematic manner, focused upon a strong value-adding and action-oriented modus. Consequently, the fundamental concept of the competitive intelligence process revolves around the intelligence cycle, which is the inherent driving axis through which raw information is turned into intelligence. It is thus no secret that for decades the CIA, KGB, STASI, MOSAD and others in the global intelligence fraternity, have structured their intelligence initiatives around this process. According to Kahaner (1996:43), the beauty of the intelligence cycle lies in its simplicity and effectiveness.

From the definition in section 3.4, the competitive intelligence process should indeed involve a capability of systematically gathering, sorting, analysing and synthesising information, in the context of competitive learning, for strategic and tactical decision-making purposes. There are many advantages to implementing a coordinated and structured approach to forming an intelligence process. The most salient reasons for such an approach are as follows:

▪   It leads a company to act rather than react to events in the external environment.

▪   It helps an organisation to capitalise on opportunities in the business environment.

▪   It links corporate intelligence efforts to the operational concerns and information sources of the various business units and functional areas.

- It assists managers to improve their understanding of how the company can achieve and maintain a competitive advantage, thus activating a continuous competitive learning process (Tyson 1998:6).

- It activates a dynamic strategic management process, which becomes essential in the confines of a dynamic and uncertain competitive environment.

The simplicity of the intelligence cycle is reflected in its most basic form, which entails the following four phases (Kahaner 1996:43; Miller 2000:14):

- planning and direction

- collection

- analysis (the main research subject of this study)

- dissemination

The CIA (http://www.cia.gov/cia/publications/facttell/index.html 2002) includes an additional phase between collection and analysis, known as processing. However, the basic functioning and output of the intelligence cycle is not disturbed in any way. To this end, figure 3.4 below places the four basic phases of the intelligence cycle, its management need and action-oriented demeanour, as well as its supportive information storage function, in a spatial context. For the purpose of this study, the intelligence cycle in this figure comprises eight evolving phases.

Figure 3.4: The intelligence cycle

3.8.2 Intelligence needs and determining of key intelligence topics (phases 1 & 2)

The catalyst of the competitive intelligence cycle is a known and/or unknown management information need for decision-making purposes, in order to act upon a competitive issue at stake. According to Herring (1999:5), this phenomenon creates, According to Herring (1999, p. 5), an intelligence need and becomes the critical success factor in any intelligence operation.

Herring (2000:61) concurs that from such an intelligence need, a **key intelligence topic** should be determined in order to provide purpose and focus which link management's intelligence needs to resources and activities throughout the company, capable of collecting and producing the necessary intelligence. Herring (1999:7; 2000) thus concludes that an organisation's **key intelligence topics** can generally be assigned to one of the following three functional categories:

- **Strategic decisions and actions.** This category involves the development of strategic plans and strategies. It also includes intelligence needed for capital expenditures affecting the organisation's competitive position, as well as strategic alliance, acquisitions and divestiture decisions. This category of key intelligence topics is the most important of all key intelligence topics, and should ideally encompass approximately 40% of intelligence unit's time.

- **Early-warning topics.** Key intelligence topics in this category are determined by a certain initiative of an established competitive force with new strategies, new and emerging competitive forces, and significant changes in industry structures, technological surprises and regulatory actions. Furthermore, it typically stresses activities and subjects by which management does not want to be surprised. These key intelligence topics are usually heavily weighted toward threats. Typically, this category should take up approximately 40% of an intelligence unit's time.

- **Descriptions of key players.** This category includes a greater understanding of the capabilities and intentions of a specific key competitive player active in the competitive environment. Importantly, it should focus upon insight into and foresight of such a competitive force's actions in order to anticipate their future intention. It should also include ongoing monitoring of their activities. Such a key player could be a specific competitor, customer, supplier, regulator and potential partner. These key intelligence topics are the least actionable and normally reflect a

manager's need to better understand a specific key player. Ideally, this category should take up no more than 20% of an intelligence unit's time.

At the outset, it is necessary to determine why management have an intelligence need and what it specifically entails. In addition, Herring (1999:7) asserts that an interview with management is the most appropriate way to help identify and define their intelligence requirements. Such an intelligence needs assessment will help to define the key intelligence topics and the responsibilities of the competitive intelligence team versus other analysis groups in the organisation, that is knowledge management, product managers, key account managers and marketing researchers.

In elaborating on this phenomenon, Herring (2000) also points out that certain coherent specific key intelligence questions, which are necessary to address a specific key intelligence topic, should be drawn up. These questions should be collection-based and focused upon analytical-oriented issues, in a planned intelligence operation. In addition, the key intelligence questions and actions should be closely linked to the responsibilities of the particular manager or management team. Ideally, five to 10 key intelligence questions are needed to address a specific key intelligence topic, whilst between two and three indicators or pieces of information are needed to collect the answer to a key intelligence question (Calof 2002:10).

As a corollary to the foregoing, an interview protocol for determining key intelligence topics, as depicted in figure 3.5, can be most helpful to ensure the consistency of results.

Figure 3.5: Key intelligence topic interview protocol

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1   Strategic decisions and actions

What decisions and/or actions will you/your team be facing in the next …. months, where Competitive Intelligence (CI) could make a significant difference?

………………………………………………………………………………...

………………………………………………………………………………..

………………………………………………………………………………..

- ▪   How will you use that CI?
- ▪   When will it be needed?

2   Early-warning topics

(Begin by identifying/discussing a past "surprise" in the industry, business, or firm).

Identify several potential surprise topics that the company should not be surprised by eg new competitors, technology introductions, alliances and acquisitions, regulatory changes, etc.

………………………………………………………………………………...

………………………………………………………………………………..

………………………………………………………………………………..

3   Key players: competitors, customers, suppliers, regulators, etc.

Identify those players you believe the company needs to better understand?

Who are they? ………………………………………………………………….

………………………………………………………………………………….

What specifically do we need to know? ………………………………………..

………………………………………………………………………………..

Source: Herring (1999:11–12)

Herring (1999:14) concludes that the identification of a company's primary intelligence needs is the most critical step in the intelligence cycle.

3.8.3   Planning and direction (phase 3)

Closely linked to the first two phases in the intelligence cycle (figure 3.4), is the need to plan and direct time and resources to the original key intelligence topic and subsequent intelligence to be delivered. Reaching this stage, both management and the competitive intelligence team have already agreed on the need for intelligence and have defined what type of key intelligence topic underlies the intelligence need. Closely linked to the determination of the key intelligence topic, the planning and direction phase is perceived by the CIA as the beginning and end of the intelligence cycle. This view is apparent, because it initially involves drawing up specific collection requirements, while the finished intelligence at the end of the cycle, in many instances, generates new requirements (http://www.cia.gov/cia/publications/facttell/index.html, 2002).

Parameters in the context of human resources, budget and the necessary time allotted to the project should subsequently receive attention. In addition, it should be determined who else may need the intelligence, and how the intelligence will ultimately be made actionable (McGonagle & Vella 1996:102).

A useful checklist to be used during the planning and direction stage is depicted in table 3.2 below.

Table 3.2: Competitive intelligence planning and direction checklist

Step	Action
1	Establish priorities between the various intelligence assignments at hand.
2	Determine what the financial, human resources and time parameters for the specific intelligence project are.
3	Determine what information is already available in the organisation to provide an adequate answer with regard to a particular key intelligence topic, as well as background and support toward sufficient tasking.
4	Determine what self-imposed restrictions there are that may be to the detriment of the intelligence project and which may force the competitive intelligence team to approach the project differently.
5	Determine what the best way is to replace assumptions with concrete information.
6	Determine which course should be considered in acquiring the intelligence, in other words establish a collection and analysis plan.
7	Develop common denominators, that is technical language, vocabulary among clients and collectors. This will facilitate understanding and efficiency.
8	Keep the intelligence user informed about the planned initiative.
9	Understand the sequence of tasks necessary to fulfil the project.
10	Direct resources within the time constraint of the project to the envisaged goal.
11	Ethical standards should be the basis of the whole competitive intelligence process.

Source: McGonagle & Vella (1996:103); Kahaner (1996:43–52); Kuhn (2001)

3.8.4   Information processing and storage (phase 4)

Firms all around the world are caught up in an increasingly information intensive economy, whilst information has a vastly disproportionate influence on their competitive advantage (Evans & Wurster 2000:11). The competitive intelligence discipline as applied in organisations has not escaped this phenomenon because information permeates all phases of the intelligence process. From an operational perspective, the capturing, processing, storage and retrieval of seemingly unrelated bits and pieces of information in various formats in an information system are critical to the success of intelligence delivery. In addition, such an information system plays a vital role during each step of the

competitive intelligence process. A well-developed competitive intelligence information system could largely improve the efficiency of the competitive intelligence process.

According to Hohhof (Miller 2000:133) many information technologies already available in an organisation can strongly support the competitive intelligence process. This includes library services, electronic and other communication systems, document management systems, filtering and retrieval ware, data warehousing software, the intranet and Internet, as well as various other recent information technological developments.

According to Aker (1998:25), to be able to support the competitive intelligence activity, a competitive intelligence information system should adhere to certain key process, technology and design requirements. For the purpose of this thesis, attention will only be focused on the principal process and design requirements, whilst it is perceived that the technology requirements fall largely beyond the scope of the thesis. The key process and design requirements are thus as follows:

3.8.4.1   *Process requirements*

- **Storage.** Such a competitive intelligence information system should be able to accept all forms of information. This typically includes text, spreadsheets, graphics, audio, video, image, HTML data, legacy material and even geographical maps. The facility must be an open object store in which users are able to store any form of information.

- **Indexing.** The intelligence information system must be an open container with the ability to edit, index and categorise all documents for advanced searches at a later stage.

- **Tasking.** The intelligence information system must be able to ask or task others with the workload of creating intelligence. Such a capability allows competitive intelligence managers to plan, distribute and track the process of creating intelligence.

- **Assign documents.** The facility must be able to automatically and manually link documents to problem statements or key intelligence topics. It is thus essential for the information storage facility to be capable of reducing the information that a competitive intelligence analyst must deal with in the formation of intelligence.

- **Analysis.** The intelligence information system must have the capability to organise and sort documents assigned to a key intelligence topic. Analysts thus need this ability in order to see patterns and recognise logical connections between seemingly unconnected pieces of information.

- **Audit trail.** The facility should be able to construct an audit trail of the material or evidence used in forming the final intelligence (Aker 1998:26).

3.8.4.2   *Design requirements*

- **Simplicity.** The facility must afford users an intuitive method to store, retrieve and navigate information and work processes. An electronic database should run on electronic software programs, used by the whole organisation.

- **Accessibility.** The application must be accessible from multiple points. It should thus be possible to access the database from anywhere in the world at any given time.

- **Security.** The facility must be rigorous enough to protect sensitive information, yet sufficiently flexible to allow accredited users easy access (Aker 1998:28).

- **Capturing internally produced information.** Through the support of a well-developed data management system that covers all internally produced documents in the organisation, the competitive intelligence information system should be able to gain access to all relevant internally produced documents.

- **Retrievability.** Various search engines exists which provide basic Boolean keyword searching without regard for context or meaning and offer no filtering or intelligent search strategies. Owing to the different types and quantity of data and information in and available to a competitive intelligence information system, it becomes imperative for such a system to be able to do topical searching, relevance ranking and term proximity searching on a broad range of data sources and types. Such a retrieval capability should also be able to retrieve information in the organisation, in an accurate and relevant manner, as well as information that is globally available (http://www.convera.com).

Furthermore, it is essential that the development of such a competitive intelligence information system should always be approached from a practical perspective. In addition, the competitive intelligence function should take cognisance of the latest developments in the information technology field. However, the advantages and practical essence of such new technologies within the confines of competitive intelligence should be thoroughly evaluated before consideration is given to possible costly implementation. To this end, Hohhof (Miller 2000:152) argues that an intelligence information system should always be focused on the prism of the decision-maker's intelligence needs. Such an approach can significantly expand the effectiveness of the entire competitive intelligence process.

3.8.5   Collection (phase 5)

Many managers in the business context gather information about their external environment by reading financial, business and industry journals, newspapers and magazines. Dedicated industry, analyst, project, financial or market reports by internal and external professionals, are also frequently used. Although, in many instances, these initiatives do create knowledge, they do not necessarily promote competitive learning, as Miller (2000:12) so aptly puts it:

When a story hits the press, it's already old news.

Thus, today's business climate requires a much more consistent and formal forward-looking method for gathering information and creating intelligence. Collection, as part of a structured competitive intelligence process, involves gathering raw information needed to produce actionable intelligence, in the context of a specific key intelligence topic of a firm (Kahaner 1996:53; http://www.cia.gov/cia/publications/facttell/index.html 2002).

However, Fleisher and Blenkhorn (2000:14) and Shaker and Gembicki (1999:9) contend that most organisations are full of data and information, but starved of intelligence. Potential sources of information in firms are limited only by the imagination. This is especially true of the information explosion with the advent of the Internet, and the vast number of on-line databases available in recent years, as well as the large numbers of people with whom employees have continuous contact.

3.8.5.1   *Sources of information*

Information sources for intelligence purposes can broadly be divided into primary and secondary sources. Kahaner (1996:54) perceives the major difference between the two categories to be the following:

> *Primary sources are raw, unchanged, and usually in its entirety, while secondary sources have been selectively pared from other information sources or altered by opinion.*

Secondary sources are thus more commonly available than primary sources and, in most instances, provide the background information to support the insights gained from primary sources (Miller 2000:15). In effect, primary sources could be viewed as the holy grail of source information in the competitive intelligence environment, since up to 80% of intelligence could be acquired from these primary sources (Kahaner 1996:54; Potter 2001). Information from both these categories of intelligence sources could, however, render valuable insight into a specific key intelligence topic. Table 3.3 provides a

breakdown of different primary and secondary sources available in the competitive intelligence domain.

Table 3.3: Primary and secondary sources in competitive intelligence

Primary sources	Secondary sources
▪ Personal observations	▪ Newspapers and magazines
▪ Speeches	▪ Trade and industry journals
▪ Live interviews and presentations	▪ Industry newsletters
▪ Industry experts	▪ Annual and financial reports
▪ Competitors	▪ Analysts' and consultants' reports
▪ Customers	▪ Industry directories
▪ Suppliers	▪ Distributor and supplier listings
▪ Alliance partners	▪ Government documents
▪ Government officials	▪ Off-the-shelf reports
	▪ Technical and patent reports
	▪ Benchmark and re-engineering studies
	▪ Books
	▪ Television and radio programmes
	▪ Trade and industry associations
	▪ Commercial and electronic databases
	▪ Internet - competitor and other websites
	▪ Job postings
	▪ Internet chatrooms
	▪ Trade shows

Source: Kahaner (1996:55); Miller (2000:15); Fleisher & Blenkhorn (2000:15); Sandman (2000:12); IBIS Consultants (2002)

Although information from secondary sources provides a sound base for the competitive intelligence process, this information is normally readily available and accessible by any person or firm. This fact alone detracts from its value, and means that it is probably not the best intelligence available. Furthermore, it would probably not render a major competitive advantage to an organisation. However, the combination and verification of information from different secondary sources does add far more value to the delivery of

actionable intelligence than a single piece of information. In addition, if such secondary information can be supported by information from primary sources, the value to the organisation increases substantially. Tyson (1998:6) strongly condemns the limited use of primary sources in many organisations in the strategic planning process when he argues:

> *It has become apparent that many strategic planning groups within companies still develop their strategic plans for the future based on secondary information, assumptions and guesstimates.*

Information collection from primary sources, could in this regard add much value to a company's strategic process.

3.8.5.2   *Collection plan*

Competitive intelligence collection is, however, not the mere acquisition of masses of information. Kahaner (1996:57) argues that it should be approached creatively, because brute-force techniques will not render positive results. One of the most useful ways to approach the task of competitive intelligence collection is to view the required data and information as a commodity or tangible product (McGonagle & Vella 1996:120). In addition, a critical introductory step in competitive intelligence collection is the compilation of a collection plan. Such a collection plan entails a structured, logical and sequential process for determining what information should be collected. The results of one step in the collection plan should feed logically into conducting of the next step. Each step of the collection plan could, however, stand alone as a useful element in the collection effort, although the synergistic value gained from completing all of the steps of the plan far exceeds the sum of its parts. In broad terms, a collection plan entails the steps outlined in table 3.4.

Table 3.4: Steps in a collection plan

Steps	Actions
1	Develop and refine the requirements, key intelligence questions and indicators of the specific key intelligence topic
2	Determine who knows who and who knows what
3	Determine what sources are the most appropriate for every key intelligence question
4	Identify the most likely collectors, as well as secondary and primary sources with regard to potential targets
5	Ensure that an adequate number and variety of collectors and sources are used
6	Chart the most efficient way to get as close to the primary source as possible
7	Brief, develop, and protect collectors in order to optimise their collection capabilities
8	Track events and activities and orchestrate interaction between collectors and primary sources

Sources: Shaker & Gembicki (1999:46–48); Potter (2001); Kuhn (2001)

For the purposes of sufficiency, the collection plan should, if necessary, be adjusted during the collection process. In this regard, it is important to take cognisance of the fact that as information starts flowing in, some specific requirements could possibly be closed out and resources redirected. However, this should only be done in the case of concrete and verified information that eliminates the need for additional collection.

3.8.5.3   *Human intelligence*

Because the best intelligence regarding the future intent of a competitive force is largely available from nonpublished sources, and more specifically from humans, **human intelligence** requires specific attention. The process of human intelligence collection is, however, a specialised field that will, for the purpose of this study, not be dealt with in great detail, although certain basic issues will be addressed.

Analogous to the foregoing, Laquer (IBIS Consulting 2002), perceives the benefit of human intelligence to include the following:

It is only from human intelligence sources that we gain decisive confirmation of a hunch or a suspicion, or uncover information that has been successfully hidden from other forms of surveillance.

Although some subjectivity may surround human intelligence collection, it is the only means by which an organisation can access the motives, intentions, thoughts and plans of a competitive force (IBIS Consulting 2002). Human intelligence in the business context, normally surfaces through discussions with competitors, customers, suppliers, government officials, analysts or other knowledge people in the industry. This is done in order to gain some insight into the mindset of the mentioned stakeholders regarding their future intentions. All employees in the organisation, that is management, sales forces, research and development staff, or any other employee, who has contact with external people, have a responsibility and should contribute to the intelligence process by means of a structured human collection process. If properly trained, these employees could play a critical role as intelligence collection specialists in the ethical collection of human intelligence.

Human sources, like information sources in general, can also be divided into primary and secondary sources. Primary human sources are normally those sources from which information on a specific key intelligence topic is directly needed. Examples of primary human sources include key individuals in a target organisation who have access to or are knowledgeable about a possible key document or key strategy. In contrast, secondary human sources could include various individuals who have contact with a specific key a specific primary source. To this end, table 3.5 below depicts primary and secondary human sources.

Table 3.5: Primary and secondary human sources

Primary human sources	Secondary human sources
▪ Key personnel of competitors ▪ Key personnel of customers ▪ Key personnel of alliance partners ▪ Key personnel in governmental structures ▪ Researchers ▪ Other people directly involved in key decisions identified according to a specific key intelligence topic	▪ Consultants ▪ Journalists ▪ Investment and financial analysts ▪ Business experts ▪ Suppliers ▪ Customers ▪ Private investigators ▪ Contractors ▪ Travel agents ▪ Advertising agencies ▪ Academic staff

Based on the above-mentioned, the challenge is thus to build an informal but focused network that actively seeks out information routinely and systematically. An important introductory step in the development of intelligence networks is to draw up a knowledge map in order to determine which individuals in the home organisation are the most knowledgeable on specific topics. The use of established knowledge management networks that employees have with external groups and individuals, on account of their daily work responsibilities, render an ideal opportunity to build upon when it comes to competitive intelligence collection networks. An internal network should thus slowly be expanded in a planned and structured manner to eventually include knowledgeable external individuals.

Since it is fundamentally based upon trust between individuals, the creation of such an intelligence network, however, is not a short-term activity and it could take years before the necessary efficiency levels are reached. Conceptually, the development of a competitive intelligence network is illustrated in figure 3.6 below.

Figure 3.6: Illustration of a competitive intelligence human network
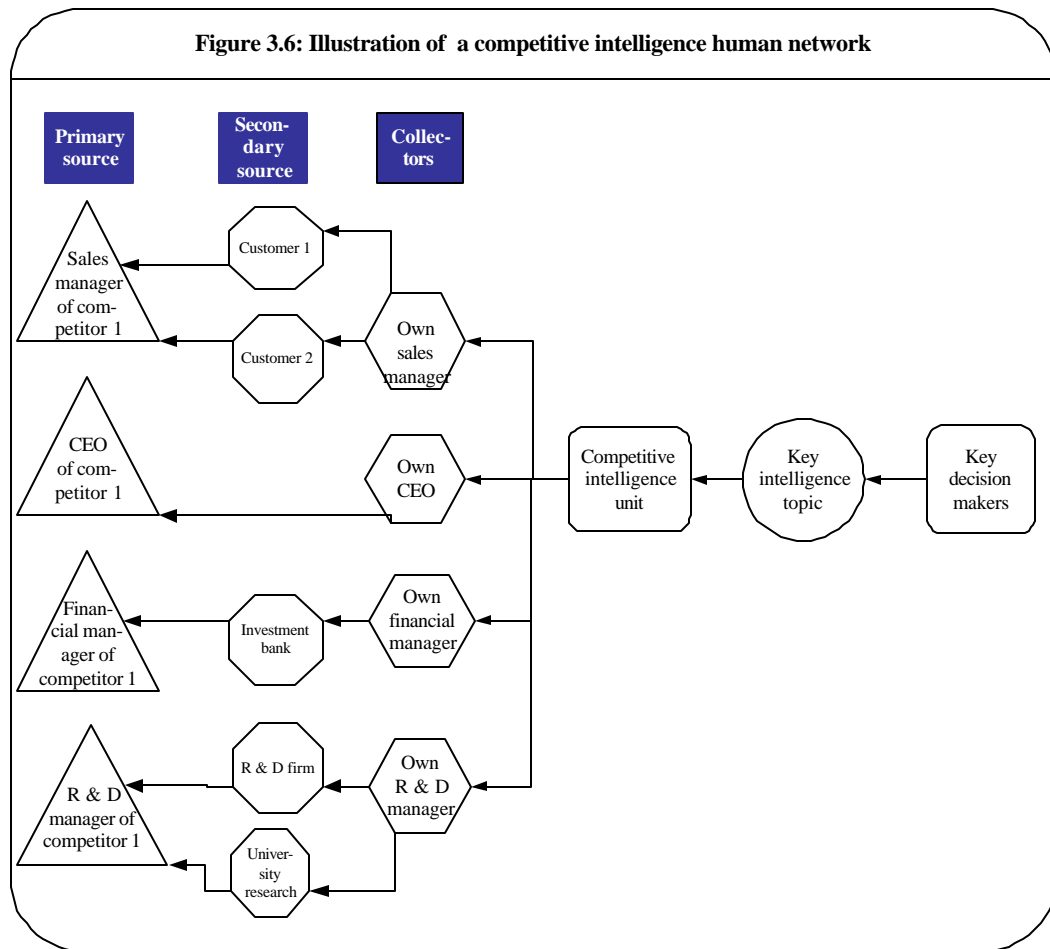
Source: Based on and adapted from Potter (2001:29); Kuhn (2001)

Tyson (1998:4) argues that as much as 95% of intelligence is available just by asking other people. In an effort to tap this wealth of knowledge, human intelligence can be collected by way of three different ways:

- interrogation

- interviewing

- elicitation

While interrogation is by no means applicable within the confines of an ethical approach to business, in an interviewing context, human intelligence may be ascertained directly from a source during a personal interview or through a telephonic interview.

In the process of utilising human networks for optimal effectiveness, Nolan (1999:5), however, emphasises the fact that professionals from the government and military intelligence fraternity have developed a peculiar but highly effective set of skills to acquire information from other human beings. This set of skills is known as **elicitation**, and in intelligence terms can be defined as (Nolan 1999:5):

> *The process of acquiring information from other individuals, which avoids direct questions and employs a conversational style to help reduce concerns and suspicions, in the interest of maximising the flow of information.*

In practice, the purpose of an elicitation session is thus to obtain required information, from an individual who probably has it, and has not necessarily admitted having it, who may or may not be willing to part with it, and who may or may not know – or even care – who the elicitor is (Nolan 1999:5).

Implicit in the use of elicitation within the confines of competitive intelligence collection, a number of human characteristics come into play when information is exchanged. These characteristics are found in people across industries, cultures and languages. In view of these general characteristics, a number of elicitation techniques may aptly be applied in order to acquire intelligence in an ethical manner. These human characteristics and elicitation techniques are depicted in table 3.6 below:

Table 3.6: Certain human characteristics and elicitation techniques

Human characteristics	Elicitation techniques
- Fulfilling a desire or need for recognition; - Tendencies toward self-effacement; - A natural tendency to correct others; - A natural tendency to prove someone else wrong; - The need for a sympathetic ear; - A natural tendency to gossip; - A general inability to keep secrets; - Tendencies to underestimate the value of information they are providing or the ability of the recipient to understand it; - Occupationally derived habits of advising, teaching, correcting, substantiating or challenging others; - Tendencies toward indiscretion when not in control of one's emotions; and - Tendencies of some professionals to share confidences with, or to show off expertise to, another professional.	- Making provocative statement; - Making quid pro quo statements; - Being simply flattery; - Exploiting the instinct to complain; - Word repetition; - Quotation of reported facts from another source; - Showing disappointment; - Enticement; - Disagreement; - Showing disbelief; - Having a faulty memory; - Making a false statement; and - Misquotation.

Source: Nolan (1996:34–43; 54–96)

3.8.5.4   *Organisation and coordination of the collection process*

The competitive intelligence unit should ensure that the collected data and information are properly managed and captured in the competitive intelligence information system. This entails the regular debriefing of collectors after their interaction with the various primary sources, with regard to a specific key intelligence topic. Such debriefing can be done verbally, or by means of a report. However, the information should be presented appropriately and adhere to the following criteria:

- It must be responsive to the original tasking.

- It must contain relevant information, which is to the point and clear.

- The information must be focused and not general.

- The information must be timely

In addition, the information should be scanned for relevancy, urgency and importance. This involves an assessment of the incoming information and not an analysis thereof. Two elements are thus important here.

- **Source reliability.** All information comes from sources whose reliability can be estimated, based on past performance or characteristics indicating dependability.

- **Information credibility.** The credibility of the information should be determined in the sense of the probability of it being correct. The information should also be tested and compared with other information in terms of credibility.

Consequently, all unnecessary detail should be discarded in order to extract the essence, while the relevant and useful information should be arranged chronologically (Shaker & Gembicki 1999:46–48; Potter 2001; Kuhn 2001).

The sequel to the foregoing collection phase in the competitive intelligence cycle is aptly captured in the words of Fahey (Kahaner 1996:95), when he argues:

> *The impression exists that competitive intelligence is nothing more than collecting data and information. It's unfortunate, because the real value added comes with the intervention of humans.*

Once the necessary data and information have been collected, it is essential for humans to intervene through a process of competitive learning. In so doing, the awesome power of competitive intelligence can truly be harnessed in a company's quest to navigate through the labyrinth of opportunities and risk.

3.8.6   Analysis (phase 6)

As indicated in chapter 1, the analysis step in the competitive intelligence cycle constitutes the main research subject of this study. Consequently, in order to harness this power from the seemingly unconnected data and information, the next stage in the intelligence cycle, analysis is of major importance. Herring (1998:14) argues that intelligence analysis is more a process than the application of a specific type of analytical technique because it requires a combination of intelligence collection and analytical techniques to generate the appropriate action. There is thus a close and strong symbiotic relationship between competitive intelligence collection and analysis, within the confines of the intelligence cycle. Herring (1998:14) defines competitive analysis as follows:

> *A step in the production of intelligence in which intelligence information is subjected to systematic examination in order to identify relevant facts, determine significant relationships and derive key findings and conclusions in order to stimulate action.*

Fleisher and Bensoussan (2003:12) and Fleisher (2003:6) elaborate on this matter when they argue that competitive analysis is a multifaceted, multidisciplinary combination of scientific and nonscientific processes whereby individuals interpret the data or information to provide meaningful insights, intelligence findings and recommendations for action. It is used to derive correlations, evaluate trends and patterns, identify performance gaps, and above all to identify and evaluate opportunities available to organisations. Competitive analysis should thus answer the critical "so what" question about the gathered data and information and should bring insight to bear directly on the key intelligence topic and decision maker's needs. Herring (1998:16) concurs that

competitive analysis could be perceived as the "brain" of a modern intelligence system. In this regard, analysis

- guides collection and makes it more efficient and effective

- synthesises the bits and pieces of information collected about important external developments

- identifies key relationships, linking those external developments with vital interest of the organisation

- generates insightful understanding of ambiguous and ill-defined external developments relevant to the organisation's competitiveness and business success

From a management perspective, the analysis process should be managed properly. The checklist provided in table 3.7 below could give direction to competitive analysis in the broader intelligence cycle.

Table 3.7: Checklist for evaluating and analysing raw data

Step	Action
1	Establish the reliability of the source
2	Estimate the accuracy of the raw data
3	Ensure that all data and information are relevant to the identified key intelligence topic
4	Analyse the raw data
5	Identify and deal with misinformation
6	Identify and deal with disinformation
7	Draw conclusions
8	Define and conduct supplemental data-collection efforts, if necessary
9	Review the evaluation and analysis in light of results from the other three stages

Source: McGonagle & Vella (1996:104)

Various analytical models and techniques are being used in competitive analysis today. Some authors are of the opinion that over 100 such techniques have been used in the context of competitive intelligence. Some of these analytical techniques and models will be dealt with in greater detail later in this chapter. However, competitive analysis, as part of the intelligence cycle, is much more than analysing a particular competitive force, or applying a specific analytical technique – it is the analytical "thinking" and competitive learning that is necessary to run the intelligence operation and, significantly, to produce the appropriate intelligence and foresight that causes management to act on competitive threats and opportunities (Herring 1998:16).

3.8.7   Dissemination: preparing and presenting the intelligence results (phase 7)

The intelligence cycle has now reached the stage where all the bits and pieces of seemingly unrelated data and information have been collected and properly analysed in order to produce intelligence. This intelligence must now be prepared and submitted to decision makers. Intelligence results must also be formatted in such a way that it is readable, understandable and useful. In this regard, the format preference of the intelligence user is a vital consideration. In addition, there are various ways of submitting intelligence findings to decision makers. These include the following (Hohhof, in Miller 2000:134; Herring 1999):

3.8.7.1   *Alerts*

An alert is an event-driven intelligence product of a current development, or the so-called "breaking news". An alert is largely derived from the organisation's early warning key intelligence topics.

Limited analysis is included in an alert because speed is the most critical element in the delivery of such an intelligence product. An alert can, furthermore, be submitted in various formats such as through direct verbal interface or via electronic and written messages.

3.8.7.2   Newsletters

An intelligence newsletter contains summaries of selected news events in the competitive environment, which may impact on the home organisation. The events covered in an intelligence newsletter are mainly derived from the organisation's early warning key intelligence topics.

Basic analysis is included in an intelligence newsletter, which largely has two main functions. These include a continuous sensitising of members of the organisation with regard to the effect of the external environment on the home organisation, and informing decision makers about an event and its possible outcome and influence on the organisation. In many instances, intelligence newsletters are available either in published format or through the organisation's Intranet.

3.8.7.3   Intelligence reports

This intelligence product reviews a specific external development and its potential impact on the organisation's competitiveness. In most instances, an intelligence report is, developed from unique primary human sources.

An intelligence report, furthermore, can either have its origins in a strategic decision, an early warning or a description of a key player category key intelligence topic. The intelligence report is also submitted in published or electronic report format, or by way of a presentation to management.

3.8.7.4   Intelligence assessment

This intelligence product is a comprehensive intelligence analytical product that primarily covers a strategic decision key intelligence topic. Great emphasis is placed on trends, forecasts and the future intent of a competitive force and its implications for the home organisation. Competitive learning is thus a critical prerequisite of such an intelligence product.

The intelligence assessment is submitted in published or electronic report format, or by way of a presentation to management.

An inherently part of the dissemination stage in the competitive intelligence process, is the overriding fact that value and not volume drives intelligence. Competitive intelligence is information that has been analysed to the point where decision makers in an organisation can make a critical decision and act upon it. Driving information beyond a decision to proactive action is where the real value lies for the organisation. Tyson (1998:1) elaborate even further when he states that what makes the competitive intelligence process different from more traditional research and planning methodologies is the fact that results are generated in hours and days, instead of weeks and months, while the focus is on strategic perspective rather than numerical precision.

3.8.8   Intelligence users and decision makers (phase 8)

Once the intelligence has been disseminated, it should be distributed to those decision makers who requested it by way of an initial key intelligence topic request. In some cases, the intelligence can be given to others who might benefit from having it. However, since competitive intelligence deals, in most instances, with sensitive matters, confidentiality should be a vital consideration. It is, also, imperative that the intelligence reaches the right people at the right time.

According to the CIA (http://www.cia.gov/cia/publications/facttell/index.html 2002), decision makers should be able to make decisions based upon the intelligence, whilst these decisions may, in many instances, lead to the levying of additional key intelligence topics, thus triggering the intelligence cycle once again.

3.9 COMPETITIVE ANALYSIS IN THE CONTEXT OF COMPETITIVE LEARNING

The theoretical investigation into competitive intelligence in this chapter reflects the fact that the intelligence cycle is the driving axis of the discipline. Inasmuch as the current-day business realities of an organisation emphasises the collection of data and information as a key issue in a world flooded with information, it is only through the intervention of humans that real value is added. Competitive analysis, as one phase in the intelligence cycle, is thus the real value-creating phase, which encompasses the basic demeanour of competitive learning. Regarding this phenomenon, Herring (1998:14) contends that analysis is the "brain" of a modern competitive intelligence system. Consequently, competitive analysis is the critical step in the process of competitive learning, which should initialise a thought process that leaps beyond the obvious. Based on these fundamental characteristics, it becomes clear why Heuer (1999:17) refers to intelligence analysis as fundamentally being a mental process. Likewise, as early as 1965, Kent (Heuer 1999:8), gave credence to the essential role of analysis in the intelligence process when he proclaimed:

Whatever the complexities of the puzzles we strive to solve and whatever the sophisticated techniques we may use to collect the pieces and store them, there can never be a time when the thoughtful man can be supplanted as the intelligence device supreme.

As a corollary to the foregoing, Fleisher and Bensoussan (2003:12*)* contend that competitive analysis, as part of a systematic and structured competitive intelligence process, is:

A multifaceted, multidisciplinary combination of scientific and non-scientific processes, by which individuals interprets the data or information to provide meaningful insights. It is used to derive correlations, evaluate trends and patterns, identify performance gaps, and above all to identify and evaluate

opportunities available to an organisation. Analysis answers the critical "so what" question about the gathered data and brings insight to bear directly on the decision maker's needs.

Gilad (1998:31) concurs that competitive analysis is not merely the application of analytical techniques, but to create insight, thus initiating a process of competitive learning. Competitive analysis is therefore the ability to synthesise disparate facts in order to yield an additional dimension, not easily recognised from the facts alone. Insight is based on a true understanding of a competitive force's motives, in the context of its tangible and intangible assets in the wider business reality. In this regard, certain critical elements are necessary for effective competitive analysis, namely (Fleisher 2003):

▪ knowledge about the subject being analysed (often augmented by internal or external expertise)

▪ a strong understanding of business, the basic intelligence processes, and the various intelligence analytical techniques

▪ organisational support and procedures to produce truly actionable intelligence

▪ a balanced view between various opposite paradigms

In addressing these critical elements in the competitive analysis process, it stands to reason that almost by definition, intelligence analysis deals with highly ambiguous situations. In such a situation, Heuer (1999:65), concurs that major intelligence failures in history have usually been caused by failures of analysis and not of collection. This is largely because in the process of intelligence analysis, analysts construct their own version of "reality" on the basis of information provided by the senses. This happens because relevant information is discounted, misinterpreted, ignored, rejected or overlooked because it fails to fit a prevailing mental model or mind-set. The intelligence analysis function consequently transcends the limits of incomplete information through

the exercise of analytical judgment (Heuer 1999:41). The influence of judgment and the perceptions on which it are based, on the competitive analysis process speaks for itself. This phenomenon is aptly illustrated by the different permutations in figure 3.7:

Figure: 3.7: The persistence of established images

Figure 3

It is difficult to look at the same information from different perspectives.
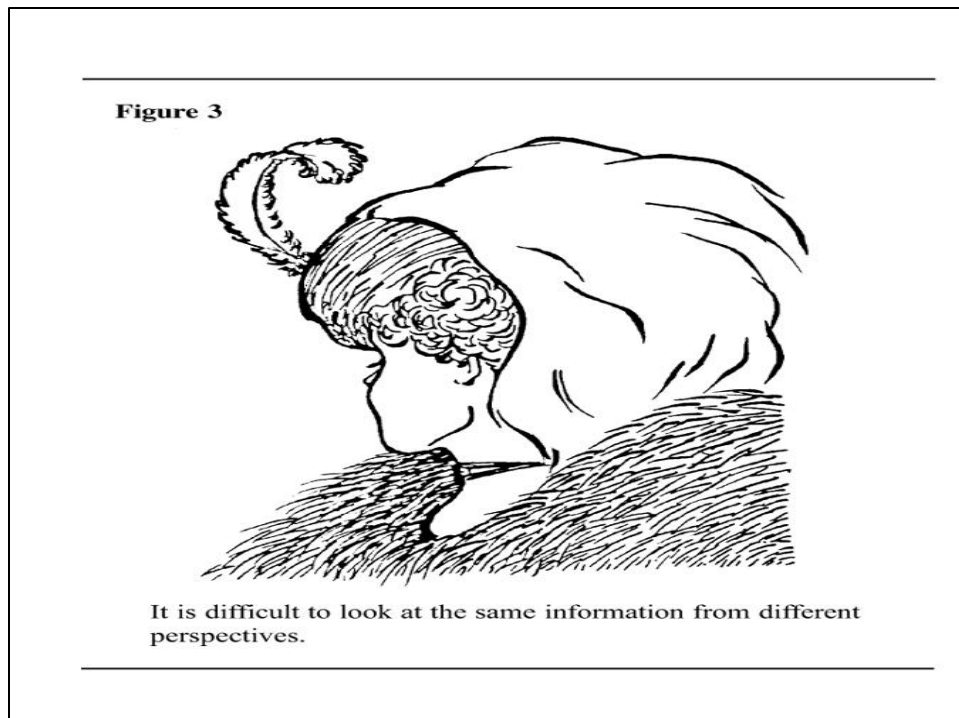
Source: Heuer (1999:28)

The drawing in figure 3.7 affords an individual the opportunity to test the persistence of established images. Comprehending the nature of perception has significant implications for understanding the nature and limitations of intelligence analysis. One of the more difficult mental feats in the competitive analysis sphere is to take a body of data and reorganise it visually or mentally to perceive it from a different perspective. According to Heuer (1999:28), this is what intelligence analysts are constantly required to do. In order to comprehend competitive interactions, analysts must understand the situation as it appears to each of the opposing forces and the way in which each side interprets an

ongoing series of interactions. Trying to perceive a competitive force's dynamic interpretations of a competitive event, as well as that of the home organisation, is comparable to seeing both the old and young woman in figure 3.7.

This possible unreliable sensory input is mediated by complex mental processes that determine which information is attended to, how it is organised, and the meaning that should be attributed to such inputs. In the context of the competitive analysis process, it is true that what people perceive, how readily they perceive it, and how they process this information after receiving it, are all strongly influenced by past experience, education, cultural values, role requirements and organisational norms (Heuer 1996:12). In addition, various authors (Fleisher & Bensoussan 2003; Sawka 2003; Herring 1998; Gilad 1998; Kahaner 1996; Fuld 1995); have strong and very pertinent views about the influence of the self on the outcome of competitive analysis. They observe that because it always involves unknowns and uncertainties, effective competitive analysis requires constantly varying combinations of art and science, common sense, clarity of thought, objectivity, solid judgment, intuition, good perception, personal courage, intellectual fortitude and conviction.

In such an imperfect scenario, competitive analysis should be done with a conscious view of the impact of human reasoning, perceptions and judgmental processes, and specifically the way in which judgments are made and conclusions reached in the context of competitive learning. It is thus important to determine in the competitive analysis process, the possible discrepancies that may impact negatively on the quality of intelligence being provided. Tools and techniques that could enhance higher levels of critical thinking in the competitive learning process can substantially improve competitive analysis. However, this phenomenon falls largely beyond the scope of this study, but is a potential source of material for future research.

3.10 SUMMARY AND KEY FINDINGS

In a few decades, the orientation of the global economy has shifted its focus from production to selling, to marketing, and today, to a business environment in which globalisation, competition and turbulence are the predominant factors. In such turbulent circumstances, information is a vital prerequisite for business success. However, the information on which many successful organisations have built their competitive advantage in the global business arena is, in most instances, also available to less successful organisations.

The ability of organisations to develop a sustainable competitive advantage is, however, increasingly rare. A competitive advantage laboriously achieved can be quickly lost. Implicit in this principle is the fact that the development of a competitive advantage is, however, unavoidably dependent on and predicted on the basis of learning. In such circumstances, however, the single greatest liability of management teams in many organisations is that they confront complex dynamic realities with an approach designed for simple static problems. Accordingly, organisations should constantly learn, amongst other issues, about the competitive environment, and initiate competitive actions based on the insight gained.

This latter type of learning - **competitive learning** - should ultimately result in self-learning. The fundamental concept underlying competitive and self-learning relates to the initiative where the home firm compares itself with important aspects of the various forces in its competitive environment, upon which it should develop and implement winning strategic initiatives. Against the backdrop of the foregoing, besides other established management support systems, many of the successful organisations in the world rely on a practice known as **competitive intelligence** to collect and **analyse** information, and to illuminate the unknown in an ever-faster moving and less predictable external environment, for the purpose of management decision making.

Competitive intelligence is a structured, systematic, ethical and dynamic process that involves gathering bits and pieces of information about any competitive force The collected data and information about these forces should consequently be analysed and transformed by way of a dynamic learning process in order to acquire foresight and strategic knowledge about the future intentions of such competitive forces that may impact on the home firm's current competitiveness and future competitive ability.

Competitive intelligence is often viewed as a relatively new business discipline that came into prominence during the 1980s. However, its practical origins date back decades, even centuries. From its strong origins in the fields of the military and espionage, competitive intelligence as a distinct field started out in the business environment as a specialised activity nesting under marketing research and known as "marketing intelligence" during the 1960s. After the 1960s, the next generation in the evolution of competitive intelligence, and perhaps the real intellectual and academic origins of the discipline, manifested itself in the work of Michael Porter. Hence, at the start of the 21st century, it is increasingly apparent that organisations around the world need to realise the growing need for competitive learning and competitive intelligence. Consequently, competitive intelligence is becoming a common global practice.

Inasmuch as the current-day business realities of an organisation emphasise the collection of data and information as being a key issue in a world flooded with information, it is only through the intervention of humans that real value is added. Competitive analysis, as one phase in the intelligence cycle, is thus the real value-creating phase, which encompasses the basic demeanour of competitive learning. Against the backdrop of the foregoing, **competitive analysis** should always be conducted with a conscious view of the impact of the human reasoning, perception and judgmental processes, and specifically the way in which judgments are made and conclusions drawn in the context of competitive learning.

CHAPTER 4

COMPETITIVE ANALYSIS
TECHNIQUES AND MODELS

4.1   INTRODUCTION

Central to the principle that competitive analysis is the critical step in the competitive intelligence process, stands the fact that it should initiate competitive learning or a thought process that leaps beyond the obvious. Hence, a true understanding of a competitive force's motives should be developed, in the context of such a force's tangible and intangible assets within the wider business realities. Fahey (1999:26) emphasises the fact that such a competitive learning process should, in the final instance, extend the range of the home firm's choices and influence its possible behaviour and actions.

However, a dangerous fallacy exists in many knowledge structures or learning processes in organisations, whereby decision makers think they know what is necessary to make an informed decision. An organisation needs to recognise the basic fact that competitive learning about the competitive forces in its surrounding environment should be strongly based upon an open-ended learning process (Fahey 1999:56). The corollary to this is the fact that in such an open-ended learning process, descriptive learning should be used as the catalyst for comparative, augmented and self-learning. Kahaner (1996:1) concurs with this notion when he states that most analysis in organisations is done to confirm individual assertions or theorems; it is not conducted in an open forum of inquiry, which strongly underpins the problem of preconceived notions.

The driving force should primarily be to develop knowledge about a particular competitive force and consequently develop implications for the home firm's current and future decisions. Such open-ended competitive learning should be driven by certain learning and decision-based questions. These questions are as follows (Fahey 1999:56; Grant 1998:96):

▪   Who are the firm's current and future competitive forces?

- What are the major alternatives, plausible futures or scenarios around the strategic and operational direction of individual (and multiple) competitive forces over different time periods?

- What are the implications of these alternative futures for the competitive context and the home firm itself?

- How can a competitive force's behaviour be influenced in order to make it more favourable for the home organisation?

In an effort to link answers to these vital questions which, in many instances, have a major influence on an organisation's future existence and prosperity, more than a hundred analytical models, methods and techniques have been used in competitive analysis endeavours. This number is probably conservative in the light of the many tools that have been custom-designed to serve some organisation's proprietary competitive intelligence purposes. Many of these analytical techniques and models have been adaptations of business, industry, strategy, marketing, financial and technology analysis techniques because few pure competitive intelligence analytical techniques and models have been developed (Fleisher & Bensoussan 2003:xviii & 122; Herring 1998:14; Sawka 2002:46).

However, according to Herring (1998:14), competitive intelligence analysis is all of these techniques and more. He perceives competitive analysis to be more a process than the application of a specific type of technique – often requiring the appropriate combination of analytical techniques and intelligence collection to generate appropriate action. This view accords with Sawka's observation (2002:46) that competitive analysis is a thought process, which can be broken down into five stages (see figure 4.1 below).

Figure 4.1: The five stages of competitive analysis

```
        ┌──────────┐
        │ Stage 5  │
        │  Action  │
        └──────────┘
             ↑
        ┌──────────────┐
        │   Stage 4    │
        │ Implications │
        └──────────────┘
             ↑
        ┌──────────────┐
        │   Stage 3    │
        │ Explanation  │
        └──────────────┘
             ↑
        ┌───────────────┐
        │    Stage 2    │
        │ Trends/Insight│
        └───────────────┘
             ↑
        ┌──────────┐
        │ Stage 1  │
        │   Data   │
        └──────────┘
```
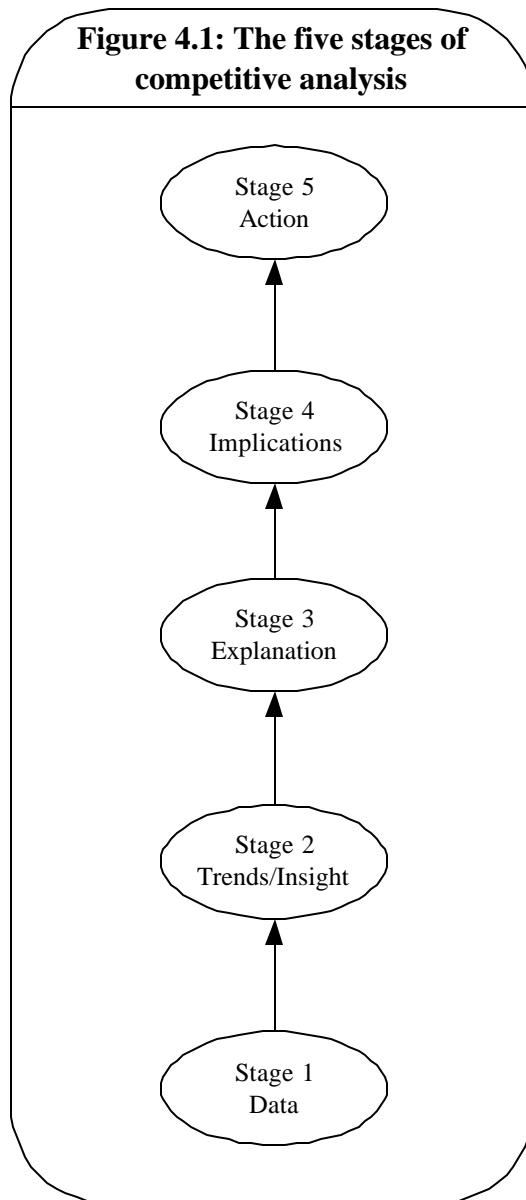
Source: Sawka (2002:46)

As a corollary to the foregoing is Gilad's view (1998:31) that competitive analysis should be ranked along a predictive or value-adding continuum. Sawka (2002:46) concurs with this argument when he notes that data are the raw ingredients during the first stage of the competitive analysis process without which the remaining part of the analysis process will evolve into nothing more than fictitious stories. Based upon sound data and information, the second stage of the competitive analysis process represents the first

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opportunity in which judgment is necessary to interpret basic data and information. In addition, as an analyst progresses further in the analysis process, dependence on facts decline, whilst dependence on the analyst's own judgments, hypotheses and explanation increases. The fourth stage of the analytical process, as indicated in the above-mentioned figure, represents the first opportunity in which an analyst can focus upon the future and should express an opinion on what a competitive force's actions may mean to the home organisation. The final stage in the analytical process represents the stage in which an analyst must provide strategic options and recommendations regarding a specific key intelligent topic.

Against the backdrop of the different stages in the competitive analysis process, there are numerous formal tools and techniques available to structure the thought process in the context of competitive analysis. Fleisher and Blenkhorn (2000:77-85) have divided these analytical tools and techniques into seven categories. These categories include the following:

- strategic analytical techniques

- product-oriented analytical techniques

- environment-oriented analytical techniques

- customer-oriented analytical techniques

- financial-oriented analytical techniques

- technical-oriented analytical techniques

- behavioural analytical techniques

In a more recent publication, *Strategic and competitive analysis*, Fleisher and Bensoussan (2003:27), have narrowed competitive analytical techniques down to following five categories:

- strategic analytical techniques

- competitive and customer analysis techniques

- environmental analysis techniques

- evolutionary analysis techniques

- financial analysis techniques

Several of the techniques in the various categories will be discussed in more detail later in this chapter.

4.2   ASSESSING COMPETITIVE ANALYSIS TECHNIQUES

According to Fleisher and Bensoussan (2000:38), there are general limitations to much of the competitive analyses being conducted in organisations around the world. Various reasons can be advanced for this phenomenon. In this regard, recent years have seen the analytical task in organisations becoming more quantitative in nature because of the strong growth of numerical data and analysis techniques available on the Internet and on-line databases. In addition, many individuals in organisations responsible for conducting analysis have based their analysis on training they acquired at business schools where they were taught a limited number of analysis techniques from tutors with financial and management accounting backgrounds. Fleisher and Bensoussan (2000:38) contend that most business people conducting analyses in organisations base their work on historical data and financial ratios, which create their own limitations regarding a view of the

future. Lastly, individuals frequently also conduct analysis on the basis of the data they happen to have on hand as opposed to the data they should have (Fleisher & Blenkhorn 2000:79-81; Fleisher & Bensoussan 2000:38). These limitations by their very nature, have a detrimental influence on competitive learning in the competitive analysis process.

In the context of value creation during the competitive analysis process, Fleisher and Bensoussan (2003:23-24) however, have identified certain key futures, which according to them, are critical in the creation of high-value analytical products. The key futures necessary to determine the optimal competitive and strategic analysis methods and techniques are based on an evaluation system referred to as the FAROUT system. The latter ranking system is based on the premise that for analytical output to be valuable to decision makers, it needs to have several common characteristics. These common characteristics are as follows:

- **Future orientation (F).** Analyses should focus on the future. This relates to the fact that past events and historical data can be a notoriously inaccurate predictor of the future.

- **Accuracy (A).** Competitive analytical outputs should be aimed at high levels of accuracy.

- **Resource efficiency (R).** In order for analysis to be done efficiently, data need to come from sources that not only cost less than the resultant output is worth, but should also not take so long to gather that they are stale by the time the decision actually needs to be made.

- **Objectivity (O).** This characteristic relates to the necessity that analysts should be objective during the analysis process. In this regard, the influence of common biases should be kept to the minimum. A rational and systematic approach to analysis is thus essential.

- **Usefulness (U).** Analytical outputs must meet the critical intelligence need of a decision maker in a particular decision-making context.

- **Timeliness (T).** Much business information or competitive data has limited shelf lives, especially where decisions are made in a dynamic, hypercompetitive or turbulent context.

Although all the above-mentioned characteristics are perceived to be essential to the competitive analysis process, it is evident that the FAROUT ranking system is aimed primarily at the basic characteristics of competitive analysis. In addition, this ranking system focuses strongly on the content and process of the various analytical techniques (Fleisher & Bensoussan 2003:23–24) and not primarily on the delivery of actionable intelligence.

It is, however, apparent that in the context of competitive learning, knowledge about the future intent of a competitive force is the critical dimension on which decision makers should base their decisions. In this context, the most critical aspect of competitive analysis is not so much which analytical technique is being used, or how it ranks according to the mentioned characteristics, but the delivery of actionable intelligence that shed light on the future intent of a competitive force. Miller (2000:69) concurs with this statement when he argues:

> *Analytical models and techniques are good tools for doing good analysis. They are, however, not substitutes for diligence, skilled data collection, and an open, inquiring mind.*

Against this backdrop, Sawka (2002:46) and Herring (1998:14) emphasise the fact that each and every analytical request in the context of competitive intelligence, demands its own unique approach, in which the human thought process plays the most prominent part in the analytical endeavours to determine the future intent of a competitive force. Fahey

(1999:56) thus argues that competitive learning in the context of competitive analysis takes place at three levels:

- a system of competitive forces

- an individual competitive force as a whole

- a specific component of a competitive force

Each level thus constitutes a distinct focus for competitive learning.

The above-mentioned level of competitive analysis will be considered early on in the competitive intelligence process during the determination of the key intelligence topic.

4.3 DETERMINING THE FUTURE INTENT OF A COMPETITIVE FORCE

In the context of the competitive analysis process, the delivery of actionable intelligence on which decision makers in the organisation can make informed decisions, stands out as the pinnacle of competitive learning. This actionable intelligence should be focused upon knowledge of what the future intent of a competitive force is or may be. In addition, it should leap beyond which analytical technique is being used, what the analytical content is or which analytical process is being followed.

Determining the future intent of a competitive force in the context of competitive learning should thus form the all-encompassing, overall focus of competitive analysis. The very basis of this thesis rests upon this theorem. Consequently, certain characteristics are critical for understanding a competitive force's real intention with regard to the future. These characteristics on which future intent are based are perceived to be far more important than the content and process of analysis, as argued by Fleisher and Bensoussan (2003:23–24). Based on the above reasoning, the following key characteristics are

important in competitive analysis, with regard to the determination of the future intent of a competitive force (DACSOMEF):

4.3.1 Dynamics in the competitive environment (D)

This characteristic relates to the fact that organisations continuously find themselves in a dynamic, uncertain and generally global environment. In order to determine the future intent of a competitive force, it is essential to ascertain which external influences have a major influence on it and, importantly, how dynamically, proactively and rigorously it reacts to these influences that impede its stability and competitive advantage.

4.3.2 Assets (A)

Most analytical techniques that are being used in competitive analysis, as well as other analysis disciplines, focus strongly on a quantitative analysis of an organisation's tangible assets. Although a quantitative view of a competitive force's tangible assets such as its finances and operations is important, Fahey (1999:62) reflects that competitive analysis is much more than quantitative evaluation.

However, in order to determine the future intent of a competitive force, it is essential to determine the tangible assets of the competitive force and how it applies such assets in the context of the dynamic competitive environment in which it exists. Here, the typical and well-documented financial or operational analyses methods that are generally used could play a prominent part in determining some of the options available to a competitive force. The corollary to this statement is found in the words of Johnson (2001:181) when he says:

> *Know the financial resources of the people at the table. The single constant in business is finance.*

4.3.3 Capabilities and competencies(C)

The creation and sustainment of an organisation's competitive advantage are heavily based on the dynamics of the way the organisation's resources are acquired and managed

(Moingeon, Ramanantsoa, Métais & Orton 1998:297). Apart from the application of its tangible assets, Haanes and Fjeldstadt (2000:52) contend that an organisation's intangible assets are critical drivers of its competitive advantage. Consequently, during the competitive learning process in competitive analysis, it is important to ascertain what intangible assets the competitive force has and how it applies them in the context of its dynamic competitive environment.

4.3.4   Strategy (S)

Henderson (1989:139–143) perceives strategy to be a deliberate search for a plan of action that will determine an organisation's competitive advantage, and thus its endeavours to achieve it. The organisation's objective with strategy is thus to enlarge the scope of its advantage, which can only happen at another organisation's expense. However, the critical dimension of strategy is not so much its quality but the organisation's ability to execute it (Kaplan & Norton 2001:1).   In the context of competitive learning and the determination of the future intent of a competitive force, it is essential to ascertain what the strategy of such a competitive force entails and how it will execute its strategy with regard to the dynamics of the competitive environment.

4.3.5   Organisational infrastructure and culture (0)

According to Fahey (1999:402&418) organisational infrastructure and culture are two "hidden" elements that have a major influence on the future strategies of an organisational force. In this regard, where an organisation's tangible and intangible assets, strategies and relationships indicate what such a force can do, it is insufficient to determine what such a force may do. Consequently, knowledge about a competitive force's organisational infrastructure and culture offers some insight into why it is pursuing its current and future strategies.

4.3.6   Mindset of management (M)

An organisation is an interwoven constellation of tangible and intangible assets, focused upon certain activities, in its quest to acquire a competitive advantage in the competitive environment. Implicit in this principle is the fact that an organisation does not function on

its own, but its quest to create a sustainable competitive advantage is driven by human decisions. Nel (2002:1) emphasises this fact even further when he says that the "human factor" is the single most important determinant of such survival and growth. Humans thus determine which assets to apply and not to apply, and, consequently, when to act and not to act.

Against this reasoning, knowledge about the human behaviour that drives a competitive force, and in particular that of its management cadre, as well as the group dynamics of such a management team, could have a prominent influence on determining how such a competitive force will approach the possible opportunities, uncertainties and threats of the future business environment.

Knowledge of this human behaviour adds a new dimension to determining the future intent of a competitive force, and is well illustrated in Patten's words (Nolan 1999:172):

> *I have studied the enemy all my life. I have read the memoirs of his generals and his leaders. I have even read his philosophers and listened to his music. I have studied in detail the account of every one of his battles. I know exactly how he will react under any set of circumstances.*

4.3.7 Environmental relationships (E)

An organisation's networks of interfirm linkages, significantly influences its strategic flexibility and performance (Madhavan 1996:1), and of significance, its competitive advantage. Such networks also have a major influence on the future intent of a competitive force. Consequently, during the competitive analysis process it is necessary to determine a competitive force's interfirm linkages and long-term relationships with other independent organisations (eg strategic alliances and joint ventures), as well as less formal semi-enduring relationships with key suppliers, key service providers and key customers.

4.3.8   Future intent (F)

According to Gilbert (2000:12), modern organisations operate in an environment full of structural flux. New technologies, evolving behavioural norms and competitive forces interact to shift industry boundaries and create a "dynamic" new economy that transcends traditional strategic thinking. Fahey (1999:65) concurs with this statement when he argues that competitive analysis all too often concentrates on documenting and understanding a competitive force's current and past strategies. However, what such a competitive force might do in future, why it does so, and the possible future implications, receives comparatively little attention.

Against the backdrop of the foregoing, and in the context of competitive learning, the ultimate objective of the whole competitive analysis process should thus be to determine the future intent of a competitive force. Determining the latter should be the evolutionary pinnacle of any competitive analysis process, and hence an important characteristic of any competitive analysis technique. In this context, the capability to develop future scenarios should thus be an indispensable part of a competitive analysis technique and model.

4.4   COMPETITIVE ANALYSIS RATING SCALE IN THE CONTEXT OF FUTURE INTENT

Each competitive analysis method, technique or model has a specific point of departure, objective, and of importance, unique limitations in determining the future intent of a competitive force in the context of competitive learning. As a catalyst to this matter is the principle that most analytical techniques have been developed with a specific objective in mind, in many instances not necessarily focused upon competitive intelligence analysis. It is thus possible that certain analytical techniques and models will highlight certain aspects of a competitive force, but only partially emphasise the future intent of such a concern. Consequently, it would be necessary to apply certain analytical techniques

together in order to determine the real future intent of a competitive force, or else develop a comprehensive future competitive intent analytical model.

With the above-mentioned reasoning as a backdrop, a rating scale based on the General Electric Business Screen Matrix (Fleisher & Bensoussan 2003:54–55) has been developed in order to assess the capability of an analytical technique or model to determine the future intent of a competitive force in the context of competitive learning.

The principles of the rating scale are depicted in table 4.1. Column A of the rating scale indicates the score assigned to the extent to which the model addresses the specific characteristic, whilst column B addresses the importance of the specific characteristic in the context of competitive learning. The latter will definitely vary according to the specific key intelligence topic at stake. However, for general evaluation purposes in the ambit of this thesis, a point on a 0 to 1 scale has been awarded to each characteristic. It is vital, however to take cognisance of the fact that because of a lack of specific data on the weighting criteria for each characteristic of the DACSOMEF evaluation scale, it was based upon evidence obtained from the global mining industry, as well as upon competitive intelligence principles.

Table 4.1: The DACSOMEF evaluation scale

Characteristic	Rating scale		
	A **Extent to which model addresses specific characteristic**	**B** **Importance in context of competitive learning**	**Overall score (A x B)**
	Weight	**Rating (from 0 – 1)**	
Dynamic competitive environment (D)	A score of 1 indicates a limited focus upon the competitive environment, while a score of 10 indicates that the analytical technique has a high focus on the forces in the competitive environment, and importantly, their influence on the future intent of the competitive force.		
Assets (A)	A score of 1 identifies a weak focus on the competitive force's tangible assets, or a focus upon a limited number of these assets, while a score of 15 highlights a strong focus on the competitive force's application of all its tangible assets.		
Capabilities (C)	A score of 1 would highlight the fact that the analytical model or technique has limited or no focus upon a competitive force's intangible assets and capabilities, whilst a score of 12.5 would underpin the opposite.		
Strategic intent (S)	With a score of 1, an analytical technique would have limited or no focus upon a competitive force's strategic intent and direction, whilst a score of 15 would highlight a strong		

	strategic focus.		
Organisational infrastructure and culture (O)	An analytical technique that scores 1 has a limited or no focus on the influence of the organisational structure and culture on a competitive force's future intent, while a score of 10 indicates a high level of attention on it.		
Management mindset (M)	A score of 1 indicates that the analytical technique or model provides a low level of insight into the influence of management thinking and behaviour on the future intent of a competitive force. By contrast, a score of 12.5 indicates a high level of attention to the influence of the management of a competitive force's mindset on its future intentions		
Environmental relationships (E)	A score of 1 would indicate a low level of attention by the analytical technique or model on the influence of the external relationships a competitive force has, whilst a score of 10 would indicate a high level of attention by the analytical technique or model on the external environmental relationships and networks and their influence on the future intent of such a competitive force.		
Future intent (F)	A score of 1 indicates no or a limited focus upon the future intent of a competitive force, whilst a score of 15 indicates a comprehensive and thorough focus upon a competitive force's future intent, strongly backed by possible future scenarios.		

It is evident from the above, that the DACSOMEF rating scale adds up to a total of 100 points, which indicates that a competitive analysis technique or model has an extremely

high focus upon a competitive force's future intent, in the context of a true understanding of such intent competitive learning.

It is necessary, however important to take cognisance of the fact that the application of an analytical technique would largely be determined by the specific key intelligence topic, as well as the level on which the analysis is focused (systemic, entity or component level). Indeed, the complexity of today's business world of constant change, underlines the fact that the only constant is change (Mogel 2002). It is thus imperative that in the competitive analysis process, the focus should be strongly guided towards the future. The nexus between competitive analysis and the future intent of a competitive force should thus be considerably more closely interwoven than is the case in most organisations today. This approach requires insight and a much stronger emphasis on competitive learning.

4.5 COMPETITIVE ANALYSIS METHODS, TECHNIQUES AND MODELS

4.5.1 Introduction

Several hundred analytical tools have been classified as being useful in competitive intelligence applications. This number is probably conservative in the light of the many tools that have been custom-designed to serve some organisation's proprietary competitive intelligence purposes (Fleisher & Blenkhorn 2000:85). Many of these analytical techniques and models were conceptualised by leading economists, financial and cost accountants, futurists, business professors, consultants, and other insightful practitioners or theoreticians. In addition, most of these techniques and models were, in the context of its application in competitive analysis, adaptations of business, industry, strategy, marketing, financial and technology analysis techniques because very few pure competitive intelligence analytical techniques and models have been developed (Fleisher & Bensoussan 2003:xviii&122; Herring 1998:14; Sawka 2002:46).

However, competitive analysis in the context of competitive learning is primarily based upon an open enquiring mind that utilises analytical techniques as a vehicle to reach frontiers beyond the obvious. Based upon this reasoning, the following research question is posed: What are the critical elements of the most notable competitive analysis techniques and models, in order to achieve the broader objectives of this thesis, namely to develop a dynamic competitive analysis model for a global mining company? In addressing this question, an extensive review of the literature in the competitive analysis field, indicated that Fleisher and Bensoussan's (2003:27) FAROUT rating system is an appropriate point of departure to evaluate the various competitive analysis techniques in the context of competitive learning.

Implicit in the latter authors' rating of strategic and competitive analysis techniques (Fleisher & Bensoussan 2003:27), and supported by the work of Grant (1998), Fahey (1999) and Ghemawat (2001; 1991), 13 of the most applicable analytical techniques which best serve the purpose of competitive and strategic analysis, have been identified as offering a solid basis for the envisaged dynamic competitive analysis model in this thesis. These analytical techniques and models will accordingly be evaluated by means of the DACSOMEF method in the context of competitive learning. Through such an endeavour, the most optimal elements that can contribute to the development of an optimum dynamic competitive analysis model for a global mining company will be determined. Consequently, attention will be focused on the following 13 competitive analysis techniques and models, classified in six categories or technique groups:

I   Analysis techniques focusing upon the dynamic external environment

- (1)   Porter's industry analysis model
- (2)   Strategic group analysis

II   Analysis techniques focusing upon the assets and capabilities of a competitive force

- (3)   Functional capability and resource analysis

(4)   Financial ratio and statement analysis

(5)   Strategic funds programming

(6)   Sustainable growth rate

III   Analysis techniques focusing upon the strategic intent of a competitive force

(7)   Boston Consulting Group's growth share portfolio matrix

(8)   SWOT analysis

(9)   Value chain analysis

IV   Analysis techniques focusing upon the organisational infrastructure and management mindset of a competitive force

(10)   Competitive behaviour profiling

V   Analysis techniques focusing upon the environmental relationships of a competitive force

(11)   Competitor analysis

(12)   Stakeholder analysis

VI   Analysis techniques focusing upon the future intent of a competitive force

(13)   Scenario analysis

It would probably be unfair to state that the above-mentioned list of analysis techniques and models for competitive analysis is exhaustive. However, according to Fleisher and Bensoussan (2003:27), these techniques rated highest with their FAROUT rating scale. Understanding these techniques in the context of competitive learning is a critical and essential task for this thesis. Consequently, the various techniques' strengths and weaknesses will be highlighted, so that where these techniques do or do not offer optimal

solutions to the creation of a dynamic competitive analysis model, additional techniques, or parts thereof, will be identified for inclusion in the envisaged model.

4.5.2 Porter's industry analysis model

4.5.2.1 Introduction

In his famous book *Competitive strategy: techniques for analysing industries and competitors*, published in 1980, Michael Porter created an analytical technique that has been the foundation for competitive analysis for nearly 25 years. This integrated model has become widely known as the five forces model (Fleisher & Bensoussan 2003:61). According to this analytical model, the profitability of an industry, as indicated by its rate of return on capital relative to its cost of capital, is determined by five forces of competitive pressure (Grant 1998:55). Knowledge of these underlying sources of competitive pressure highlights a firm's critical strengths and weaknesses, animates its positioning in its industry, clarifies the areas where strategic changes may yield the greatest payoff, and highlights the areas where industry trends promise to hold the greatest significance as either opportunities or threats. Porter (1980:4) concurs that an understanding of these sources is essential in order to consider different strategies for the firm.

4.5.2.2 Process

The purpose of the five forces analytical model thus is to analyse the major forces that will ultimately influence an industry's profit potential. According to Porter, identifying the profit potential (ie attractiveness) of an industry provides the foundation for bridging the strategic gap between the firm's external environment and its resources. In this regard, Porter classifies five forces of competitive pressure:

- the threat of new entrants

- the bargaining power of suppliers

- the bargaining power of buyers

- the threat of substitute products and services

- the rivalry among existing competitors

Porter states that a firm's competitive strategy must grow out of a sophisticated understanding of these competitive forces with the ultimate aim of developing competitive strategies to cope with and, ideally, influence or change these forces in favour of the firm. The scope of each of the five forces is depicted in figure 4.2 below.

Figure 4.2: Porter's five forces analytical model

Supplier entry barriers
Economies of scale
Propietary product differences
Brand identity
Switching costs
Capital requirements
Access to distribution
Absolute cost advantages
Propietary learning curve
Access to necessary inputs
Propietary low-cost product design
Government policy
Expected retaliation

New entrants

Threat of new entrants

Rivalry determinants
Industry growth
Fixed costs/value added
Intermittent overcapacity
Product differences
Brand identity
Switching costs
Concentration and balance
Information complexity
Diversity of competitors
Corporate stakes
Exit barriers

Industry competitors

Intensity of rivalry

Suppliers

Bargaining power of suppliers

Factors affecting rivalry
Fixed cost/value-added
Intermittent overcapacity
Product differences
Brand identity
Switching costs
Informational complexity
Diversity of competitors
Corporate stakes
Exit barriers

Bargaining power of buyers

Buyers

Determinants of supplier power
Differentiation of inputs
Switching costs of suppliers and firms in the industry
Presence of substitute inputs
Supplier concentration
Importance of volume to supplier
Cost relative to total purchases in the industry
Impact of inputs on cost or differentiation
Threat of forward integration relative to threat of backward integartion by firms in the industry

Determinants of buyer power
Bargaining leverage
Buyer concentration vs. firm concentration
Buyer volume
Buyer switching costs relative to firm switching costs
Buyer information
Ability to backward integrate
Substitute products
Pull-through

Price sensitivity
Price/total purchases
Product differences
Brand identity
Impact on quality/performance
Buyer profits
Decision-makers' incentives

Threat of substitutes

Substitutes

Source: Fleisher & Bensoussan 2003:68; Holmes & Temte (2002:47);
Ghemawat (2001:26; 1991:1); Oster (1999:30); Porter (1985)

From the above-mentioned figure, the five major forces and the factors around each force that determine the attractiveness of an industry are evident. As a corollary to these forces, Porter emphasises the fact that a firm may pursue three broad generic competitive strategies in order to build a competitive advantage in an industry. These strategies are as follows (Porter 1980:35; Holmes & Temte 2002:50):

- **Cost leadership.** As a cost leader, the firm sets out to be the lowest-cost producer in its industry through economies of scale, proprietary technology or preferential access to raw materials.

- **Differentiation.** A firm seeking to differentiate itself from other competitors selects one or more product attributes that buyers perceive to be important. Differentiation can be based on the firm's product, the method of delivery or its marketing approach.

- **Focus** (ie cost or differentiation). A firm that employs a focus strategy seeks a competitive advantage (either cost or differentiation) by focusing on a particular buyer group, segment of the product line or geographic market.

Since Porter first developed his five forces model, it has been rearranged and seen the incorporation of additional variables into each of the five competitive forces. The most successful attempt in this regard involves the value net framework devised by Brandenburger and Nalebuff (1996:17). The value net framework highlights the critical role that complementors – participants which customers buy complementary products or services or to which suppliers sell complementary resources – can play in influencing business success or failure (Ghemawat 2001:32). In addition, there has been much deliberation about the possibility of adding a sixth force (ie government or complementors) to the model. However, Porter (2002:46) concurs that government cannot be perceived to be a sixth force. In this regard, he has found no monotonic relationship between the strength and influence of government and the profitability of an industry. The same view applies to complementors.

4.5.2.3   Strengths and weaknesses

a   Strengths

In the context of the DACSOMEF key elements, the five forces model's primary strength resides in the fact that the competitive analysis process is focused upon the main forces in the competitive environment that impact on the firm, It also focuses on the strategy formulation and implementation process that flows from the home organisation's knowledge of these forces. The model places much emphasis on the impact of the competitive environment on a firm's future intent.

Fleisher and Bensoussan (2003:64) concur, that the model is a useful tool to identify whether the competitive environment is attractive to a firm in the context of the level of the entry barriers, the competitive levels of substitute products and the bargaining power of suppliers and customers. These latter two authors (2003:65) also contend that the five forces model is amenable to dynamic analysis, in the sense that it can show how a change in one force will have an impact on the other forces, resulting in changing industry structure and boundaries. Finally, the five forces model places a great deal of emphasis on industry evolution which, in turn, creates a strong foundation for scenario analysis and long-range planning.

b   Weaknesses

Despite being widely used as a framework for analysing the various competitive forces within a firm's external environment, Porter's five forces framework is not without its critics. In this context, Patchett (2002:30) holds the view that the five forces model is first and foremost a conceptual analysis framework around which to structure thinking about the influence of external forces on the firm's competitiveness. This, activates a case of competitive learning.

However, research has started to question the model's theoretical foundations, and the view that industry structure alone determines a firm's competitiveness and profitability (Grant 1998:70; Fleisher & Bensoussan 2003:206). The view of this model that firms in

attractive industries are successful, and firms are successful because they are in attractive industries (Fleisher & Bensoussan 2003:206) is, however, a rather simplistic view of the reality experienced in a dynamic competitive environment. In this context the model gives no strategic guidance how a firm should locate itself in an optimal position in an attractive industry.

In addition, there is a strong view that the model underestimates the influence of the core competencies of a firm, which may, in many instances, be the primary initiator of the firm's competitive advantage over the long term (Fleisher & Bensoussan 2003:66). Porter, however, disagrees with this critique because he argues that the value of tangible and intangible resources only manifests when the firm has a strategy to realise that value (Porter 2002:47).

Grant (1998:70), furthermore, disagrees with Fleisher and Bensoussan's (2003:65) view that the model is dynamic. Central to his view that the five forces model is a static framework, is the argument that it fails to take full account of competitive interactions between firms. In this context, competition is perceived to be a dynamic process through which industry structure changes because of evolution and transformation. These industry changes are based upon the firm's strategic decisions, and as an outcome of the resulting competitive interaction (Grant 1998:71).

Another perceived weakness of the five forces model lies in the fact that it was initially designed to analyse individual business unit strategies because it does not account for synergies and interdependencies within a corporation's overall portfolio. In addition, the five forces model does not explicitly recognise the significance of sociopolitical factors. The model only implicitly incorporates the importance of sociopolitical strategy (Fleisher & Bensoussan 2003:66).

The model also implies that firms in attractive industries are successful (Fleisher & Bensoussan 2003:66). This is not normally the case because certain organisations are simply more successful than others in the same industry. Another significant limitation of

the five forces model resides in the fact that it focuses on what makes some industries and some positions in these industries more attractive. It does not directly address why or how some firms are able to manoeuvre themselves into advantageous positions in the first place, and why some firms are able to sustain these positions over time and others not (Fleisher & Bensoussan 2003:66).

4.5.2.4   *DACSOMEF evaluation*

In the context of competitive learning on which competitive analysis should be based, the findings below apply to Porter's five forces model. These findings are based upon the identified key elements of the DACSOMEF rating and evaluation scale.

a   Dynamic competitive environment

From a holistic point of view, the five forces model primarily focuses upon those forces in the competitive environment that have a direct and proportionate impact on the firm. The model thus has the ability to identify the important and influential external forces of a particular firm. However, it views industry structure as stable and extremely determined, and addresses the dynamics in the competitive environment only from the point where it shows that a change in one force will have an impact on the other forces, resulting in changing industry structure and boundaries.

In addition, in later years, Porter (2002:46) emphasises the fact that the five forces analysis model was primarily developed from the perspective of an incumbent organisation in a specific industry.

a   Assets

The five forces model does address a firm's tangible assets, and the application of these in the context of the firm's relative bargaining power, vis-à-vis. competitors, suppliers and customers. In this regard, the cost, price and profitability of those assets, as well as the positioning of the firm in context of its competitors, do receive special attention in the analytical model. Certain prerequisites that are necessary for entry into an industry are highlighted in the model, and include the following (Porter 1998:24–25):

- economies of scale

- product differentiation

- capital requirements

- cost advantages

- access to distribution channels

However, the financial assets and the firm's financial situation in particular do not receive detailed attention in the five forces model, as do certain other financial analysis techniques. This is of particular importance in determining the future intent of a competitive force.

c   *Capabilities and competencies*

From an asset and capability perspective, the five forces model focuses primarily on the tangible assets of an organisation in order to create a competitive advantage (Haanes & Fjeldstadt 2000:53). As a catalyst to this matter is the general view that the model underestimates the influence of a firm's intangible resources or capabilities and core competencies, which may, in many instances, be the primary initiator of its competitive advantage over the long term.

c   *Strategy*

Once it has assessed the competitive forces in the competitive environment, the five forces model has the capacity to determine a firm's strengths and weaknesses (Porter 1998:34). Based upon these findings, the development of strategy does receive special attention in the model. This is emphasised by the three generic strategies of low cost, differentiation or scope. However, the model remains a conceptual framework, with limited focus on detailed strategic analysis.

e   *Organisational infrastructure*

The five forces model pays limited attention to the influence of organisational infrastructure or culture of the competitive force being analysed.

f   *Management mindset*

The five forces model focuses limited attention on the influence of the management mindset of the competitive force being analysed.

g   *Environmental relationships*

The model does address the firm's external links in the context of the five different external forces impacting on a firm. It also makes provision for analysing the change in one force and its impact on the other forces that could result in changing industry structure and boundaries. However, this is a rather static view of external relationships. The model also makes limited provision for any network analysis.

Other influential external groups such as shareholders, alliances and joint venture parties receive little to no attention in the five forces model. Consequently, it could be argued that in the use of the model, more in-depth reasoning about the influence of such relationships on the future intent of a competitive force is deemed necessary.

h   *Future intent*

With a strong view of the various forces impacting on an organisation and the strategies that may flow from this, the five forces model focuses intently upon the possible strategic possibilities for the firm in the context of the future intent of a competitive force. This is specifically possible from a scenario perspective.

4.5.2.5   Conclusion

In general, the five forces model is an excellent analysis technique for developing a holistic view of the competitive environment in which a competitive force finds itself. The model touches strongly upon the various forces that such a firm has to deal with in its quest for competitive advantage. The tangible assets and activities of such a competitive force also receive attention in the model. Patchett (2002:30), however, argues

that the five forces model is best applicable in industry analysis, whilst the profiling of a competitive force should flow from the application of the model.

The combined application of the five forces model and an additional analysis technique that focuses upon the key determinants of a competitive force's future intent could lay a solid foundation in competitive analysis in the context of competitive learning. According to the DACSOMEF key elements and rating scale, the five forces model generates the following score out of 100.

Table 4.2: Rating of the five forces model according to the DACSOMEF evaluation scale

Characteristic	Rating scale		
	A **Extent to which model addresses specific characteristic**	**B** **Importance in context of competitive learning**	**Overall score** **(A x B)**
	Weight	**Rating**	
Dynamic competitive environment	10.00	.80	8.00
Assets	15.00	.60	9.00
Capabilities and competencies	12.50	.20	2.50
Strategy	15.00	.70	10.50
Organisational infrastructure	10.00	.20	2.00
Management mindset	12.50	.10	1.25
Environmental relationships	10.00	.60	6.00
Future intent	15.00	.50	7.50
Overall score	**100.00**		**46.75**

From a DACSOMEF perspective, the five forces model is thus perceived to be strongly oriented towards industry analysis, focusing in particular on the external forces impacting on a firm. In this context, the organisation's tangible assets and strategies through which it competes in this environment do receive limited attention.

In conclusion, the five forces model remains a conceptual analysis framework that seriously lacks the in-depth and forensic focus necessary to fully determine a competitive force's future intent, as indicated by the key elements of the DACSOMEF evaluation scale. Depending on the specific key intelligence topic, the application of the model thus needs to be supported by additional analysis.

4.5.3   Strategic group analysis

4.5.3.1   Introduction

According to Fleisher and Bensoussan (2003:72), strategic group analysis is a subset of industry analysis that analyses different groups of rival firms, clustered together on the premise of a similar competitive approach and strategic position. A strategic group can be defined as follows (Porter 1980:129; Oster 1999:83):

> *A group of firms within an industry that have common specific assets and thus follow common strategies along dimensions such as specialisation, brand identification, product quality, technological leadership in setting key decision variables.*

The concept of strategic groups has been around for some time. Andrews (1951) was one of the first to use the idea when he chose a technical criterion to group industries according to the similarity of their processes. Hunt (1972), however, first drew attention to the term in his doctoral dissertation describing the performance of the home appliance industry in the USA during the 1960s. In this regard, he proposed that differences along three key strategic variables (extent of vertical integration, degree of product

diversification, and differences in product diversification) produced four distinct groups of competitors in the industry (Olusoga, Mokwa & Noble 1995:153–164).

Since Hunt's studies, there has been an unabated stream of research on strategic groups, across a wide range of industries, of which Newman (1973 & 1978), Porter (1973), Hatten (1974), Hatten and Schendel (1977), Hatten, Schendel and Cooper (1978), Harrigan (1980), McGee and Thomas (1986), Mascarenhas and Aaker (1989), Reger and Huf (1993), Olusowa, Mokwa and Noble (1995), Peteraf and Shanley (1997) and Oster (1999) are but a few. (McGee & Thomas 1986:143).

In broad terms, strategic groups are perceived to be important because the five forces of competitive pressure have an asymmetric influence on the profitability of each strategic group in an industry. In addition, this will have significant strategic implications with regard to the profitability of an individual firm within a particular group (Fleisher & Bensoussan 2003:75).

4.5.3.2 *Process*

According to Fleisher and Bensoussan (2003:83–88), Strategic group analysis is a process that consists of 11 consecutive steps. These are as follows:

Table 4.3: Strategic group analysis

No.	What	How
Step 1	Complete a five forces industry analysis	Determine the overall competitive structure of an industry by analysing the five forces, which apply competitive pressure to all the firms in a particular industry. Consequently, the process of strategic group analysis is initiated in order to refine the analysis by determining the influence of membership to the group on the competitive position of the member firms
Step 2	Identify all the major competitors in the industry based upon competitive variables	Identify all the significant participants in an industry based upon the strategic variables. These could include specialisation, cost position, brand identification, service, channel selection, price policy, product quality, leverage, technological leadership and relationship with parent company (Porter 1980, in Fleisher & Bensoussan 2003:84) Much deliberation exists between various authors with regard to which variables should be included in the list (Porter 1980; Rumelt 1981; Gailbraith & Schendel 1983; Ackoff 1970; Dill 1958; Aldrich 1979)
Step 3	Map the strategic groups	In this step it is important to determine the firms in an industry that have similar strategies and those with competitive positions. Consequently, the firms in the industry should be mapped on a graph, based upon the two strongest strategic variables that differentiate them

No.	What	How
Step 4	Gauge the strength of mobility barriers between groups	Identify those factors that prevent firms in one strategic group from competing with firms in another strategic group. The following factors could apply: ✓ economies of scale ✓ product differentiation ✓ switching costs ✓ cost advantages ✓ capital intensity ✓ government policy In addition, three classifications of mobility barrier are suggested: ✓ market-related strategies industry ✓ supply characteristics ✓ firm characteristics
Step 5	Gauge the strength of bargaining power between groups and industry buyers and suppliers	Identify the relative importance of the two sources of bargaining power between strategic groups: common suppliers and buyers and different suppliers and buyers
Step 6	Gauge the threat of substitutes	Analyse the different links in the value chain that the different groups compete around in order to determine the vulnerability of each group to the threat of substitutes
Step 7	Gauge the intensity of internal rivalry between groups	Determine the relative impact of the four factors that determine group rivalry: intensity of internal rivalry, scale effects, cost of entry into the strategic group, and organisational capabilities to implement the firm's chosen strategy
Step 8	Five forces analysis of strategic groups	Integrate the analysis of step 4 to 6 to determine the relative competitive positions of each strategic group, the intensity of mutual dependence between each group, and the potential for industry volatility

No.	What	How
Step 9	Select membership in the optimal strategic group	Lay the five forces model of the strategic groups on top of the firm's strengths and weaknesses. Consequently, identify the strategic group that presents the greatest opportunity to exploit the firm's strengths and minimise its weaknesses, given its existing strategies, by analysing group mobility barriers, group bargaining power, threat of substitution to the group and threat of rivalry from other groups
Step 10	Industry evolution analysis	Analyse strategic opportunities and threats that accompany radical industry change
Step 11	Keep a cautious eye on group identity dysfunction	Identify any sign of common dangers resulting from strong identity with a strategic group, such as reduced flexibility, strategic myopia, and suboptimising behaviour

Source: Fleisher & Bensoussan (2003:83–88); Porter (1980); McGee & Thomas (1986)

4.5.3.3   *Strengths and weaknesses*

a   *Strengths*

In all respects, the strategic group analysis model is a major advancement on Porter's industry analysis framework (five forces). However, according to Fleisher and Bensoussan (2003:80), one of its main strengths is its comprehensiveness because it encompasses a wide array of conceivable variables. In addition, strategic group analysis offers several layers of increasingly finer analytical procedures from making the link from broad industry structure to firm specific strategies.

Furthermore, the identification of strategic opportunities and the risk associated with industry evolution is a positive method for dealing with change, whilst also providing a realistic tool for making the transition from current strategy to future strategy.

Fleisher and Bensoussan (2003:81) concur that this model is strongly supply-side oriented and often results in much more accurate analysis. Finally, Peteraf and Shanley

(1997:179) identify certain positive and important effects that are addressed by the model in the context of competitive learning. These are as follows:

- **Coordination effects.** The recognition of interrelated linkages and mutual dependence between the various parameters that comprise the competitive dimension of an industry.

- **Efficiency effects.** Firms in strongly recognised strategic groups tend to share information more readily, which decreases the cost of innovation and generally increases efficiency.

- **Reputation effects.** Customers will recognise strong group identities, which will reduce their information search costs, thereby increasing relative value proposition offered by group firms.

b   *Weaknesses*

Although the strategic group analysis framework has specific strengths, various authors through the years have highlighted a number of weaknesses. In this context, Fleisher and Bensoussan (2003:81), concur that the model gives little guidance on implementation, and the internal organisational capabilities necessary for successful implementation of the chosen strategies. In addition, as in the case of Porter's five forces analysis model, the technique does not explicitly incorporate the importance of government and social issues as a separate variable on the competitive dimension.

Certain authors such as Peteraf and Shanley (1997:1041) argue that there is a serious limitation in the research on which strategic group theory is based. In fact, they hold the opinion that grouping firms on the basis of shared firm-level factors associated with profitability does not provide a ready substitute for firm-level analysis. It may actually sacrifice information and introduce "noise" into the analysis.

Fleisher and Bensoussan (2003:82), based upon the work of Peteraf and Shanley (1997:180), contend that three negative effects stem from firms associating strongly as part of a strategic group. These are as follows:

- **Reduced flexibility.** If cooperation becomes too strong in a strategic group, the development of group norms may limit the group's ability to respond to changes in its external environment.

- **Strategic myopia.** Preoccupation with a strong group identity may cause the minds of management to neglect an externally focused approach to business, and make the firm vulnerable to blindspots from intragroup competition or competition from entirely different industries.

- **Suboptimising behaviour.** Preoccupation with group-level strategy and goals, based upon a strong group identity, may lead to goal-incongruent behaviour at firm level.

Furthermore, it is apparent from various authors that the application of strategic group analysis depends largely on the correct identification of the strategically important dimensions of competition. The model is thus critically dependent on achieving accuracy from this point of departure (Fleisher & Bensoussan 2003:83).

Finally, various authors (McGee & Thomas, 1986:158; Peteraf & Shanley 1997:177; Dranove, Peteraf & Shanley 1998;1041) have reservations about the model's dynamic analytical capability. In this regard, most of the empirical research has focused on a descriptive static analysis, instead of testing the normative validity of the model. Fleisher and Bensoussan (2003:83), summarise the matter when they concur that while most research study starts with similar theoretical definitions, the analysis framework's authors invariably used a different operational definition to define strategic groups ranging from size and market share to various performance indicators to vague descriptions to define different strategies.

4.5.3.4 DACSOMEF evaluation

In the context of competitive learning, on which competitive analysis should be based, the following findings apply with regard to the strategic group analysis model. These findings are based upon the identified key elements of the DACSOMEF rating and evaluation scale.

a Dynamic competitive environment

One of the main strengths of the strategic group analysis model is its comprehensiveness in analysing the external environment, because it starts with a five forces analysis and focuses upon a wide array of conceivable variables. In addition, strategic group analysis offers several layers of increasingly finer analytical procedures from making the link from broad industry structure to firm specific strategies. However, there are reservations about the model's dynamic analytical capability.

b Assets

Although the framework has a strong external environmental and strategic focus, Fleisher and Bensoussan (2003:81), concur that the model offers little guidance on implementation, and the internal organisational capabilities necessary for successful implementation of the chosen strategies. Assets, however, do receive attention in the strategic group analysis model. This has largely been determined from a strategic variable and mobility barrier point of view. Consequently, it could be argued that asset analysis with the strategic group analysis model is largely confined to industry and group level and does not focus that strongly on the assets of a particular competitive force at firm level.

c Capabilities and competencies

Although a competitive force's skills and capabilities do receive attention in the strategic group analysis model, it has largely been determined from a strategic variable and mobility barrier point of view. It can thus be argued that the framework makes provision for capability analysis from an industry and group level, and not so much from a firm

level. Consequently, the analysis framework becomes "noisy" at firm level with regard to capabilities.

d   ***Strategy***

The identification of strategic groups, based upon strategic variables is the main backbone of strategic group analysis. However, the model provides little guidance on implementation, and the internal organisational capabilities necessary for successful implementation of the chosen strategies.

e   ***Organisational infrastructure***

Little attention is focused on organisational structure, culture and the other variables included in this element of the DACSOMEF rating scale in the strategic group analysis framework.

f   ***Management mindset***

Scant attention is paid to the management mindset of the competitive force under investigation in the strategic group analysis framework.

g   ***Environmental relationships***

The model does address the firm's external links in the context of the five different external forces impacting on it. In addition, it gives ample recognition to the different strategic competitors within an industry. However, this is a somewhat static view of external relationships. The model makes limited provision for any network analysis.

Other influential external groups such as shareholders, alliances and joint venture parties receive little to no attention in the strategic group analysis framework.

h   ***Future intent***

With a strong view of the various forces impacting on an organisation, the different strategic groups in an industry, and the mobility barriers and strategies that may flow from it, the strategic group analysis model heavily focuses upon the strategic possibilities

for the firm in the context of the future intent of a competitive force. This is specifically possible from a scenario perspective. Again, the view is that the framework tends to address future scenarios from an industry and group level. It is thus apparent that the model has a somewhat static approach to the future scenarios of a competitive force.

4.5.3.5   *Conclusion*

In general, the strategic group analysis model is an excellent analysis technique to develop a holistic view of the competitive environment and, in particular, to define the competitors in the different strategic groups. The model strongly touches upon the various forces that a competitive force has to deal with, the different competitors, strategic variables and mobility barriers between strategic groups.

However, since the framework was first created more than 30 years ago, the model hardly makes provision for the current dynamics of the competitive environment most. Various authors have criticised the model in this regard.

Hatten and Hatten (1987:341) suggest that the concept of strategic groups may be nothing more than an analytical convenience. Dranove et al (1998:183) concur that grouping firms on the basis of shared firm-level factors associated with profitability does not provide a ready substitute for firm-level analysis. It, furthermore, might sacrifice information and introduce "noise" into the analysis.

The combined application of the strategic group analysis model and an additional analysis technique that focuses heavily upon the key determinants of a competitive force's future intent could lay a solid foundation in competitive analysis in the context of competitive learning.

According to the DACSOMEF key elements and rating scale, the strategic group analysis model generates the following score out of 100:

Table 4.4: Rating of the strategic group analysis framework according to the DACSOMEF evaluation scale

Characteristic	Rating scale		Overall score (A x B)
	A Extent to which model addresses specific characteristic	B Importance in context of competitive learning	
	Weight	Rating	
Dynamic competitive environment	10.00	.80	8.00
Assets	15.00	.70	10.50
Capabilities and competencies	12.50	.40	5.00
Strategy	15.00	.80	12.00
Organisational infrastructure	10.00	.20	2.00
Management mindset	12.50	.10	1.25
Environmental relationships	10.00	.60	6.00
Future intent	15.00	.60	9.00
Overall score	**100**		**53.75**

From a DACSOMEF perspective, the strategic group analysis model is perceived to be strongly orientated towards industry analysis and analysis of strategic groups in an industry, focusing in particular on the external forces impacting on a firm. In this context, the model gives little guidance on implementation, and the internal organisational capabilities necessary for successful implementation of the chosen strategies.

In conclusion, the strategic group analysis model remains an analysis framework that seriously lacks the in-depth, forensic focus and dynamic capability necessary in the context of competitive intelligence in determining a competitive force's future intent, as

indicated by the key elements of the DACSOMEF evaluation scale. Depending on the specific key intelligence topic, the application of the strategic group analysis model thus needs to be supported by additional analysis.

4.5.4   Functional capability and resource analysis

4.5.4.1   Introduction

Functional capability and resource analysis views the firm as a collection of resources comprising tangible and intangible assets, core capabilities and competencies. Hence the analysis framework combines internal organisational scrutiny with external competitive analysis in order to determine whether the firms' assets are valuable resources that drive its competitive advantage (Fleisher & Bensoussan 2003:205).

The origins of this analytical model date back over a century and have evolved from various developments in the functional capabilities of a firm (Ricardo 1891; Schumpeter 1934; Penrose 1959; Daniel 1961; Rubin 1973; Wernerfelt 1984; Hamel & Prahalad 1990, 1993; Barney 1991; Hall 1992; Peteraf 1993; Black & Boal 1994; Collis & Montgomery 1995). These developments have thus all been grouped together under one classification known as the resource-based view (RBV).

The resource-based view of the firm stands in stark contrast to the activity-based view initiated by Porter (1985; 1996). Hamel and Prahalad (1993), argue that the latter addresses the **what** of competitiveness, whilst the RBV focuses upon **why** a firm has a competitive advantage over its rivals. Hence, the latter two authors are of the opinion that in order to understand the **why** of competitiveness, another layer of competitive learning must be peeled off.

In this sense, the internal resources of a firm strongly bind such a firm's approach to competitive warfare and thus the determination of competitive outcomes. In order to determine a firm's competitiveness, the following resources should be analysed (Fleisher

& Bensoussan 2003:207; Haanes & Fjeldstad 2000; Moingeon et al 1998: Hamel and Prahalad 1993; Hall 1992):

- **Tangible assets.** These are physical factors of production in the delivery of customer value such as plant, equipment, capital, land, inventory and buildings.

- **Intangible assets.** Factors of production which cannot be touched but contribute to the delivery of customer value without being consumed such as trade marks, patents, copyright, registered designs, contracts, trade secrets, reputation, and networks.

- **Capabilities.** These are the firm's ability to utilise and transform its tangible and intangible assets into goods and services.

- **Competencies.** These involve the means by which a firm deploys resources in a characteristic manner in order to compete, such as a firm's managerial frames of reference – that is, the assumptions, premises and accepted wisdom of its management, knowledge, routines and organisational culture.

4.5.4.2   *Process*

Functional capability and resource analysis is a process that comprises six consecutive steps as depicted in table 4.5 below.

Table 4.5: The functional capability and resource analytical framework

No.	What	How
Step 1	Determine the firm's critical success factors (CSFs)	Through environmental analysis, industry structure analysis, views of business and industry experts and benchmarking studies, determine the relatively few factors that give a firm a competitive advantage over its rivals
		Critical success factors (CSFs) usually revolve around one of the firm's most significant business initiatives and have their origins in four major areas:
		▪ macro-environmental characteristics (ie political, technological environment may determine CSFs)
		▪ industry characteristics (ie cost control, design, distribution capabilities)
		▪ competitive position (ie a firm's position vis-à-vis. its rivals
		▪ firm specific factors
Step 2	Identify the firm's resources	Identify the tangible and intangible resources, capabilities and competencies that the firm controls or owns
Step 3	Evaluate the firm's resources	Evaluate the firm's resources according to the VRIO framework:
		▪ value: net increase in revenue or a net decrease in cost
		▪ rareness: not currently possessed by rivals
		▪ inimitability: the ability of rivals to imitate rare resources
		▪ orientation: the ability of the firm to take advantage of a valuable, rare and inimitable resource
Step 4	Identify gaps between the firm's resources and critical success factors	Compare the firm's resources with the CSFs

No.	What	How
Step 5	Diagnose current strategy	Test the competitive strength of the firm's current strategy. Two options may apply: - The firm's current strategy operates successfully, gives rise to the fact that knowledge of the firm's competitive valuable resources will lay the foundation to devise strategies to protect these core assets - The fact that the firm experiences difficulties with its current strategies will indicate the strategic gaps that currently exist between its resources, strategy and the competitive environment
Step 6	Formulate rational strategies	In view of the fact that the competitive environment is constantly changing, the firm's stock of competitive valuable resources is at constant risk of becoming obsolete or surpassed by rivals A host of potential directions exist regarding possible future strategies through investing in, upgrading, or leveraging its competitive valuable resources.

Source: Hamel & Prahalad (1990; 1993); Hall (1992); Barney (1991), Black & Boal (1994); Fleisher & Bensoussan (2003:216–219)

4.5.4.3   *Strengths and weaknesses*

a   *Strengths*

According to Fleisher and Bensoussan (2003:215), the greatest strength of the resource-based view, and for that matter, the functional capability and resource analysis framework, is its ability to cohesively integrate many previously disparate threads of strategy theory into one robust analytical framework. The two authors contend further that this model is one of the few strategic management systems that effectively combines competitive analysis, industry structure and internal scrutiny. Haanes and Fjeldstadt (2000:54) concur with this view when they argue that resources represent an appropriate unit of analysis for explaining competitive advantage. In addition, competencies and

relationships are often considered to be the most critical types of resources a firm could possess (Itami 1987; Norman & Ramirez 1993, as cited in Haanes & Fjeldstad 2000).

The functional capability and resource analytical framework is perceived to be a highly disciplined, realistic, objective and actionable analytical framework. This is mainly because of its strong grounding in economic theory, coupled with its incorporation of market validation results (Fleisher & Bensoussan 2003:215).

The functional capability and resource analytical framework, furthermore, offers important insights into the strategic challenges of growth and diversification as a function of the limits of resource support. As a corollary to this phenomenon, functional capability and resource analysis theory greatly increases the strategic vocabulary on which strategic analysis is based because people are able to articulate strategy theory to a much finer degree since it is much less abstract than other strategic analysis approaches (Fleisher & Bensoussan 2003:215). An additional significant fact that highlights the functional capability and resource analytical model's major strengths is evident in the argument of Prahalad and Hamel (1990:81), that the real source of a firm's competitive advantage is to be found in management's ability to consolidate corporate-wide technologies and production skills into competencies that empower individual businesses to adapt quickly to changing opportunities.

b   *Weaknesses*

Apart from its major strengths, the functional capability and resource analytical model also has certain prominent weaknesses. These include the fact that there is still little empirical support on which it is based. However, Fleisher and Bensoussan (2003:215), concur that this is probably a function of the relative newness of the framework as opposed to questionable validity. In addition, the taxonomy used in functional capability and resource analysis is perceived to be ambiguous, creating a perception of inconsistency and interchangeable classifications with some conceptual overlap. The functional capability and resource analytical model has also been perceived as nothing

new and is largely a repackaging of the SWOT analytical model, developed as early as 1971 (Fleisher & Bensoussan 2003:216).

Critics, furthermore claim that the functional capability and resource analytical model runs the risk of being tautological. Porter (1991:108) argues in this context that successful firms are successful because they have unique resources. A corollary to this criticism is the argument that the resource-based view incorporates circular logic. In this context, Porter (1991:108) argues that resources are not valuable on their own but are meaningful only when performing certain activities to achieve certain competitive advantages. Porter (1991:108) elaborates that a competitive advantage for the firm is derived from more than just resources. Economies of scales, sharing across activities, an optimal degree of integration and other drivers have independent influences unless "resources" are defined so broadly as to strain credibility. He concludes that the collective advantage of a firm is gained from all sources that determine its relative performance. This is the basic concept upon which this thesis has been developed.

4.5.4.4   *DACSOMEF evaluation*

In the context of competitive learning, on which competitive analysis should be based, the following findings apply with regard to the functional capability and resource analysis framework. These findings are based upon the identified key elements of the DACSOMEF rating and evaluation scale.

a   Dynamic competitive environment

The functional capability and resource analysis framework primarily starts with an assessment of the external environment. In this context, the analytical framework focuses mainly on the firm's critical success factors. Apart from firm-specific issues that should be addressed in this regard, macroenvironmental characteristics, industry characteristics and the competitive position of the firm should also be addressed in determining its critical success factors.

b   ***Assets***

The functional capability and resource analysis framework focuses strongly on the tangible and intangible assets of the firm. Thus, according to the DACSOMEF analytical valuation scale, the framework focuses a high degree of attention on a firm's assets. The model also emphasises determining the robustness of a firm's resources through the application of the VRIO analysis framework.

c   ***Capabilities and competencies***

The framework addresses the firm's capabilities and competencies. The model emphasises determining the robustness of a firm's capabilities through the application of the VRIO analysis framework.

It could, however, be argued that since the analytical framework is still reasonably new and lacks empirical support, it is a possible area for future research

d   ***Strategy***

The model places a great deal of emphasis on diagnosing the firm's current strategy, as well as determining robust future strategies in the context of a dynamic competitive environment. In this regard, the model makes provision for addressing the influence of the competitive environment on the firm's stock of competitive valuable resources because these resources are perceived to be at a constant risk of becoming obsolete or surpassed by rivals.

e   ***Organisational infrastructure***

The analytical model addresses the influence of factors such as organisational culture (as part of the firm's competencies) on a firm's competitiveness and specifically possible future strategic scenarios that may be derived from it. Organisation structure, however, is currently not addressed. This phenomenon should probably be perceived as being part of the "newness" of the model and not so much its questionable validity.

f   ***Management mindset***

Management mindset, as part of the firm's competencies, is addressed in the analytical model. However, it is again necessary to conduct an analysis of a firm's management mindset in such a way that it drills down to the individual and group behavioural level. The latter two issues have a major impact on a firm's future intent.

g   ***Environmental relationships***

The model addresses the influence of a firm's environmental relationships on its strategy and future intent. Again, the emphasis of the analysis should be deepened to the level at which network analysis is included.

h   ***Future intent***

With a definite view of the influence of the external environment on a firm's critical success factors, its assets, capabilities and competencies, as well as its strategies, the models deals strongly with the host of potential directions that exist regarding possible future strategies for the firm.

4.5.4.5   Conclusion

According to the DACSOMEF analytical evaluation scale, the functional capability and resource analysis framework is an excellent analysis technique in the quest to "peel back another layer of competitive learning" with regard to the future intent of a competitive force.

In the context of the DACSOMEF key elements and analytical rating scale, the functional capability and resource analysis framework generates the following score out of 100:

Table 4.6: Rating of the functional capability and resource analysis framework according to the DACSOMEF evaluation scale

Characteristic	Rating scale		Overall score (A x B)
	A Extent to which model addresses specific characteristic	B Importance in context of competitive learning	
	Weight	Rating	
Dynamic competitive environment	10.00	.80	8.00
Assets	15.00	.90	13.50
Capabilities and competencies	12.50	.80	10.00
Strategy	15.00	.90	13.50
Organisational infrastructure	10.00	.70	7.00
Management mindset	12.50	.60	7.50
Environmental relationships	10.00	.80	8.00
Future intent	15.00	.80	12.00
Overall score	**100**		**79.50**

From a DACSOMEF perspective, the functional capability and resource analysis model is perceived to be an ideal framework on which to base the competitive analysis of a competitive force. With minor improvements in the depth of analysis in certain areas it is perceived to have a great deal of potential to determine the future intent of a competitive force in the context of competitive learning.

4.5.5   Financial ratio and statement analysis

4.5.5.1   Introduction

The output of any firm's accounting process is a set of financial statements, footnotes and supplementary data. These financial statements and data are the primary means of communicating financial information both within and outside the firm (Ross, Westerfield, Jordan & Firer 1996:46). A firm's financial statements in general, contain a vast amount of information and figures, which on its own tells a lot about such a firm. However, the usefulness of individual data items from the financial statements is quite limited. An additional value-added demeanour is thus necessary. Examining the relationships between these items provides a more meaningful analysis (Holmes & Temte 2002:64). These relationships are known as ratios, of which more than 50 are regularly used in the accounting fraternity (Holmes & Temte 2002:79).

These ratios are commonly used to compare the financial information of one firm with that of another firm, against the industry as a whole, or the firm's financial figures of one period with previous periods. Financial ratios are thus a resourceful way of opening up new insight into the firm's financial condition and operating performance. In general, these financial ratios are ways of comparing and investigating the relationships between different pieces of financial information (Ross et al 1996: 54). According to Fleisher and Bensoussan (2003:400&403), financial ratio and statement analysis, the analytical tool which is based on these statements and ratios, is an excellent tool for providing critical insight into a firm's financial decision making, its financial condition and operating performance, and to a certain extent, its future competitive prospects.

4.5.5.2   Process

In order to conduct financial ratio and statement analysis, a basic knowledge of accounting, the meaning of the various elements in the different financial statements, and of significance, how these elements are calculated are of critical importance. However, this basic knowledge of financial accounting and financial statements does not fall within the ambit of this thesis.

Financial ratios are traditionally grouped into the following categories:

- activity or efficiency ratios

- financial leverage or long-term solvency ratios

- liquidity ratios or short-term solvency ratios

- profitability ratios

- market value ratios.

When conducting financial ratio analysis, the process can again be divided into different steps. These steps are based upon the assumption that the financial statements of the firm, which is being analysed, have already been drawn up. The different steps in financial ratio and statement analysis are depicted in the table below.

Table 4.7: Steps in financial ratio and statement analysis

No.	What	Reason for using ratio
Step 1	Determine the type of financial information needed	
Step 2	Pick the best data sources (secondary and primary) When using secondary sources, determine what data manipulation has been done with the data	
Step 3	Determine the concepts and ratios that support the type of information needed Determine the questions that need to be answered and identify which financial categories and ratios relate to the mentioned questions	

No.	What	Reason for using ratio
Step 4	**Activity or efficiency ratios** (Largely evaluates the cash flow of the business) ▪ Average inventory investment period = current inventory balance/average daily cost of goods ▪ Inventory to sales ratio = inventory/sales for the month ▪ Turnover analysis = sales/inventory of finished goods ▪ Average collection period = current accounts receivable/average daily sales ▪ Accounts receivable to sales ratio = accounts receivable/average daily sales ▪ Asset turnover = revenue/assets ▪ Fixed asset turnover = net sales/average net fixed assets	▪ Indicates the amount of time to convert cash outflow to sales ▪ Indicates recent increases in inventory ▪ Identifies the specific inventory items that are creating an excess in inventory, thus jeopardising cash flow ▪ Defines the relationship between accounts receivable and the firm's cash flow ▪ Identifies recent increases in accounts receivable ▪ Indicates how well a firm is using all of its business assets ▪ Measures the effectiveness of the firm's net fixed assets

No.	What	Reason for using ratio
Step 5	**Financial leverage or long-term solvency ratios** (Assesses the financial risk that a firm faces) ▪ Debt to equity ratio = total debt/total stockholder's equity ▪ Debt to asset ratio = total debt/total assets ▪ Fixed charge coverage = profits before interest and taxes + lease obligations/total interest charges + lease obligations ▪ Interest coverage ratio = operating income/Interest expense	 ▪ Indicates the degree of financial leverage the firm is using to enhance its return ▪ Measures the percentage of assets financed by creditors compared with the percentage financed by the owners ▪ Shows the firm's ability to meet its obligations ▪ Measures how many times the firm's interest obligations are covered by earnings from its operations

No.	What	Reason for using ratio
Step 6	**Liquidity ratios or short-term solvency ratios** (Indicate the ease of turning assets into cash) ▪ Current ratio = total current assets/total current liabilities ▪ Quick ratio = cash + government securities/ total current liabilities ▪ Working capital = current assets/current liabilities	 ▪ Measures the firm's ability to meet the payment schedules of its current debts ▪ Determines whether a firm would be able to meet its current obligations, in the event of its losing all its sales revenues (an acid test of 1:1 is satisfactory) ▪ Is an expression of how much in liquid assets a firm has to build its business, fund its growth, and produce shareholder value
Step 7	**Profitability ratios** (Demonstrates the performance and growth potential of a firm) ▪ Return on assets = net income/assets ▪ Return on equity = net income/ shareholders' equity ▪ Return on owners' equity = net income/ Average total equity ▪ Three-component Du Pont analysis return on equity = (net income/sales) (sales/assets) (assets/equity)	 ▪ Measures how well the firm is using its assets to produce more income ▪ Compares a business's return on equity to what it might have earned on the stock market during the same accounting period ▪ This is the rate of return the firm has earned on the capital provided by the owners ▪ Provides useful information on the firm's future returns

	▪ Five-component Du Pont analysis Return on equity = (EBIT/sales) (sales/assets) – interest expense/assets) (assets/equity) (1 – t)	▪ Provides information on the firm's future returns
	▪ Gross profit margin = gross profit/sales	▪ Indicates the amount of sales remaining after the cost of goods sold has been deducted
	▪ Net profit margin = net income/net sales	▪ Indicates the net income from continuing operations
Step 8	**Market-value ratios** (Focused more upon the investment scenario, rather than on the performance measures) ▪ Earnings per share = net income/dividends on preferred stock/average outstanding shares	 ▪ Indicates the profitability of a firm
	▪ Price/earnings (P/E) ratio = current market value per share/earnings per share	▪ Indicates the projected earnings of a firm
Step 9	Interpret the findings. Use an additional technique to convert the information from financial ratios into intelligence	

Source: Fleisher & Bensoussan (2003:406–413); Holmes & Temte (2002:67–79); Kerwin (2003:15)

4.5.5.3 *Strengths and weaknesses*

a *Strengths*

Various benefits can be derived from financial ratio and statement analysis. In a broader sense, it is common practice in corporate accounting, accounting practices regarding

creditors, as well as financial analysis from an investment perspective. A corollary to this fact is the analytical method's versatility. In the context of competitive analysis, the interpretation and assessment value of financial ratios improves the broader competitive analysis process in a major way. Fleisher and Bensoussan (2003:404), emphasise this fact when they argue:

> *We cannot imagine a comprehensive competitive and strategic analysis being done in the absence of any financial ratio and statement analysis.*

Apart from being extremely versatile, financial ratio and statement analysis also makes it possible during the analytical process to find patterns in masses of "disjointed" information.

b   *Weaknesses*

From a competitive learning perspective, mere financial ratios are not enough to move the analytical process beyond the first obvious level of knowledge. The vast number of accounting malpractices experienced in later years emphasised this fact. Accordingly, trust in accounting practices has been battered by corporate greed and the ethical lapses of accounting firms (Koller 2003:137).

Apart from the fact that many companies around the world, currently, minimise the amount of detail in their financial statements (Koller 2003:137), Palka (2003:7) concurs that no financial metric is perfect for providing insightful competitive analysis. The use of financial ratios and statement analysis thus has certain limitations. In this context, financial ratios are based mainly upon historical accrual-based accounting information. By contrast, competitive analysis should be strongly focused upon the future. An additional weakness is the fact that the use of accounting information permits some choice of accounting principles. This means that there is always a potential in financial analysis for earnings manipulation (Fleisher & Bensoussan 2003:404). Hohhof (2003:5) is quite outspoken about this issue when she argues:

In many cases establishing value means assigning a number to it. Especially in a business context, people shy away from imprecise values (subjective words) and go for the concrete ones (objective numbers). But numbers are really just another form of words: their meaning is influenced by the reasons they were created, how they are used, and what their qualifiers are. Too often numbers mean just what their creators want them to.

The dotcom collapse and various financial abuses by corporate executives in recent years are confirmation of this fact (Kerwin 2003:15).

On the application level, in comparing a firm's financial ratios with industry averages, it is often difficult to determine the appropriate industry to use in the comparison. It is thus necessary to consider more than one type of ratio because there are interactions between the different ratios that require the simultaneous consideration of different ratios. In addition, it is difficult to determine the appropriate comparison value for a ratio, because accounting practices, especially in different countries, may not be compatible. In certain instances it is also questionable if ratios are compatible, whilst the various ratios may not give consistent readings. The question should thus be asked if the ratios yield a reasonable figure for the industry as a whole (Holmes & Temte 2002:79). Another problem is whether the financial information and ratios were developed using the same accounting methods (Fleisher & Bensoussan 2003:406). In this context, a common language for financial data exchange and comparison is of critical importance. Palka (2003:6) highlights the recent development of Extensible Business Reporting Language (XBRL) on the Internet through which insight gained from financial quantitative analysis can be communicated more efficiently and more effectively.

From an asset and competitiveness perspective, an additional critical weakness of financial ratio and statement analysis is based upon the fact that financial analysis does not include intangible assets and the competencies of a firm. Fleisher and Bensoussan (2003:405), confirm that these assets form a critical part of the growth opportunities and wellbeing of such a firm.

4.5.5.4 *DACSOMEF evaluation*

In the context of competitive learning, the following findings apply to the financial ratio and statement analysis model. These findings are based upon the identified key elements of the DACSOMEF rating and evaluation scale.

a   Dynamic competitive environment

Financial ratio and statement analysis is based mainly upon the financial information of a particular firm for a specific period of time. The analysis is thus strongly based upon historical information and does not take the dynamic nature of the competitive environment into consideration. However, it is common practice to develop estimates of what the financial prospects of the firm being analysed are.

In competitive analysis terms there are reservations about the model's ability to capture the dynamic competitive environment in which a competitive force finds itself.

b   Assets

Financial ratio and statement analysis is primarily focused upon an analysis of a firm's financial wellbeing. In this regard, the firm's assets and liabilities, as well as owners' equity receive ample attention in the firm's balance sheet. Also, the firm's income statement summarises the results of a firm's operations. It could be argued that financial ratio and statement analysis places much emphasis on the firm's tangible assets and specifically the application thereof in context of the industry averages, another firm, or the same firm during two different periods. However, intangible assets, which are critical to the growth and wellbeing of a firm, do not receive any attention in normal accounting practices.

c   Capabilities and competencies

Capabilities and competencies, like intangible assets, do not receive any attention in financial ratio and statement analysis. It is thus important to use additional analytical

tools in order to support financial ratio and statement analysis to develop true insight into the future intent of a competitive force.

d   *Strategy*

Competitive analysis is all about identifying the strategic forces commanding the evolution and future prospects of a particular competitive force. Although it is unimaginable that comprehensive competitive and strategic analysis be conducted in the absence of any financial ratio and statement analysis, the latter has serious shortcomings with regard to establishing the strategic perspective of such a competitive force. Recent business scandals that have revolved around the abuse of financial accounting practices (Hohhof 2003:5) are a case in point.

e   *Organisational infrastructure*

Organisational structure, culture and the other variables included in this element are ignored in the analysis framework.

f   *Management mindset*

Although finance could be viewed as the artery of a firm and an important indicator of management thinking, management mindset encompasses more variables than only financial decisions. It is thus felt that a more holistic view of the management of the competitive force under investigation is necessary.

g   *Environmental relationships*

The model does address the firm's external links in the context of its debtors and creditors. However, this is a rather static view of external relationships because it is linked to a specific financial period. The model also makes no provision for any additional qualitative analysis.

Other influential external groups such as shareholders, alliances and joint venture partners receive a certain amount of attention in financial ratio and statement analysis. Again, this is limited to quantitative information.

h   *Future intent*

Financial ratio and statement analysis focuses strongly upon the financial characteristics, operating performance and decision making of a particular firm for a particular period. Comprehensive financial ratio analysis in this regard covers historical comparisons of a firm's financial wellbeing. It also focuses on future growth estimates.

However, the model, as it is currently being applied, has a rather static approach to all the future scenarios of a competitive force.

4.5.5.5   *Conclusion*

In general, financial ratio and statement analysis is a critical prerequisite for determining a particular firm's financial characteristics, operating performance and financial decision making. It also has some future orientation in the sense that it could be used to highlight a firm's financial growth estimates.

However, since the framework focuses primarily upon a financial perspective of a competitive force, it has serious limitations with regard to the qualitative demeanour of such a competitive force. Consequently, the combined application of financial ratio and statement analysis with other analytical technique which focus upon the quantitative abilities and future intent of a competitive force, could lay a much stronger foundation in competitive analysis in the process of determining the future intent of such a competitive force.

According to the DACSOMEF key elements and rating scale, financial ratio and statement analysis generates the following score out of 100:

Table 4.8: Rating of financial ratio and statement analysis according to the DACSOMEF evaluation scale

| Characteristic | Rating scale | | Overall score (A x B) |
| | A Extent to which model addresses specific characteristic | B Importance in context of competitive learning | |
	Weight	Rating	
Dynamic competitive environment	10.00	.30	3.00
Assets	15.00	.80	12.00
Capabilities and competencies	12.50	.10	1.25
Strategy	15.00	.40	6.00
Organisational infrastructure	10.00	.10	1.00
Management mindset	12.50	.30	3.75
Environmental relationships	10.00	.30	3.00
Future intent	15.00	.30	4.50
Overall score	**100**		**34.50**

From a DACSOMEF perspective, financial ratio and statement analysis is strongly oriented towards quantitative analysis of the tangible assets of a competitive force for a historical period of time. In the light of various abuses of accounting practices by firms around the world, there is thus a need in competitive analysis terms for a more stringent financial analytical model. Palka (2003:10) argues that financial competitive analysis will have to evolve over the next few years if it is to provide new levels of insight. This could have a serious but positive influence in limiting accounting malpractices. However, much research is necessary in order to advance current established accounting practices such as financial ratio and statement analysis to the next level of competitive knowledge.

In conclusion, it is of critical importance that in-depth strategically focused financial analysis becomes a key component of a firm's competitive analysis toolkit. This analysis

should provide new ways of examining financial metrics and their effect on the future competitive standing of a competitive force (Hohhof 2003:5). However, there is no doubt that financial analysis should, in the context of competitive learning, be taken to another level. This topic provides ample scope for future research.

4.5.6   Strategic funds programming

4.5.6.1   *Introduction*

Every operating firm that wishes to prosper over the long-term has to invest in its future. This is of particular importance for a mining firm because it constantly has to renew itself in the sense that the minerals it is mining in a particular geographical location are nonrenewable. Mining firms thus have to continuously seek new mining opportunities.

These future-related investments could be grouped under the term "strategic funds" and are focused upon growing the firm's existing strategies or funding its new strategies. Strategic funds thus differ from investments that fund current strategies, existing productive capacity, operational expenses or current working capital. In this context, three different sources of strategic funds are available to the firm:

- additional working capital – investments in current assets to increase the scope of the firm's existing product or service attribute offering

- capital investments – investments in fixed tangible assets such as plant and equipment to support a major expansion of existing strategies or moves into new competitive arenas

- investment innovations – investments in developmental initiatives such as research and development, advertising, technical processes, management information systems, distribution channels, consulting fees, etc.

The means to analyse this future-oriented investment programme of a firm is termed strategic funds programming. Some of the earliest literature on the concept of strategic funds programming emanated from Berg (1975) and Stonich (1980; 1981; 1984). To this end, strategic fund programming defines the firm's objectives, strategies and priorities. In addition, it determines if potential strategies are consistent with corporate objectives, whilst deciding which strategic programmes the firm should pursue. Lastly, it focuses upon implementing chosen programmes by allocating resources and responsibilities through formal capital budgeting and control mechanisms (Fleisher & Bensoussan 2003:419; Stonich 1980:36). Although strategic funds programming could play a critical role in any firm's internal operations by linking strategy formulation with resource allocation (Stonich 1980:36), it also adds an insightful dimension to the competitive analysis fray in order to determine the future intent of a competitive force.

4.5.6.2   *Process*

The process of strategic funds programming varies largely from one firm to the next. In the context of competitive analysis, the following process could apply:

Table 4.9: Strategic funds programming

No.	What	How
Step 1	Determine the existing financial capacity of the firm	▪ Conduct a Du Pont analysis: o ROE = leverage x asset turnover x profit margin $ROE = \dfrac{\text{Total assets (year t} - 1)}{\text{Equity (year t} - 1)} \times \dfrac{\text{Sales (year t)}}{\text{Total assets (year t} - 1)} \times \dfrac{\text{Net income (year t)}}{\text{Sales (year t)}}$ ROE = return on equity Year t = current year Year t – 1 = previous year
Step 2	Separate strategic programmes from operational maintenance	▪ Determine the internal funding balance of current operations (baseline) – revenues from existing products, related operating expenses, maintenance investment and inflation-driven increases ▪ Commodity related firms may use the maintenance of production throughput variable as the baseline ▪ Separate operational cost from strategic cost
Step 3	Analyse competing strategic opportunities	▪ Each strategic funding recommendation should formally be introduced by means of the following elements: ✓ Cost/benefit analysis ✓ Metrics to measure future success ✓ Future performance targets ✓ Sensitivity analysis under various scenarios and assumptions (ie pessimistic, neutral and optimistic) ✓ Integration with overall firm strategy and existing projects

No.	What	How
Step 4	Rank competing strategic investment opportunities	▪ Compose a set of criteria to judge the relative merits of each proposal. This could include the following: ✓ Performance measures (eg how to measure whether or not a project is on target with expected results) ✓ Forecasted cost/benefits of new proposals compared with the current and predicted performance of existing projects and strategies ✓ Tightness of the strategic fit of new proposals against backdrop of the firm's strategy and past investments ✓ Risk profile of each proposal and the impact it could have on the firm's total risk profile ✓ Consideration of the benefits associated with financial leverage if the proposal requires external debt financing ✓ Practical considerations of the funding pattern of the proposal over the short, medium and long term and the impact on the firm's total cash flow balance
Step 5	Selection of strategic funding proposal	▪ After each proposal has been screened through the filters mentioned in step 4, the optimal proposals should be selected for the competitive force under investigation
Step 6	Monitoring of competitive force's intent with regard to its strategic projects	▪ Monitor the competitive force's behaviour with regard to the possible application of strategic funding on particular growth projects ▪ Adapt the home firm's view with regard to the application of strategic funding by the competitive force under investigation
Step 7	Performance evaluation and control	▪ Monitor the progress of each chosen strategic funding proposal and decision by the competitive force ▪ Determine the influence of such initiatives on the home firm and take alternative strategic action (if necessary)

Source: Adapted from Fleisher & Bensoussan (2003:426–430); Stonich (1980:37)

4.5.6.3   Strengths and weaknesses

a   Strengths

In the competitive analysis context, strategic funds programming analysis can add an insightful dimension to determine the strategic framework, possible resource allocation initiatives and future intent of a competitive force. To this end, strategic funds programming is an excellent vehicle through which to foster organisational learning about such a competitive force. Its inclusive approach could thus offer many levels of rich management insights into such a competitive force's strategy (Fleisher & Bensoussan 2003:424). In the context of the global mining industry where mining firms constantly have to renew themselves, strategic funds programming could give an insightful view of the future intent of such a mining firm.

Consequently, it could be argued that any competitive analysis process could be less effective if no attention is focused on a competitive force's strategic funding opportunities and possible future investment programme. If a competitive analysis process thus does not focus upon the strategic funds programme of a competitive force, it could emphasise a serious neglect of some valid strategic options available to such a competitive force. In contrast, conducting a strategic funds programming analysis on a competitive force could narrow the universe of strategic options available to such a competitive firm.

b   Weaknesses

According to Fleisher and Bensoussan (2003:425), the strategic funds programming model's formal and systematic approach predisposes it to the inherent dangers of becoming a sterile exercise in form and substance. In addition, it is argued that strategic funds programming is time-consuming and expensive.

4.5.6.4   DACSOMEF evaluation

In the context of competitive learning, on which competitive analysis should ideally be based, the following findings apply with regard to the strategic funds programming

analytical framework. These findings are based upon the identified key elements of the DACSOMEF rating and evaluation scale.

a   ***Dynamic competitive environment***

Strategic funds programming is primarily focused upon the linkage between a firm's strategies, resources and future strategic investment programme. This is also the case when applying the framework in the competitive analysis context. Hence very little, if any, emphasis is placed on the dynamic competitive environment and the forces in such an environment's influence on the competitive force under investigation.

b   ***Assets***

Strategic funds programming focuses considerable attention on investments in current assets to increase the scope of the firm's existing product or service, investments in fixed tangible assets such as plant and equipment to support a major expansion of existing strategies or moves into new competitive arenas, and investment innovations. Intangible assets are disregarded in the analytical framework.

c   ***Capabilities and competencies***

The analytical framework does not make provision for analysing the capabilities and competencies of the firm under investigation.

d   ***Strategy***

As already mentioned, strategic funds programming is primarily focused upon the linkage between a firm's strategy formulation, resource allocation and strategy implementation. In the competitive analysis context, the analytical framework offers much insight into the future strategic intent, albeit strongly financially oriented, of the competitive force under investigation.

e   ***Organisational infrastructure***

The analytical framework does not make provision for analysing the organisational infrastructure of the firm under investigation

f   ***Management mindset***

Strategic funds programming gives a rational and financially oriented view of the strategic issues, which are at the top of the competitive force management team's financial agenda. It thus makes no provision for issues concerning technology, human capabilities, risk aversion and management preferences. Also, it gives no insight into the individual and group behavioural aspects of the management team.

g   ***Environmental relationships***

The analytical framework remains a financial analytical framework and hardly focuses on any external relationship that such a firm could have, apart from focused projects in the external realities.

h   ***Future intent***

The application of strategic funds programming in the competitive analysis context offers a strong view of the process being followed by the competitive force under investigation which links its strategy to its resource allocation programme. It thus give substance to the concept of future-oriented thinking about such a competitive force because it relates to the latter's strategic intent, investment programmes, resource commitment and ultimate possible competitive influence on the home firm.

4.5.6.5   Conclusion

Strategic funds programming was primarily designed as a financial framework to link a firm's strategic formulation process, resource capabilities and strategic implementation process. In the context of competitive analysis, the analytical framework has a strong future-oriented view and thus gives rich insight into the financial strategic intent of a competitive force. In the context of the DACSOMEF key elements and analytical rating scale, it generates the following score out of 100:

Table 4.10: Rating of the strategic funds programming analytical framework according to the DACSOMEF evaluation scale

Characteristic	Rating scale		Overall score (A x B)
	A Extent to which model addresses specific characteristic	B Importance in context of competitive learning	
	Weight	Rating	
Dynamic competitive environment	10.00	0.00	0.00
Assets	15.00	0.50	7.50
Capabilities and competencies	12.50	0.00	0.00
Strategy	15.00	0.80	12.00
Organisational infrastructure	10.00	0.00	0.00
Management mindset	12.50	0.30	3.75
Environmental relationships	10.00	0.10	1.00
Future intent	15.00	0.50	7.50
Overall score	**100.00**		**31.75**

It is evident in the above-mentioned figure that strategic funds programming was primarily developed for a specific application that is, linking the firm's strategic formulation process, resource capabilities and strategic implementation process through a financial looking glass. Although it addresses the strategic formulation and implementation process of the firm under investigation, from a DACSOMEF perspective it lacks the width and depth of analysis needed to fully determine a competitive force's future intent. Consequently, such an analysis should be supported by additional analysis in order to determine the future intent of a competitive force.

4.5.7   Sustainable growth rate analysis

4.5.7.1   Introduction

A firm's financial strategies have a direct impact on its ability to grow. The concept of sustainable growth rate was developed in order to determine the influence of such financial strategies on the firm's growth prospects. Back in 1964, Kirsor (1964:46) used the established Du Pont financial formula to design a financial model to predict the maximum amount of growth that a firm could experience before having to secure external debt or equity financing (Fleisher & Bensoussan 2003:435). After Kirsor, a number of other sources addressed the concept of sustainable growth rate and its numerous characteristics and nuances (Babcock 1970; Zakon 1971; Fruhan 1972; 1979; Higgins 1977; Abell & Hammond 1979; Robinson cited in Varadarajan 1983:360).

A sustainable growth rate is defined in managerial literature as the annual percentage increase in sales that is consistent with a firm's financial policy (Higgins cited in Varadarajan 1983:360). It is thus the maximum growth rate a firm can achieve with no external equity financing while maintaining a constant debt/equity ratio (Ross et al 1996:91). In this context, the growth rate of a firm is sustainable when cash inflow equals or exceeds cash outflow. The fundamental concept underlying this matter is based upon the question whether the realised returns generated by the firm from the past and current investments can provide the required investment funds to support future corporate strategy (Fleisher & Bensoussan 2003:437). To this end, cash inflow is essentially created from three sources:

- internally generated cash flow from current operations and/or disposal of assets or divestment

- debt

- equity

Cash outflow is, furthermore, created by six applications of funds (Fleisher & Bensoussan 2003:437):

- investments in working capital (eg cash, payables, inventory and receivables)

- reinvestment to maintain existing capital assets

- new capital investments to support increasing sales

- taxes

- debt servicing costs

- dividend payouts

4.5.7.2 *Process*

In the context of this thesis, the sustainable growth rate analytical process will be addressed in general terms. This process is depicted in table 4.11 below.

Table 4.11: Sustainable growth rate analysis

No.	What	How
Step 1	Gather information from the firm's accounts	▪ In the competitive context, information is available from the published accounting information of the competitive force under investigation
Step 2	Calculate the firm's existing sustainable growth rate	▪ Depending on the specific key intelligence topic, calculate a separate sustainable growth rate for each SBU of the competitive force under investigation ▪ Alternate variations of the formula may be used. Theses formulae are: ✓ $G = \dfrac{\text{Total assets (past year)}}{\text{Equity (past year)}} \times \dfrac{\text{Sales (current year)}}{\text{Total assets (past year)}} \times \dfrac{\text{Net income}}{\text{Sales}} \times$ $\dfrac{\text{Net income (current year)} - \text{Dividends (current year)}}{\text{Net income (current year)}}$ ✓ $G = \text{Before-tax ROE} \times \left(1 - \dfrac{\text{Taxes}}{\text{EBT}}\right) \times \left(1 - \dfrac{\text{Dividends}}{\text{EAT}}\right)$ G = Sustainable growth rate ROE = Return on equity EBT = Earnings before tax EAT = Earnings after tax ✓ $G = \text{ROE} \times \text{Retention ratio 1}$ ROE = net income/equity Retention ratio $= \dfrac{\text{Net income} - \text{dividends}}{\text{Net income}}$

No.	What	How
Step 3	Integrate with strategic funds programming	The strategic funds programming will project the amount of new investment proposed over the forecast period. Three options are possible: ✓ Analyse the options available to increase the sustainable growth rate: $G = \dfrac{Total\ assets}{Equity} \times \dfrac{Sales}{Total\ assets} \times \dfrac{Net\ income}{Sales} \times Retention\ ratio$ ✓ Raise equity ✓ Constrain growth by changing the strategic funds programming

Source: Fleisher & Bensoussan (2003:444–447); Ross et al (1996:91-92)

4.5.7.3 Strengths and weaknesses

a   Strengths

Since the 1960s, firms have used sustainable growth rate analysis to test the feasibility of their corporate strategies by determining whether further growth will be constrained by the firm's current financial strategies. Sustainable growth rate analysis is thus a dynamic analytical framework that combines financial analysis with strategic management in order to explain critical relationships between strategic planning and financial and operational variables. The sustainable growth rate formula offers rich insights into the architecture of the firm's business model. It also serves as an effective reality check to determine whether strategic growth objectives are financially feasible under existing financial policy.

Sustainable growth rate analysis can also be used to examine how growth will affect financial leverage and what variables the firm can manipulate to restore balance between

financial policy and its growth objectives. Sustainable growth analysis thus provides a robust technique for determining the threshold at which to control growth within the internal financing constraint (Fleisher & Bensoussan 2003:435). If the firm's growth projections show a high possibility of surpassing the sustainable growth rate, sensitivity analysis can pinpoint where the analytical focus should be. This is the feasibility filter through which all strategies must be passed in order to assess the impact of the future sales growth on the firm's financial liquidity (Fleisher & Bensoussan 2003:441). Based upon this information, the firm can now determine what the most effective levers of financial policy should be to support future strategy.

Strategic growth rate analysis also provides some insight into a firm's creditworthiness. In this regard, a comparison of a firm's actual growth rate with its sustainable rate gives an indication what issues will be at the top of management's financial agenda. If actual growth consistently exceeds sustainable growth, management's problem will be where to obtain the cash to finance growth. Conversely, if sustainable growth consistently exceeds actual, management's problem will be what to do with all the cash they receive (Ross et al 1996:93).

Apart from the strengths arising from the broader application of sustainable growth rate analysis, it has seen increasing use in competitive analysis for assessing the strengths and weaknesses of rival firms (Fleisher & Bensoussan 2003:436). In this regard, estimating the sustainable growth rate of a competitive force will reveal both threats and opportunities to the home firm. If such a competitive force is at or near its sustainable growth rates, it may not have the financial capacity to launch an effective threat to the home firm's established competitive advantage. Similarly, a rival's limited financial capacity may offer strategic windows for the home firm to make some inroads (Fleisher & Bensoussan 2003:442). Conversely, if a competitive force is deemed to have significant room to grow, the home firm's radar screen can be more finely tuned to that potential source of information.

Sustainable growth rate analysis is also extremely resource efficient; the methodology is not complex and the information requirements are freely available in the firm's accounting data. A wide variety of different types of accounting reporting are furthermore amenable to this type of analysis. The analytical inputs are of a sufficiently high level of abstraction to guarantee that access to a competitive force's internal financial information is not necessary. The model is also timely because it can be applied quickly. It is also extremely versatile as indicated in its functional application. It can thus analyse the current strategy of a competitive force, test the feasibility of its future strategy and pinpoint possible actions relating to the financial barriers to growth (Fleisher & Bensoussan 2003:443).

b   *Weaknesses*

According to research conducted by the Corporate Strategy Board (1997), sustainable high growth rate poses a daunting challenge with even the best firms around the world unlikely to achieve it over an extended period. In this context, research has shown that less than 1% of the sampled 15 000 publicly traded firms have been able to achieve double-digit growth rates over a period of 10 years (Corporate Strategy Board 1997:3). It is thus evident that the very basis of the sustainable growth rate analysis framework is not always practical because it is unlikely that firms will be able to achieve sustainable growth over an extended period in the contemporary dynamic business environment.

Apart from the "unpractical" foundation of the sustainable growth rate concept, various other weaknesses have been detected in the analytical framework. In this regard, sustainable growth rate analysis isolates only those financial variables with the highest payoff. It is not strategy – it is only a tactical financial analysis tool, albeit a valuable one, from which to test the feasibility of strategy. The sustainable growth rate model also assumes a constant market growth during the forecast period. This may not necessarily be a correct assumption because the competitive structure may change drastically during the planning period, causing an uneven or different rate of market growth during the planning period (Fleisher & Bensoussan 2003:444).

In addition, the heavy reliance on sustainable growth rate analysis may lure a firm into assuming that financial considerations present the highest barrier to growth. Care should thus be taken to include issues concerning technology, human capabilities, risk aversion, and management preferences as potentially equal or greater barriers to growth. In this regard, fund availability is only one necessary prerequisite for successful strategy (Fleisher & Bensoussan 2003:443). The quantitative and rather formulaic approach of this model may lull a firm into believing that there are no trade-offs between financial variables that have crossover effects on the firm's broader strategy. In this context, customers and suppliers may be alienated by a seemingly innocuous attempt to tighten up the cash conversion cycle. Quality and safety may be compromised by reductions in capital maintenance. Long-term technological supremacy may be eroded by short-term concerns about saving funds through reductions in capital intensity.

4.5.7.4   DACSOMEF evaluation

In the context of competitive learning, on which competitive analysis should be based, the following findings apply with regard to the sustainable growth rate analysis. These findings are based upon the identified key elements of the DACSOMEF rating and evaluation scale.

a   Dynamic competitive environment

As was evident in the research conducted by the Corporate Strategy Board (1997), sustainable growth is a daunting task, given the volatility and uncertainty of the contemporary competitive environment. Consequently, the very basis of sustainable growth is questioned. With regard to the analytical model in particular, it is heavily focused upon the internal financial strategies of the firm under investigation and does not make provision for addressing such a firm's competitive environment.

b   Assets

Sustainable growth rate analysis is primarily a financial analytical framework, which addresses the financial strategies of the firm. None of the other tangible and intangible assets are addressed.

c   **Capabilities and competencies**

The analytical framework fails to make provision for analysing the capabilities and competencies of the firm under investigation.

d   **Strategy**

Sustainable growth rate analysis addresses the influence of the firm's financial strategies on its growth prospects. In this regard, it offers some insight into the firm's business model from a financial perspective because it represents a financial feasibility filter through which all strategies must pass. Implicit in this concept is the fact that sustainable growth rate analysis could give some astute insight into a competitive force's strategic process. However, care should be taken not to develop a false view that financial considerations present the highest and only barrier to a firm's future strategies.

e   **Organisational infrastructure**

The analytical framework does not make provision for analysing the organisational infrastructure of the firm under investigation.

f   **Management mindset**

Sustainable growth rate analysis provides a rational view of the strategic issues at the top of the management of the competitive force's financial agenda. Although extremely important, it makes no provision for issues concerning technology, human capabilities, risk aversion and management preferences. In addition, it gives no insight into the individual and group behavioural aspects of the management team under investigation.

g   **Environmental relationships**

The strategic growth rate analytical framework remains a financial analytical framework, which focuses only upon the influence that new investments by the firm under investigation could have on its future sales, liquidity and future prosperity. It hardly focuses on any external relationship that such a firm could have, and of significance what

the influence of such relationship could be on the future intent of the competitive force under investigation.

h   *Future intent*

Since sustainable growth rate analysis is an important financial feasibility filter against which all strategies should be evaluated, it gives major insight into the possible future threats and opportunities available to the competitive force under investigation. However, it remains a one-sided, albeit an important financial view, of the possible future scenarios available to a competitive force.

4.5.7.5   Conclusion

The development of the sustainable growth rate analytical framework was primarily based upon the need to determine the influence of a firm's financial strategies on its growth prospects. In this context it provides certain fundamental insights into the interdependencies between market share strategies, financial policies and the possible future prosperity of a firm. It remains a valuable competitive analytical framework because a firm's financial endeavours remain a key element of its future success. In addition, the analytical tool has a sense of future orientation and has the ability of identifying the existing upper limits of the firm's growth prospects (Fleisher & Bensoussan 2003:448). In the context of the DACSOMEF key elements and analytical rating scale, it generates the following score out of 100:

Table 4.12: Rating of the sustainable growth rate analysis framework according to the DACSOMEF evaluation scale

Characteristic	Rating scale		Overall score (A x B)
	A Extent to which model addresses specific characteristic	B Importance in context of competitive learning	
	Weight	Rating	
Dynamic competitive environment	10.00	.10	1.00
Assets	15.00	.40	6.00
Capabilities and competencies	12.50	.00	0.00
Strategy	15.00	.50	7.50
Organisational infrastructure	10.00	.00	0.00
Management mindset	12.50	.30	3.75
Environmental relationships	10.00	.20	2.00
Future intent	15.00	.50	7.50
Overall score	**100.00**		**27.75**

The above-mentioned table shows that the sustainable growth rate analytical framework has primarily been developed for a specific application that is, determining the influence of a firm's financial strategies on its growth prospects. From a DACSOMEF perspective it seriously lacks the width and depth of analysis needed to fully determine a competitive force's future intent. Consequently, such analysis should be supported by additional analysis in order to determine the future intent of a competitive force. The very limitations of the analytical framework highlight the fact that certain additional research is necessary before any extension in its applicability to strategic management problems can be granted (Varadarajan 1983:366).

4.5.8   The Boston Consulting Group growth share portfolio matrix

4.5.8.1   *Introduction*

Predicting the future is one of the main objectives of the competitive analysis process. The Boston Consulting Group (BCG) growth share portfolio matrix is an analytical tool that can be used to predict how a multi-unit corporation will manage its portfolio. In the context of competitive analysis, it can thus provide a framework for analysing a competitive force's business portfolio.

The BCG growth share portfolio matrix, which was first put to commercial use in 1969, was a popular analytical tool during the 1970s (Fleisher & Bensoussan 2003:31). This was mainly because the matrix provided a practical framework to guide resource allocation among the many widely divergent businesses of that period. However, Miller (2000:75) and Varadarajan (1999:89) concur that this alluring but questionable belief in the synergy of a conglomeration has since gone out of fashion with the de-conglomeration of the corporate world during the 1980s and 1990s. Today's corporations are engaged in divesting from their portfolios businesses that do not relate to their core businesses.

Although widely diversified corporations are no longer viewed with much favour in the global business arena, many firms own a portfolio of related business units or products in varying stages of maturity and growth. Hence in competitive analysis, the BCG matrix could thus be useful to predict which products or business units of the competitive force under investigation, such a force might be willing to sell off. Alternatively, the matrix could be used to determine whether such a competitive force would be a likely acquirer of a particular product or business unit (Miller 2000:75).

The basic principle behind the BCG matrix analysis is that a diversified firm should compare the merits of its individual products or business units in order to determine appropriate market strategies for each. The products or business units are evaluated on the basis of the attractiveness of the industry in which they compete and their relative
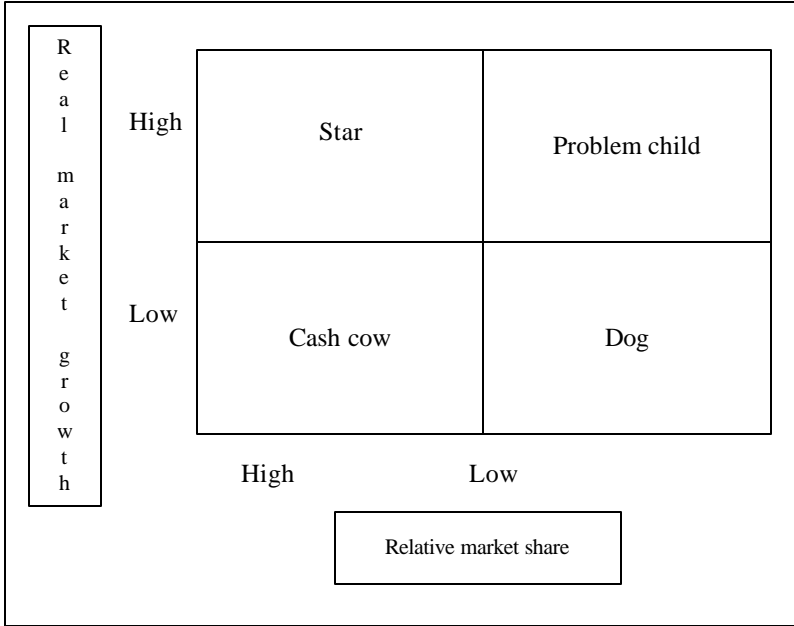
competitive position. Generic strategies are then recommended, depending on the position of the individual products or business units in the portfolio matrix (Fleisher & Bensoussan 2003:30). In this context, the cash flow from the mature products or business units should, according to the BCG matrix, be invested in the businesses that have great growth potential (Miller 2000:74).

4.5.8.2   Process

In order to apply the BCG matrix, the steps as depicted in table 4.13 need to be adhered to.

Table 4.13: Boston Consulting Group growth share portfolio matrix

No.	What	How
Step 1	Divide the firm into strategic business units (SBUs)	Divide the firm into economically distinct or unique product market segments Common segmentation criteria include similar strategically relevant situational or behavioural characteristics, a discontinuity in growth rates, share patterns, distribution patterns, cross elasticity of substitute products, geography, interdependent prices, similar competition, similar customers served, and/or a potential for shared experience
Step 2	Measure the growth rate of each SBU market	▪ Market growth rate, year x ▪ $= \dfrac{(\text{market size, year } x) - (\text{market size, year } x-1)}{\text{market size, year } x-1} \times 100$
Step 3	Measure the relative market share of each SBU	▪ SBU relative market share, year x ▪ $= \dfrac{\text{SBU sales, year } x}{\text{Largest competitor's sales, year } x}$

No.	What	How
Step 4	Position each SBU along the matrix dimensions	▪ Plot on the vertical axis: market growth rate ▪ Plot on the horizontal axis: relative market share ▪ Plot contribution bubbles: relative size of bubble = (SBU sales or profitability) Total firm sales or profitability
Step 5	Construct a matrix for all SBU competitors	▪ Repeat steps 1 to 4 to construct matrices for competitor SBUs

Step 6	Assign optimal generic strategies to each SBU	Four generic strategies should be considered (see following figure):
		
		▪ Star:
		  ✓ Earnings - high, stable, growing
		  ✓ Cash flow – neutral
		  ✓ Strategy – invest for growth
		
		▪ Problem child
		  ✓ Earnings – low, unstable, growing
		  ✓ Cash flow – negative
		  ✓ Strategy – analyse reason

		▪ Cash cow
		✓ Earnings – high, stable
		✓ Cash flow – high stable
		✓ Strategy – milk
		▪ Dog
		✓ Earnings – low, unstable
		✓ Cash flow – neutral or negative
		✓ Strategy – divest
Step 7	Further disaggregate the analysis	The matrix approach can be further defined to map out the relative positions of the various products in each SBU
Step 8	Introduce analytical dynamics	▪ Construct a share momentum graph (an alert to the blinding effects of simultaneously gaining sales while eroding relative market share) ✓ Plot on vertical axis: long-term historical market growth rate ✓ Plot on horizontal axis: gaining share
Step 9	Iteration	▪ Rival firms can be monitored by repeating the above-mentioned process with a time series on these rivals ▪ Constructing and updating share momentum graphs for competitors

Source: Fleisher & Bensoussan (2003:39–43)

4.5.8.3 *Strengths and weaknesses*

a *Strengths*

Although the BCG matrix proposes a somewhat simplified method of analysing a portfolio of a competitive force, it captures a large amount of information in one diagram. This capability creates a useful point of departure on which further in-depth analysis should ideally be based. An additional advantage of the BCG is that the progress in the strategic process of a competitive force can easily be facilitated with the BCG matrix by plotting a time series of rival matrices (Fleisher & Bensoussan 2003:36).

b   *Weaknesses*

However, since its first commercial use more than 30 years ago, the global business environment has developed beyond the full reach of the BCG matrix. This is evident in the fact that during the 1980s, the analysis of industry structure and competitive positioning on which the BCG growth share portfolio matrix and other analytical tools were based formed the mainstay of strategic analysis. By contrast, analysis of the firm's internal environment remained underdeveloped. Grant (1998:106) thus argues that this comparative neglect of internal resources in the analytical process contrasts sharply with military strategy, which has been dominated by the analysis of relative resource strength. As a corollary to this, Varadarajan (1999:89) emphasises the fact that with the deconglomeration of corporate business during the 1980s and 1990s, the BCG matrix approach to business portfolio analysis and planning has outlived its usefulness and no longer illuminates reality in a meaningful and useful way.

Because it uses only two variables, the BCG matrix is also perceived to be a gross oversimplification of the factors that determine industry attractiveness and competitive advantage. This emphasises a major weakness of the matrix because, for example, market share is not a good indicator of competitive advantage, whilst market growth is a poor proxy for market potential (Grant 1998:398). The BCG matrix also assumes that a firm's management is more adept at maximising investment returns than their shareholders. This rings hollow, especially in light of the emergence of advanced capital markets and the great difficulty of managing diversity in the absence of specific market knowledge (Fleisher & Bensoussan 2003:37).

The positioning of businesses in the matrix is highly susceptible to subjective measurement choices. This is true because relative market share in the matrix depends critically on how markets are defined. The approach assumes that every business unit is completely independent. This creates a specific problem in competitive analysis where synergetic linkages exist between business units, whilst the matrix allows the business units to regard each other as stand-alone businesses. This inevitably leads to suboptimal choices (Grant 1998:398).

Oster (1999:196) argues that it has become clear over time that to simply use cash from mature operations to fuel growth elsewhere in the firm, as the BCG matrix suggests, is not always a successful strategy. In a mature industry where competition is normally rife, careful, creative and sensitive management of scarce resources is essential, in order to disregard subgoal pursuit by the individuals in such a mature operation. Furthermore, firms are increasingly moving in the direction of organising themselves as integrated global enterprises, driven by a commitment to doing business in all major markets. Consequently, the vast resource outlays that firms need to establish a global presence and compete in global markets against global competitors have forced them to resort to portfolio pruning by divesting businesses unrelated to their core businesses (Varadarajan 1999:92).

4.5.8.4   DACSOMEF evaluation

In the context of competitive learning, on which competitive analysis should be based, the following findings apply with regard to the BCG growth share portfolio matrix. These findings are based upon the identified key elements of the DACSOMEF rating and evaluation scale.

a   Dynamic competitive environment

Although the BCG matrix does take into consideration the market share of the firm under investigation in the competitive environment and compares it with its largest competitor's sales, not much emphasis is placed on all the dynamics in the competitive environment. The BCG matrix also focuses primarily on market growth and market share, which in itself is a somewhat limited view of the competitive environment.

b   Assets

From an asset perspective, the BCG matrix could be useful to predict which products or business units (tangible assets) of the competitive force under investigation, such a force might be willing to sell off. Alternatively, the matrix could be used to determine whether such a competitive force would be a likely acquirer of a particular product or business

unit (Miller 2000:75). In this context, the BCG matrix is a rather practical, although simplistic, framework to guide resource allocation. However, more recent views by Varadarajan (1999:92), emphasises the fact that corporate strategy is increasingly shaped by more fundamental considerations. In addition, the BCG matrix fails to emphasise intangible assets.

c   *Capabilities and competencies*

As in the case with intangible assets, the BCG matrix does not emphasise a competitive force's capabilities and competencies.

d   *Strategy*

The basic principle of the BCG matrix analysis is that a diversified firm should compare the merits of its individual products or business units in order to determine appropriate market strategies for each. Thus, according to the BCG matrix, a competing firm has a choice of four possible generic strategies (stars, cash cows, dogs and problem children) to consider for each of the individual products or business units in its portfolio matrix. Again, Varadarajan (1999:92) words ring true when he argues that corporate strategy is increasingly shaped by more fundamental considerations. In addition, the BCG matrix does also not consider the synergetic linkages between business units.

e   *Organisational infrastructure*

The BCG matrix does not emphasise a competitive force's capabilities and competencies.

f   *Management mindset*

Apart from a choice between four basic strategies and the investment of profits from a mature business unit into other growth areas in the diversified firm, a competitive force's management mindset is disregarded.

g   *Environmental relationships*

According to the BCG matrix, a competitive force's competitive position vis-à-vis. its rivals is determined by market growth and market share. Although such a competitive

force can thus be positioned in context with its main rivals, Grant (1998:398) argues that it represents a gross oversimplification of the factors that determine industry attractiveness and competitive advantage. This has especially been so in more recent times, following the de-conglomeration of the global corporate world. In addition, hardly any other environmental groups are being considered with the BCG matrix.

h   Future intent

The only future intent consideration vested in the BCG matrix, is the choice between the four generic strategies. Again, the gross oversimplification of the BCG matrix is evident.

4.5.8.5   Conclusion

In the context of the DACSOMEF key elements and analytical rating scale, the BCG matrix generates the following score out of 100:

Table 4.14: Rating of the Boston Consulting Group growth share portfolio matrix according to the DACSOMEF evaluation scale

Characteristic	Rating scale		
	A Extent to which model addresses specific characteristic	B Importance in context of competitive learning	Overall score (A x B)
	Weight	Rating	
Dynamic competitive environment	10.00	0.2	2.00
Assets	15.00	0.3	4.50
Capabilities and competencies	12.50	0.0	0.00
Strategy	15.00	0.4	6.00
Organisational infrastructure	10.00	0.0	0.00
Management mindset	12.50	0.3	3.75
Environmental relationships	10.00	0.2	2.00
Future intent	15.00	0.3	4.50
Overall score	**100.00**		**22.75**

The BCG matrix is helpful in identifying in a simplistic manner the possible courses of action a competitive force may take in selling off certain products or business units. From a DACSOMEF perspective, it is perceived to be an elementary analytical framework, which at best should be used as a first-cut type of analysis.

4.5.9   SWOT analysis

4.5.9.1   Introduction

One of the most general approaches still frequently being used to analyse a firm's strategic position is the SWOT (strengths, weaknesses, opportunities and threats) analytical framework. This widely known analytical method had its origins during the 1960s in the work of the Harvard Business School and other US business schools. Kenneth Andrews was especially influential in this development, and in 1971 was one of the first strategy theorists to formally articulate the concept of a possible strategic fit between the firm's resources and the external environment (Hill & Westbrook, 1997:47). As a corollary to this work in 1982, Weihrich (1982:54–66), introduced the TOWS matrix, which matches environmental threats and opportunities with the firm's weaknesses and strengths.

Since those early years, the SWOT analytical framework has been used in situation analyses by many organisations around the world. Oliver (2000:7) concurs with this view that the SWOT analysis is an excellent strategic management tool, largely popularised by MBA programmes around the world. In this regard, many modern textbooks on strategy currently still place a great deal of emphasis on the SWOT analytical framework (Hill & Westbrook 1997:47), whilst it is also been applied in the context of competitive analysis.

4.5.9.2   Process

Although the SWOT analytical framework is perceived to be ideally suited to application early on in the competitive analytical process, it is necessary to adhere to certain basic steps. Table 4.15 depicts the different steps in the SWOT framework:

Table 4.15: SWOT analytical framework

No.	What	How
Step 1	▪ List and evaluate the competitive force's strengths, weaknesses, opportunities and threats	▪ Strengths: those factors that make an organisation more competitive than its peers (a distinctive advantage at doing or a particular resource) ▪ Weaknesses: those limitations, faults, or defects in the organisation that prevent it from achieving its objectives (ie inferior capabilities or resources) Weaknesses should be broken down into three subcategories: ✓ Symptoms - symptoms of weaknesses in the firm, which cannot be repaired directly, but will improve when the underlying causes of weakness are tackled ✓ Hygiene weaknesses - conditions that are generally regarded as the basics for running a business enterprise (ie sound management, adequate accounting systems, etc) ✓ Structural weaknesses - areas in which the firm would like to have but lacks a distinctive competence (ie low market share vis-à-vis major rivals) ▪ Opportunities: any favourable current or prospective situation in the firm's external environment (ie trend, change, overlooked need, etc). Two types of opportunities can be identified: ✓ Portfolio opportunities - Areas of potential business where the distinctive nature of the firm's business idea might be capable of developing profitable business ✓ Capability opportunities - areas where the firm might develop new capabilities which are regarded as relevant to future success ▪ Threats: any unfavourable situation, trend or hindering change in the firm's external environment that is currently or potentially damaging or threatening to its ability to compete (ie barrier, constraint, etc)

No.	What	How
Step 2	▪ Identify the competitive force's strategic fit, given its internal capabilities and external environment	**1** Internal strengths matched with external opportunities **2** Internal weaknesses relative to external opportunities **3** Internal strengths matched with external threats **4** Internal weaknesses relative to external threats
Step 3	▪ Evaluate alternative strategies for the competitive force under investigation	Search for one strategy that provides a competitive advantage: ▪ Quadrant 1: ideal match because it represents the tightest fit between the firm's resources and competitive opportunities in the

external environment

- Quadrant 2: choosing the optimal trade-off between investing to turn the weakness into the strength necessary to exploit the opportunity, or abdicating to rivals

- Quadrant 3: transforming the external threats into opportunities by reconfiguring the competitive position of the firm's resources; also considering a defensive strategy

- Quadrant 4: worst position for the firm, although various strategic options will emanate from this quadrant

No.	What	How
Step 4	▪ Decide upon a possible strategy for the competitive force under investigation	▪ Constant monitoring and periodic iteration is necessary to revisit established issues ▪ Apply an interaction matrix

		+
		0
		0
		+
		0
		0
		0
		+
		+
		0
		+
		+
		0
		+
		+
		0
		0
		+
		0
		+
		0
		0

		0
		+
		0
		*) +: Strong match between strengths and opportunities
		0: Weak match between strengths and opportunities
		▪ Reading across the matrix will help to identify strategic issues where the firm's strengths could potentially match opportunities in the external environment
		✓ Opportunity 3 and strength 4, each appear to offer several favourable matches for the competitive force under investigation

Source: Fleisher & Bensoussan (2003:94;98–102); Weirich (1982:54–66); Van der Heijden (2002:142–144)

4.5.9.3   *Strengths and weaknesses*

a   Strengths

As indicated, the SWOT analytical framework is possibly the most widely known and utilised method of situation analysis conducted by firms around the world. It has achieved universal status, while its wide applicability has ultimately been one of its major advantages. Consequently, the analytical framework can be used for analysing a wide variety of issues, whilst its simplistic nature makes it quite effective (Fleisher & Bensoussan 2003:97).

Research conducted by Hill and Westbrook (1997:50) indicates that a major advantage of the SWOT analytical framework lies in the fact that it creates an opportunity during the

analytical process for a rapid familiarisation with the various internal and external issues impacting on the firm being analysed. SWOT thus serves as an effective means for a quick assessment of a competitive force's core capabilities, competencies and resources. It therefore provides insight into why a particular organisation has been successful or unsuccessful in implementing a particular strategy. The SWOT analytical framework has the ability to summarise the key issues from a complex corporate appraisal (Hussey 1998:232).

A SWOT analysis can furthermore be applied without major financial or computer resources, whilst providing an excellent foundation from which additional competitive analysis can be launched (Fleisher & Bensoussan 2003:97).

b   *Weaknesses*

Thirty years since the original work around the SWOT analytical framework was conducted, it is still widely used around the world. In competitive analysis terms, Miller (2000:91) emphasises the fact that it could be useful during the preliminary investigation into a competitive force. However, in more recent times, certain serious weaknesses have been detected in SWOT. In this regard, the framework's inherent simplicity hides certain serious complexities. The interpretation of vast amounts of information is primarily based on individual preferences (Fleisher & Bensoussan 2003:98). The SWOT analytical framework thus lends itself to possible contradictions because of its simplicity. For example: under what circumstances is an issue a strength or a weakness for a firm or an opportunity or a threat (Hill & Westbrook 1997:51; Grant 1998:12)? Hussey (1998:232) highlights the issue when he argues:

> *SWOT may easily become a useless shopping list of weaknesses, few of which*
> *are strategic, accompanied by a few platitudes in place of real strengths.*

The rigour of the SWOT framework thus came under severe criticism. Hill and Westbrook (1997:51) argue that there is no inherent requirement in SWOT analysis to overcome any weakness in its application. The framework is also perceived to be a rather

descriptive analytical model based on qualitative data, which is primarily a way of organising information and assigning probabilities to potential events. Furthermore, in most instances, only generalised, self-evident, common-sense recommendations are possible in the application of the SWOT analysis (Fleisher & Bensoussan 2003:97).

Using quite strong language, Hill and Westbrook (1997:50), argue that the SWOT activity and its outputs do not constitute analysis at all because they do not go beyond general descriptions. There is also a perception that through the application of the SWOT framework, reactive rather than proactive strategies are primarily highlighted (Fleisher & Bensoussan 2003:98). This is especially the case in more recent times with the increasing proliferation of markets, characterised by diversity and instability. It is also been argued that the SWOT analytical framework was developed in an era of stable markets. Hence many contemporary strategic researchers feel that the SWOT analytical framework is largely unsuited to address a contemporary firm's strategic realities (Hill & Westbrook 1997:51).

4.5.9.4   DACSOMEF evaluation

In the context of competitive learning, on which competitive analysis should ideally be based, the findings below apply to the SWOT analytical framework. These findings are based upon the identified key elements of the DACSOMEF rating and evaluation scale.

a   Dynamic competitive environment

The SWOT analytical framework is primarily based upon a strategic fit between a firm's resources and its external environment. The framework places much, although one dimensional, emphasis on the opportunities and threats in the external environment of the competitive force being investigated. Consequently, only certain elements in a competitive force's external environment are addressed. In this regard, SWOT is criticised for being simplistic and somewhat descriptive.

Hill and Westbroook (1997:51) also argue that the dynamic external environment in which every firm in these modern times has to compete, does not lend itself to the inherent rationale of the SWOT approach. They are thus of the opinion that in such a situation, the SWOT analytical framework is outmoded and can no longer be an effective analysis tool. This rather harsh statement emphasises the limitations of the SWOT analytical framework to capture the full effect of a competitive force's competitive environment.

b   *Assets*

By focusing upon the firm's strengths and weaknesses, the SWOT analytical framework gives a holistic and descriptive view of some of a firm's tangible and intangible assets. A comprehensive analysis of all the firm's assets does not form part of a SWOT analysis. Implicit in this principle is the fact that the SWOT analytical framework gives a somewhat simplistic description of the firm's assets. Such a description could, furthermore, be based upon personal preferences that could trigger possible subjective and contradictory views of the real strengths and weaknesses of a competitive force.

c   *Capabilities and competencies*

As in the case of assets, the SWOT analytical framework gives a holistic view of those capabilities and competencies that are perceived to be strengths and weaknesses. A comprehensive analysis of all the capabilities and competencies of a competitive force does not form an integral part of a SWOT analysis. In addition, the latter could give a rather simplistic and subjective description of a competitive force's capabilities and competencies. Such a situation could trigger shallow or contradictory views of the real strengths and weaknesses of a competitive force.

d   *Strategy*

Based on a simplistic and qualitative description of a competitive force's strengths and weaknesses, and the opportunities and threats that the external environment has to offer, the SWOT analytical framework constitutes certain basic alternative strategies that a

competitive force may decide to follow. The major advantage of a SWOT analysis with regard to these strategic possibilities available to a competitive force is that it is possible to quickly determine what such a competitive force's strategic intent may be. Such strategies could, however, be subjective and also be based upon reactive realities of the external environment.

Courtney (2001:115) argues that SWOT merely provides a snapshot of strategic opportunities and threats. The SWOT analysis therefore does not supply a dynamic and in-depth view of the strategic realities required in the current tumultuous times.

e *Organisational infrastructure*

By focusing upon a competitive firm's strengths and weaknesses, the SWOT analytical framework may highlight such a competitive force's organisational structure or culture as being a particular strength or weakness. Again, it does not involve a comprehensive analysis of all the factors, whilst such a cursory view lacks the in-depth focus needed to determine the real influence of these issues on the future intent of a competitive force.

f *Management mindset*

As in the case of the competitive force's organisational infrastructure, the SWOT analytical framework may highlight such a competitive force's management approach, or parts thereof, as being a strength or weakness. However, such a view may again be subjective, and certainly lacks the objectivity and in-depth focus needed to determine the real influence of these issues on the future intent of a competitive force.

g *Environmental relationships*

The same scenario that applies to the competitive force's management mindset applies to its environmental relationships. The SWOT analytical framework may thus highlight certain areas of a competitive force's environmental relationships as being a particular strength or weakness. However, the view may again be subjective and certainly lacks the objectivity and in-depth focus needed to fully determine the influence of these issues on the future intent of a competitive force. In addition, no formal network analysis and the impact thereof on the competitive force's future intent receive any attention in SWOT.

h   *Future intent*

Through the application of the SWOT analytical framework, certain basic strategies that a competitive force may consider are identified. Based upon the opportunities and threats in the external environment, these strategies may highlight the possible future scenarios that such a competitive force's may consider. However, as Courtney (2001:115) emphasises, SWOT provides only a snapshot of strategic opportunities and threats and lacks the ability to fully capture the dynamic future scenarios of the current tumultuous times. As such, the SWOT analytical framework generates precious little foresight into the strategies that will succeed in the current and future uncertain realities.

4.5.9.5   *Conclusion*

The SWOT analytical framework originated during an era when the external environment was far more stable than it is today. SWOT, however, is still frequently used by many modern organisations. Important reasons for this phenomenon are the fact that it is a straightforward analytical method that requires little preparation, can be conducted quickly, and concisely summarises key issues from a complex corporate appraisal. In addition, it is most effective early in analytical phase, and should form part of any firm's level one analytical toolkit (Hill & Westbrook 1997:51; Courtney 2001:115). This view concurs with Fleisher and Bensoussan's (2003:103) FAROUT evaluation of the SWOT framework as a short-term analytical method that provides a quick picture of the current position of the firm under investigation.

In the context of the DACSOMEF key elements and analytical rating scale, the SWOT analytical framework generates the following score out of 100:

Table 4.16 Rating of the SWOT analytical framework according to the DACSOMEF evaluation scale

	Rating scale
Characteristic	

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	A Extent to which model addresses specific characteristic	B Importance in context of competitive learning	Overall score (A x B)
	Weight	Rating	
Dynamic competitive environment	10.00	0.40	4.00
Assets	15.00	0.40	6.00
Capabilities and competencies	12.50	0.40	5.00
Strategy	15.00	0.40	6.00
Organisational infrastructure	10.00	0.30	3.00
Management mindset	12.50	0.20	2.50
Environmental relationships	10.00	0.30	3.00
Future intent	15.00	0.20	3.00
Overall score	100.00		32.50

Although the SWOT analytical framework has specific applications and benefits in competitive analysis, it is evident in the above-mentioned evaluation, that it does not capture the full magnitude of competitive learning necessary to develop a true and comprehensive understanding of the future intent of a competitive force. Consequently, it is important that SWOT should be applied within its limitations and with the correct focus, for example, during the early stage of the competitive analysis process of a competitive force. Alternatively, it should be strongly supported by more comprehensive competitive analytical techniques.

4.5.10   Value chain analysis

4.5.10.1   *Introduction*

Every firm competing in an industry has a competitive strategy, whether explicit or implicit. This strategy may have been developed explicitly through a planning process or

may have evolved implicitly through the activities of the various functional departments of the firm (Porter 1980:xiii). These internal business processes and activities should ideally be focused upon the creation of value by transforming a set of inputs into more refined outputs to be offered to willing buyers. It could thus be argued that the firm's internal business processes and activities are the basic creators of competitive advantage and, in combination, comprise a value chain with the sole purpose of fulfilling buyer needs. This view forms the very basis of the activity-based view of strategy (Porter 1985).

According to Porter (1985), the value activities of a firm can be divided into nine generic categories (see figure 4.3 below), and are categorised into primary and support activities. Primary activities are those involved in the physical creation of the product, its marketing and delivery to buyers, and its after sales support and servicing. Support activities provide the inputs and infrastructure that allow the primary activities to take place. These activities include firm infrastructure (general management, legal services, and accounting), human resource management, technology development and procurement.

Figure 4. 3: The firm's value chain

	Firm infrastructure					
Support activities	Human resource management					
	Technology & product development					
	Procurement					
		Inbound logistics	Opera-tions	Out-bound logistics	Marke-ting & sales	After sales service
		Primary activities				

Margin

244
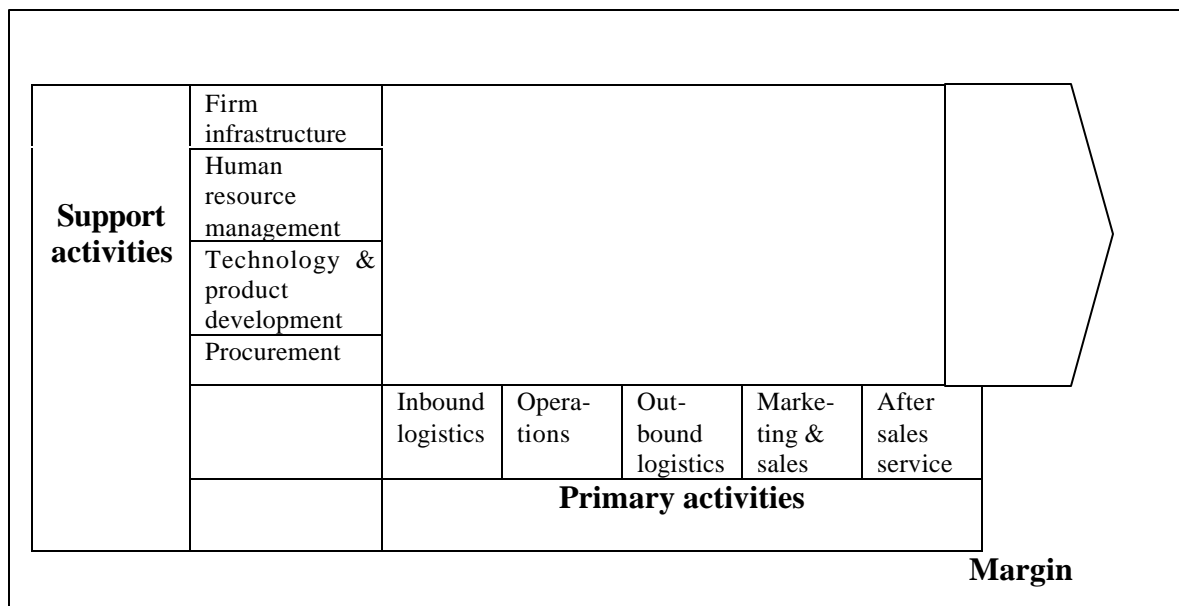
Source: Porter (1998:77)

As indicated above, in his book, *Competitive Advantage* (1985) Porter first highlighted the existence of a value chain, consisting of the various value-creating activities of the firm. Based upon the latter, he popularised the concept of analysing a firm's value chain. In this regard, Porter's work extended the area of strategy analysis known as systems analysis that was first developed by Forster at the Massachusetts Institute of Technology during the early 1960s. McKinsey and Company conducted additional work in the 1970s with the development of their business system (Fleisher & Bensoussan 2003:104; Grant 1998:121). According to the original work by Porter, the two main purposes of value chain analysis are to identify opportunities to

- secure cost advantages for the firm

- create product/service attribute differentiation for the firm

Apart from these focused applications of value chain analysis, Fleisher and Bensoussan (2003:107), identify various secondary applications which include determining the scope of the firm, strategic cost management; integration decisions; supply chain management; strategic outsourcing; organisational structure development; and global strategy development. From a competitive analysis perspective, value chain analysis could be useful during competitor analysis, customer value analysis and during acquisitions, mergers, alliances or joint venture initiatives.

4.5.10.2 *Process*
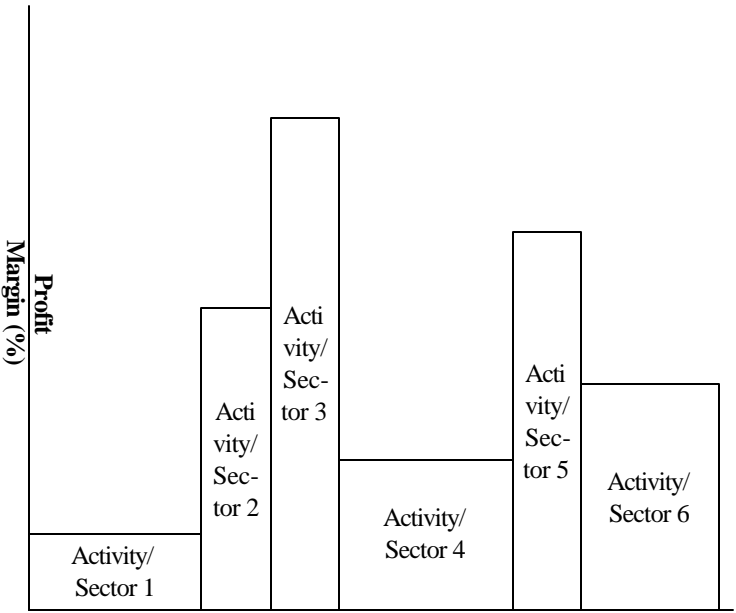
Value chain analysis has several distinctive objectives. These include the identification of the source of a firm's sustainable competitive advantage and determining the complex linkages and interrelationships between the firm's wide varieties of activities. In addition it can also be helpful in the identification of generic strategies that must be pursued consciously and coherently in the different value-creating activities (Hergert & Morris

1989:178). In the context of competitive analysis, value chain analysis can help to develop a deeper understanding of the driving forces and intentions of a particular competitive force. Consequently, the following process should be adhered to when conducting value chain analysis:

Table 4.17: Value chain analysis

No.	What	How
Step 1	▪ Define the firm's Strategic Business Units (SBUs)	▪ Draw boundaries around the various analytical segments of the firm, either by ✓ defining SBUs by autonomy, or ✓ defining SBUs by their ability to support value chain analysis

No.	What	How
Step 2	▪ Identify the firm's critical value-creating activities (drivers of uniqueness)	▪ Value-creating activities could be defined as those activities which ✓ have different economic structures ✓ contribute to a large or growing percentage of costs ✓ contribute to or have a high probability of contributing to product/service differentiation
Step 3	▪ Conduct an internal cost analysis	▪ Assign costs to each critical value-creating activity ▪ Compare costs by activity (establish which activities the firm performs relatively efficient, and which it does not) ▪ Determine the cost drivers for each critical value-creating activity: two cost drivers can be considered ✓ Structural cost drivers (long-term), eg scale, scope, learning curves, technology and complexity ✓ executional cost drivers (operational), eg management style, plant layout, capacity utilisation, product configuration and vertical linkages with supplies and customers
Step 4	▪ Conduct an internal differentiation analysis	▪ Determine (again) the firm's value-creating activities and cost drivers ▪ Conduct customer value analysis in order to determine a precise definition of customer value

No.	What	How
Step 5	▪ Map out the industry profit pool	▪ Define the parameters of the industry profit pool ▪ Estimate the total size of the industry profit pool ▪ Estimate the distribution of the industry profit pool ▪ Estimate the size of each value chain activity in the pool ▪ Determine where the firm is positioned in the profit pool ▪ Reconcile the calculations

No.	What	How
Step 6	▪ Conduct vertical linkage analysis	▪ Conduct an analysis of the firm's economic structure, customer value, and competitor value
		▪ Determine what the firm should do to position itself in the profitable part of the industry profit pool
		▪ Plot the firm's value-creating activities in context with those of its major competitors, eg:
		▪ Determine optimal linkages between the firm's value-creating activities and customer needs
Step 7	▪ Iteration	▪ Repeat steps 1 to 6 periodically

Source: Porter (1998:77); Fleisher & Bensoussan (2003:113–117); Grant (1998:209); Gadiesh & Gilbert (1998:149); Govindarajan & Gupta (2001:94)

4.5.10.3 Strengths and weaknesses

a Strengths

Since Porter first popularised value chain analysis in 1985, it has been used across a wide spectrum of applications. In competitive analysis, it can be applied during competitor and customer analysis, as well as during mergers and acquisition analysis. According to Fleisher and Bensoussan (2003:110), value chain analysis addresses several critical deficiencies with the inward-looking focus of previous management tools. In this regard it builds much more realistic cost/value analysis, which closely models economic reality because of the method's external customer and industry focus.

Value chain analysis also provides a better understanding of the nature of competitive advantage in an industry. By determining the industry profit pool, value chain analysis provides the broadest view of profit trends in the industry. Mapping the profit pool thus not only shows the current state of the industry but also poses a number of fundamental questions about the industry's evolution (Gadiesh & Gilbert 1998:141). It also identifies the firm's relative competitive position in the industry, its sources of competitive advantage, or which activities create profits for the firm along the value chain. It thus highlights the distribution of profits along the total value chain (Gadiesh & Gilbert 1998:162; Hergert & Morris 1989:186). Consequently, it also creates a better understanding of a firm's competitive positioning relative to key customers suppliers and competitors (Fleisher & Bensoussan 2003:110).

At the firm level, value chain analysis has the ability to identify the sources of a competitive advantage in a firm because the latter are viewed as a collection of discrete but related production functions (activities), some of which are not freely traded in external markets. Miller (2000:93) concurs with this view when he argues that one of the major advantages of value chain analysis in the competitive analysis context lies in the fact that it produces a useful understanding of a competitor's actions. It is also valuable when comparing two competitors with each other.

b   *Weaknesses*

Despite all the unique strengths of value chain analysis, several weaknesses have also been associated with it. In this regard, Porter has been criticised for being too simplistic because many of his qualitative prescriptions are extremely difficult to quantify. Hence value chain analysis requires significant amounts of resources because initiatives such as customer and competitor value analysis and industry structure analysis require a focused and committed effort. In this regard, it relies heavily on data that are either not freely or easily available. It is thus apparent that value chain analysis appears to be straightforward in theory but relatively difficult and time-consuming in practice (Fleisher & Bensoussan 2003:112).

When conducting value chain analysis, in many instances, the available data will be inappropriate or necessary data will be missing. Besides a certain amount of useful information about a competitive force which can be obtained from open sources such as trade journals, annual reports, customers and suppliers, it will also be necessary to obtain information from inferences drawn from the firm's own value chain. It is thus obvious that conducting value chain analysis on a competitive force creates its own unique challenges because it primarily needs to be based upon external data and without the possibility of interviews.

To this end it requires equal parts judgment, attention to detail, competitive knowledge, and quantitative analysis (Fleisher & Bensoussan 2003:113). Consequently, the difficulties in making judgments about a competitive force's value chains should be noted (Hergert & Morris 1989:178). However, this fact should not be overemphasised, because it highlights the basic challenge of competitive analysis within the confines of competitive intelligence in practice.

The efficiency of value chain analysis is also challenged by the radical changes effected by the availability of information and the explosion in the information technology discipline. Traditional value chain analysis originated around vertical linkages, and in particular, around the firm's physical assets. It is thus uncertain whether the analytical

framework has the ability to constantly reinvent value at the speed required for successful strategy in this new paradigm. Fleisher and Bensoussan (2003:111) contend that the availability of information and developments in information technology are threatening value chains everywhere. It is argued that in the new paradigm of harsher economic realities and increased uncertainty, value chain analysis has largely become obsolete, or at least is in need of some upgrading. In this context, the future application of value chain analysis is seriously dependent on improved robustness in order to withstand the dynamics of the contemporary competitive environment. This scenario requires further study.

4.5.10.4   DACSOMEF evaluation

In the context of competitive learning, on which competitive analysis should ideally be based, the findings below apply to value chain analysis. These findings are based upon the identified key elements of the DACSOMEF rating and evaluation scale.

a   Dynamic external environment

Although the value chain analytical method is primarily focused upon analysing the firm's internal value-creating activities, it makes provision for mapping the industry profit pool in which such a firm finds itself. Value chain analysis also makes provision for analysing competitor and customer value chains. However, it remains extremely difficult to capture the real value of a profit pool, as well as those of the competitor and customer value chains. In this context it could be argued that value chain analysis does not fully comprehend the dynamic change in the contemporary competitive environment. Value chain analysis, however, remains a valuable attempt to determine the possible future intent of a competitive force in the dynamic environment in which it finds itself.

b   Assets

Value chain analysis, is primarily an activity-based analytical method. Consequently, it does make provision for an investigation of the firm's primary activities such as inbound logistics, operations, outbound logistics, marketing and sales and after-sales service.

Assets are analysed in the context of the cost impact they could have on the various activities, and importantly, the value these activities could create for customers. However, difficulties arise because of the dimensions chosen for accumulating accounting data and the inability of accounting systems to model complex cost behaviour in the different value-creating activities of the firm (Hergert & Morris 1989:187). Additional analysis is thus necessary to capture the full impact of the tangible and intangible assets on the future intent of the competitive force under investigation.

c   Competencies and capabilities

As in the case of the assets of the competitive force under investigation, value chain analysis only makes provision for analysing a firm's competencies and capabilities in the context of its cost impact on the value release effort of the firm's internal activities. Again, additional analysis is thus necessary to fully determine the influence of such a competitive force's competencies and capabilities on its future intent.

d   Strategy

Value chain analysis offers some insight into the generic strategic opportunities that could be pursued by a competitive force in order to position it in the profitable part of the industry profit pool. This could ideally be based upon the findings of the internal analysis of the competitive force's value-creating activities, industry profit pool analysis and an understanding of real value in the eyes of customers. However, this kind of analysis does not fully comprehend the dynamic nature of the competitive environment. This fact accords with the observation made by Cartwright and Oliver (2000:27) that old, linear analytical models such as value chain analysis fail to identify the true sources of value. In addition, it does not fully account for the nature of alliances, competitors and complementors. Accordingly, value chain analysis often only provides enough information to achieve parity with competitors.

e   Organisational infrastructure

Value chain analysis only makes provision for the analysis of the organisational infrastructure of a competitive force in the context of the particular cost drivers assigned

to it in the context of the various value creating activities in the firm. No in-depth analyses of the various elements of organisational infrastructure, apart from its cost implication are addressed.

f   Managerial mindset

Value chain analysis, again, addresses management style and related managerial issues in the context of its cost implications for the value-creating activities of the firm under investigation. Additional analysis is thus essential.

g   Environmental links

Value chain analysis does make provision for the analysis of certain external relations of the firm under investigation. This is done in the context of its in- and outbound logistics, and its after-sales service. In addition, it makes provision for positioning such a firm in the industry profit pool and in the context of the value of its competitors and customers. This fact in itself is noteworthy for an analytical method developed nearly 20 years ago. However, comprehensive analysis of the firm's environmental links and its impact on such a firm's future intent is not fully addressed by value chain analysis.

h   Future intent

Based upon an analysis of the firm's economic structure, value-creating activities, customer value, industry profit pool and competitor value, value chain analysis makes provision for identifying certain generic strategies that could be pursued in the profitable part of the industry profit pool. A comprehensive and dynamic scenario analysis, however, does not form part of value chain analysis. It also fails to capture the full influence of the dynamic competitive environment.

4.5.10.5   Conclusion

The purpose of competitive analysis is to break down a competitive force to its lowest denominator in order to determine what its competitive advantage may be and what its future intent will be. Although value chain analysis is full of assumptions, estimates,

incomplete, inappropriate, or missing information sources and qualitative judgments, it largely addresses these critical issues (Fleisher & Bensoussan 2003:120). Fleisher and Bensoussan (2003:120) also concur with their FAROUT evaluation of value chain analysis that it still provides an in-depth of insight into the competitive strategy of a firm that few other strategic management techniques rival. In the context of the DACSOMEF key elements and analytical rating scale, value chain analysis generates the following score out of 100:

Table 4.18 Rating of value chain analysis according to the DACSOMEF evaluation scale

Characteristic	Rating scale		Overall score (A x B)
	A Extent to which model addresses specific characteristic	B Importance in context of competitive learning	
	Weight	Rating	
Dynamic competitive environment	10.00	.50	5.00
Assets	15.00	.60	9.00
Capabilities and competencies	12.50	.60	7.50
Strategy	15.00	.50	7.50
Organisational infrastructure	10.00	.40	4.00
Management mindset	12.50	.30	3.75
Environmental relationships	10.00	.50	5.00
Future intent	15.00	.50	7.50
Overall score	**100.00**		**49.25**

Despite all the unique strengths and the insight value chain analysis brings to competitive analysis, its efficiency to capture the full magnitude of competitive learning necessary to

develop a true and comprehensive understanding of the future intent of a competitive force is challenged by the radical changes in the contemporary competitive environment. This is strongly evident in the above-mentioned evaluation. It also accords with Cartwright and Oliver's (2000:22) observation that the competitive realities of the new economy require a rethink of the traditional methods for analysing business. In this regard, traditional analytical tools such as value chain analysis fail to identify the true source of value in the dynamic competitive environment because the latter changes so quickly, often providing only enough information to at best achieve parity with competitors. Hence it is important for the value chain analytical framework to be upgraded to comply with this new paradigm. In addition, it should ideally be brought closer to the analytical paradigms of the resource-based view of strategy. This matter, as suggested by Porter (2002:50), leaves much scope for future research.

Although value chain analysis is a valuable analytical framework in the context of competitive analysis, it should be supported by more in-depth research in order to capture the full consequences of the firm's value activities and future intent in view of the harsh realities of a dynamic and ever-changing competitive environment.

4.5.11   Competitive behaviour analysis

4.5.11.1   Introduction

During the last decade, mainly through the initiatives of the competitive intelligence discipline, firms around the world showed renewed interest in some of the "softer" more qualitative analytical tools and techniques available for strategic and competitive analysis. Principal among these is competitive behaviour analysis. Behaviour analysis has long been a primary component of both military and political intelligence (Fleischer & Bensoussan 2003:225-227), and has the potential to be applied in the business environment in order to develop a deeper understanding of a competitive force.

Competitive behaviour analysis is based on the assertion that the single best indicator of what a key individual in a competitive force will do in the future, is based on analysis of

what he or she has done in the past. Competitive behaviour analysis is thus an analytical tool that looks beyond the tangible capabilities and competencies of a competitive force in order to

- examine what a key individual will do in a competitive environment under a given set of circumstances

- support predictive estimates of the choices a competitive force's key individuals may make under certain competitive conditions (Weber & Potter 2001; Vella & McGonagle 2000:20).

The objective of competitive behaviour analysis in the competitive analysis context is thus to develop knowledge of what drives a key decision maker in a competitive force in order to outwit and outperform such a force. The need for behaviour analysis in business, however, was recognised more than 20 years ago, when Michael Porter noted the following (1980:48):

> *Most firms develop at least an intuitive sense for their competitor's current strategies and their strengths and weaknesses. Much less attention is usually directed at understanding what is really driving the behaviour of a competitor.*

Over the course of 30 years, a variety of psychological analysis instruments have come into greater use as predictive behavioural instruments (Nolan 1999:172). Examples of such psychological instruments that have been used in military, political, and lately in competitive intelligence in the business context, include the following (Weber & Potter, 2001; Nel 2002):

- Myers-Briggs Type Indicator (MBTI)

- FIRO B (fundamental interpersonal relations orientation behaviour)

- Cattell's 16 personality types

- DiSC Personal Profile System

- Team management index (personal roles)

- executive decision-making styles (EDS)

- statement analysis

- enneagram

- Minnesota Multiphasic Personality Indicator (MMPI);

- neuro-linguistic programming

- interactive language and behavioural profiling

- neuro semantics

4.5.11.2 *The MBTI as a competitive predictive instrument*

Although a number of psychological instruments have been used in analysing people from a predictive perspective, Nolan (1999:173) and Weber and Potter (2001:78) contend that the instrument that is most easily and effectively used in competitive analysis applications is the Myers-Briggs Type Indicator (MBTI).

The MBTI is based on the work of Carl Jung (1875–1961) and was developed by Katherine Cook-Briggs and her daughter Isabel Briggs-Myers. According to Briggs and Myers, the purpose of the MBTI is to make the theory of psychological types, as described by Jung "understandable and useful in people's lives" (Van Rooyen & Partners

2001:7). The essence of Carl Jung's theory, as interpreted by the MBTI, is the belief that preferred human behaviour relates to two sets of attitudes (**I**ntroversion **/E**xtraversion and **J**udgment/**P**erception) and four basic functions (**S**ensing/i**N**tuition and **T**hinking/**F**eeling) (Van Rooyen et al 2001:43). These can best be illustrated in the following manner:

Figure 4.4: The Myers-Briggs TYPE Indicator (MBTI)

Extraversion ……………………………………………….. **I**ntroversion (focus for energy)

Sensing ……………………………………………i**N**tuition (what a person pays attention to)

Thinking ……………………………………………….. **F**eeling (how a person decides)

Judgment …………………………………..…………… **P**erception (the lifestyle a person adopts)

Source: Van Rooyen et al (2001:43)

According to the MBTI, every individual lies at a certain point along each of these four scales, and combining the four scales provides an understanding of individual preferences. Sixteen type profiles are thus possible.

The MBTI is a well-researched and methodologically sound personality inventory. It is used worldwide and, according to Briggs-Myers (1998:11), is one of the most reliable personality inventories available. However, since no psychological instrument is infallible, she considers the type a person reported on the MBTI to be a hypothesis – a "best guess" about such a person's psychological type. The following figure depicts some characteristics associated with each type, according to the MBTI:

Table 4.19: MBTI: some characteristics associated with each type

ISTJ	ISFJ	INFJ	INTJ
Quiet, serious, earn success by thoroughness and dependability. Practical, realistic and responsible. Decide logically what should be done and work steadily toward it. Prefer predictability and constancy, and do not take anything for granted	Quiet, friendly, responsible. Committed and steady in meeting their obligations. Thorough, painstaking and accurate Want to protect and make sure that one's charges are safe from harm and damage	Seek meaning and connection in ideas, relationships and material possessions Have good intuition and foresight and use their insights to deal with complex issues	Have original minds and great drivers for implementing their ideas and achieving their goals. Quickly see patterns in external events and develop long-range explanatory perspectives. When committed, organise a job and carry it through
ISTP	**ISFP**	**INFP**	**INTP**
Tolerant and flexible, quiet observers until a problem appears, then act quickly to find workable solutions. Analyse what makes things work Are keen observers and pick up signs in the external environment faster than most	Quiet, friendly, sensitive and kind. Enjoy the present moment, and like to have their own space and to work within their own time frame Loyal and committed to their own values and to people who are important to them	Idealistic, loyal to their values and to people who are important to them Curious, quick to see possibilities, can be catalysts for implementing ideas	Theoretical and abstract and have ability to focus in depth to solve problems in their area of interest. Are drawn to science and mathematics Are theoretical and abstract, interested more in ideas than in social interaction
ESTP	**ESFP**	**ENFP**	**ENTP**
Able to anticipate the actions and reactions of others and charm them into having confidence in them Are highly gifted negotiators and are masterful at inching things in their direction in inter-personal interactions	Are performers and salesmen who want to impact others, to evoke their enjoyment Seek to excite their audience. Thrive on social interaction and joyful living	Warm, enthusiastic and imaginative. See life as full of possibilities. Make connections between events and information quickly and confidently proceed based on the patterns they see	Are invention-orientated towards concrete objects, as well as new ways of doing things Are interested in the patterns of nearly everything and frequently go from one thing to the next, inventing prototypes
ESTJ	**ESFJ**	**ENFJ**	**ENTJ**
Are practical, realistic, matter of fact and decisive Are result-orientated and want to ensure that standards are met Are forceful in implementing plans	Are genuinely concerned about the welfare of others, making sure they are comfortable and involved Are helpful, considerate, and thoughtful and wish to please	Are warm, empathetic, responsive, and responsible. Sociable, facilitate others in a group and provide inspiring leadership Enjoy leading people to achieve their potential	Are frank, decisive, assumes leadership readily. Quickly to see illogical and inefficient procedures. Enjoy long-term planning and goal-setting. Usually well informed and enjoy expanding their knowledge. Forceful in presenting their ideas

Source: Briggs-Myers (1998:13); Isachsen & Berens (1988:72–73)

4.5.11.3   Process

The normal means of employing the MBTI is to instruct the respondent about the use of the instrument, give him or her the questionnaire form and answer sheet, and then score it upon completion. This is the normal modus operandi to be followed in the application of the MBTI in the human resources and other social disciplines. However, it becomes quite problematic if an executive of a competitive force is to be analysed according to the stated procedure. In such a scenario, the appropriate application of the MBTI is by way of remote psychological assessment. To this end, Nolan (1999:175-176) found the following:

> *During remote psychological assessments, astonishingly consistent results were obtained that were validated in study after study.*

Such a remote psychological assessment may offend a purist who uses the MBTI according to the precise standards established by Katherine Cook-Briggs and Isabel Briggs-Myers. Again, Nolan (1999:178) argues:

> *The purist might insist on an uncorrupted, straightforward question where every word has been carefully written, tested and refined. Of course, that would be the optimum condition. But just as the perfect is often the greatest enemy of the good, we rarely encounter optimums and perfection in the real world. The result may not be a laboratory acceptable, scientifically valid, and sampling. But it is an effective, predictive instrument, that helps firms anticipate how a rival firm will act or react in the marketplace.*

In order to achieve such results during a remote psychological assessment a highly structured and meticulous process is essential. The following figure depicts such a competitive behaviour analysis process.

Table 4.20: The competitive behaviour analysis process

No.	What	How
Step 1	Determine specific collection objectives	▪ Conduct proper planning with regard to the project design and determination of the objectives ▪ Clearly identify the target firm and individuals to be profiled, while the research process should be customised according to the target individual, culture and decision-making styles applicable in the target firm
Step 2	Determine sources and conducting field research	▪ Determine the most suitable secondary and primary sources ▪ Use information which is available in the public domain, with regard to influential decision makers in a competitive force ▪ Make use, where possible, of on-the-spot observations, press releases, interviews and other public speaking forums that provide vital information on how the subject individual has conducted him or herself, what words he or she uses to communicate and the ease with which he or she communicates
Step 3	Determine most suitable primary and secondary sources	▪ Identify the direct and indirect data with regard to the target individual: **Direct data** (data based upon the personality, experience, etc, of the subject) ✓ How does the target individual actually behave? ✓ How does the target seem to act? ✓ What kinds of business (and personal) successes has the target experienced, particularly, those for which he or she was solely or largely responsible? ✓ Has the target behaved and performed differently in different business contexts? ✓ Looking at the target experience, in retrospect, were his or her actions fairly predictable? On what basis? ✓ How does the target relate to others? ✓ How are these questions answered in situations where the target has been under pressure or in a difficult situation? ✓ What organisational skills has the target demonstrated? In what context? ✓ Does the target have a track record on issues such as risk and lack of predictability? ✓ What special personal skills or areas of interest, outside of the business context, does the target demonstrate? ✓ Does the target seem to demonstrate any "blindspots"?

No.	What	How
Step 3 (con-tinued)		▪ **Indirect data** (data that concern matters others than the personality of the subject, but which can be analysed to shed some light on the subject):

Within the "How" column continuing:

✓ What was the target's history before his or her current situation?

✓ To what major corporate and historical events or situations has the target been exposed?

✓ What has been the target's career path?

✓ How do others view the target?

✓ What is the target's background?

✓ What are his or her career history and positions?

✓ What is the target's educational background?

✓ How old is he or she?

✓ How long has he or she been in their current position (ie experience)?

✓ Has the target been promoted from inside the firm or has he or she been hired from outside?

✓ What hobbies, affiliations, and circle of social friends, social memberships and interests does the target have?

▪ The direct and indirect data should be used in order to answer most of the questions in am MBTI questionnaire, ideally the MBTI Form G (see following abridged MBTI-Based Questionnaire):

Extraversion (E)
Introversion (I)

Externally focused

Internally focused

Outward thrust

Inward pull

Use many words

Economical with words

		Wants to talk
		Wants to be quiet
		More sociable
		Less sociable
		Go, go
		Hesitate
		Silence is embarrassing
		Silence is a blessing
		Talk … think
		Think … talk
		Talk … feel
		Feel … talk
		Scattered energy
		Concentrated energy
		Total - E
		Total - I
		(If equal, give one more point to E)
		Sensing (S)
		Intuition (N)

		What is real	
		What can become	
		Concrete	
		Abstract	
		To do	
		To envision	
		Specific/actual	
		Theoretical	
		Action	
		Insight	
		Realistic	
		Futuristic	
		Tangible	
		Conceptual	
		Today	
		Tomorrow	
		Practical	
		Vision	
		Total - S	
		Total - N	

		(If equal, give one more point to S)
		Thinking (T)
		Feeling (F)
		Head
		Heart
		Criteria
		Values
		Impersonal
		Personal
		Explain
		Understand
		Tough
		Compassion
		Aloof
		Personable
		Principles
		Circumstances
		Justification
		Humane
		Objective

		Subjective
		Total - T
		Total - F
		(If equal, give one more point to F)
		Judging (J) **Perceiving (P)**
		Priorities
		Projects
		Anticipate and schedule
		See what happens and respond
		Get on with it
		Keep going
		Finished
		Another angle
		On time
		On a roll
		Urgency
		Lots of time
		Agenda
		Loose leaf
		Order

		Options
		Task
		Process
		Total - J
		Total - P
		(If equal, give one more point to P)
		▪ Reformulation of MBTI questions into statements and elicitation methods plays an important role during this stage of the profiling process

No.	What	How
Step 4	Conduct field research	▪ Contact as many as possible primary sources that know the target individual (if possible, use up to 125 multiple sources) ▪ Determine these sources' collective insights to answer most of the 126 questions in the MBTI Form G ▪ Utilise primary sources according to a number of concentric circles: ▪ Begin by sourcing information on the target individual from individuals in the outer circles, and work inwardly towards people closest to the subject ▪ Make use of personal observations of people who have interacted with the target individual previously
Step 5	Score the target individual's	▪ Proceed with profiling of the subject, based on the information obtained during the field research

	profile	- Test the preliminary profile for consistency against past performances and real-time behaviours of the subject
Step 5 (continued)		- Adapt the profile as new information becomes available - Establish the profile type of the target individual, based upon all the aggregate data collected and verified (as illustrated in the following example): **Example of MBTI profiling** **E …………………………………………………………….……x……… I** **S …x……………………………………………………………… N** **T……………x………………………………………………… F** **J ……………………….…..……………………………x…… P** - Pay attention to detail because profiling is a concentrated form of analysis
Step 6	Reporting and client consultation	- Report findings of the profile type of the target and recommendations in such a way that it relates the profile of the target individual to the collection objective - Prepare a profile of a target individual in terms of strengths, weaknesses, opportunities, and threats, but also to develop and then use a "what-if" analysis of a target and probable responses to current and future situations - Handle all findings from the use of the MBTI in a remote psychological assessment in a responsible and ethical manner (findings should be kept confidential and used only for internal strategic purposes)

Source: Vella & McGonagle (2000:20-29); Fleisher & Bensoussan (2003:230-248); Weber & Potter (2001:76-83); Nolan (1999:177); Nolan (1999); Isachsen & Berens (1988:86); Nel (2002)

4.5.11.4   *Strategic rationale and implications*

Competitive analysts are often faced with the problem that management, in many instances, already have a fixed idea of how a particular individual of a competitive force will react in a particular set of circumstances. These fixed ideas can lead to blindspots and misconceptions about such a competitive force's true capabilities and intents, especially given the fact that firms do not make strategic decisions - individuals do (Barndt 1994:75). These individuals are human and have certain preferences in everything they do. Despite the nature of this truism, it has been a critical oversight of traditional strategic analysis in the business environment (Fleisher & Bensoussan 2003:227).

The above-mentioned lesson came strongly to the fore in political terms during the Cold War era. According to Barndt (1994:76), the assessment of a competitive force's intentions deserves every bit as much attention as knowledge of their capabilities. He noted that:

> *The Cold War was a forty-five-year exercise in assessing and influencing the opposition's intentions about using their nuclear capabilities.*

In competitive behavioural analysis, the management of a firm can thus be exposed to a different kind of knowledge of the competitive force – the psychological truths and real intentions of the key decision makers of such a force. Knowledge of the personalities and intentions of the decision makers in a competitive force will offer valuable insight into the future strategies of such a competitive force and could aptly be used to create a sustainable competitive advantage in a competitive global environment. Consequently, the MBTI makes a valuable contribution in this context. In the light of the application of the MBTI in competitive behavioural analysis, Barndt (1994:74), has the following to say about behavioural profiling in general:

So why is personality profiling important in our efforts to understand our clients and competitors. Because their idiosyncrasies and predispositions will have greater bearing on the critical decisions they make than a calculated assessment of their resources and capabilities.

Nel (2002:1), emphasises this even stronger when he says:

Only by stepping into their shoes, getting into the minds, so to speak, putting their values and beliefs, intentions and behavioural traits into context, could we start getting a sense of who and what this firm or decision-maker is all about, and then start to anticipate their needs and behaviours.

4.5.11.5   Strengths and weaknesses

a   Strengths

The above-mentioned view of the strategic rationale of competit6ive behavioural analysis shows that it has certain strengths and gives a firm certain advantages. In this regard, it provides insights into goals and motivations driving the decision makers in a competitive force that few other analytical tools can offer. It also provides a complementary approach to the more traditional quantitative approach of traditional strategic analysis regarding the concept of what the competitive force can and may do. In addition, instead of regarding a competitive force as a faceless entity, competitive behaviour analysis adds a human dimension to such a firm that attunes strategic decision makers more closely to competitive realities. Fleisher and Bensoussan (2003:229) also contend that knowledge of personality profiles offers unique insights into competitive strategy. As a result, more effective decisions will be made on the basis of a solid prediction of competitive response. Personality profiling provides an analysis of what strategy one's rivals and other competitive forces will probably pursue.

b *Weaknesses*

Competitive behavioural analysis, however, has certain weaknesses. It is a fact that because information is obtained from "external sources" and not from the target individual directly, the application of proven psychological instruments may not be as effective.

Consequently, the primary weakness of personality analysis lies in its potentially invalid assumptions because many executive decision makers are, to a certain extent, capable of managing their personalities in the public domain. In addition, the increasing prevalence of alliances and joint ventures, and the popularity of empowerment decisions weaken the predictive capacity of behaviour profiling analysis. The existence of irrational decision making in firms could also have a negative impact on the value of competitive behaviour profiling (Fleischer & Bensoussan 2003:229).

4.5.11.6 DACSOMEF evaluation

Nowadays there are few industries in which competition has not intruded on stability and market dominance. According to Porter (1998:1), no organisation can afford to ignore the need to compete. Every firm must try to understand and master competition in order to receive ample reward in the marketplace. In this context, analysis could shed some light on the competitive realities at stake. Conventional business analysis, however, typically focuses upon issues such as (Barndt 1994:76):

- the market factors of the industry

- the history and performance of the target firm (typically compiled in statistical or other scientific terms)

- the visible history and performance of a competitive firm's decision makers (typically compiled in the sterile documentation form of yearbooks and obituaries)

As a catalyst to the foregoing, a more qualitative view of a competitive force could just add an additional dimension to the bank of knowledge about such a competitive force. In the context of competitive learning, on which competitive analysis should be based, the findings outlined below apply to competitive behavioural analysis. These findings are based upon the identified key elements of the DACSOMEF rating and evaluation scale.

a *Dynamic competitive environment*

Since competitive behavioural analysis focuses primarily on the behaviour and intentions of key individuals in a competitive force, very little, if any, attention is paid to the dynamics with which a competitive force operates within the competitive environment. Competitive behavioural analysis should thus be supplemented with additional analysis in order to determine the impact of the competitive environment on a particular competitive force's intentions.

b *Assets*

Competitive behavioural analysis, like with the competitive environment, does not focus particularly upon the tangible and intangible assets of a competitive force. Competitive behavioural analysis could give some insight into the decision-making dynamics of the competitive force with regard to the application of its tangible and intangible assets. However, competitive behavioural analysis should again be supplemented with additional analysis in order to determine the full impact of a competitive force's assets on its future intentions.

c *Capabilities and competencies*

Whereas a capability is something a competitive force does well at the submit level, and competencies are a corporate phenomenon of what a firm does well across multiple business units or product sectors (Fahey 1999:326), competitive behavioural analysis, consequently, does not primarily focus on these issues. However, competitive behavioural analysis could give some insight into the decision-making dynamics behind the capabilities and competencies of a competitive force. Again, this should be supplemented with additional analysis to determine the full influence on a competitive force's future intent.

d   *Strategy*

Competitive behavioural analysis does not focus primarily upon the strategies of a competitive force. However, as was the case with capabilities and competencies, it could provide insight into the decision-making dynamics behind the current and future strategies of a competitive force. In this context, competitive behavioural analysis could highlight a competitive force's intentions, goals and assumptions. It could thus provide insight on questions such as the following (House 2000:23):

▪   what is a competitive force trying to accomplish?

▪   how do they define a "good" success or "good" outcome?

▪   what do they believe or what do they assume to be true about the world and about themselves and their environment?

However, in order to determine the larger strategic picture of a competitive force, competitive behavioural analysis should be supplemented with additional analysis in order to determine its full influence on a competitive force's future intent.

e   *Organisational infrastructure and culture*

The influence of a competitive force's organisational infrastructure and culture, are again partially addressed through competitive behavioural analysis. It could provide insight into the decision making and intentions behind a competitive force's organisational infrastructure and culture. With regard to the latter, competitive organisational behavioural analysis based upon the MBTI, could aptly be applied to determine the influence of the key elements of a competitive force's culture: behaviours, norms, beliefs and values on its future intentions (Van Rooyen et al 2002).

f   *Management mindset*

Competitive behavioural analysis is focused mainly upon determining the influence of a competitive force's management mindset on its future strategies and intentions. In this context, it could be of much value in developing competitive learning about a competitive force. Barndt (1994:76) highlights the fact that in a competitive situation, behavioural factors have such a major influence on decision making that it may transcend the combined impact of all the objective information available to a decision maker, and could consequently inhibit the decision because of, say, the overwhelming odds and unreasonable risk involved in such a decision.

It could thus, be argued that competitive behaviour analysis should form part of any competitive analysis in order to acquire deeper insight into the future intentions of a competitive force.

g   *Environmental relationships*

Competitive behavioural analysis, yet again, does not address the environmental relationships of a competitive force. However, it could emphasise qualitatively, the decision making behind such relationships. Since many firms in the contemporary business environment no longer depend on the assets they own or fully control, but view alliances and special relationships as a fundamental to their success in the marketplace, competitive behavioural analysis could add a new dimension to competitive learning with regard to a competitive force's environmental relationships and the reasoning behind them.

h   *Future intent*

Based upon the assertion that personalities remain stable over time and that people repeat patterns, competitive behaviour analysis could give some qualitative insight into the future strategic decisions of a competitive force's management because it provides unique knowledge of how such a competitive force thinks, operates and manages (Fleisher & Bensoussan 2003:225). Consequently, competitive behaviour analysis could play a major role in developing competitive insight into the possible future scenarios a competitive force may wish to consider.

However, it is necessary that such analysis be substantiated with additional quantitative analysis.

4.5.11.7   *Conclusion*

According to Barndt (1994:77 & 78), many firms around the world use or receive analysis that is painfully conducted with the most stringent professional discipline to produce scientific, objective, logical and rational forecasts that are, by the very discipline of those processes, destined to be "off the mark" almost two-thirds of the time. Against the backdrop of the foregoing, Sameulson's (1993:55), observations in this regard are noteworthy:

> *Business education and management practice over the past generation has fostered the belief that all problems could be solved by analysis and favoured the rise of executives who were adept with numbers and making slick presentations; but we recognise that differences in talent, temperament, knowledge and experience make some people good at some things and not at others.*

Barndt (1994:78) elaborates on this view and argues that those differences in talent and temperament, along with related psychological or behavioural influences, combine to produce intentions, inclinations or predispositions to courses of action that are wholly unrelated to the outcome of quantitative analysis. In such a quantitatively oriented environment, competitive behaviour analysis could add a vital dimension to the development of competitive knowledge about the future intentions of a competitive force. According to the DACSOMEF key elements and rating scale, competitive behaviour analysis generates the following score out of 100:

Table 4.21: Rating of competitive behaviour analysis according to the DACSOMEF evaluation scale

| Characteristic | Rating scale | | |
| | A
Extent to which model addresses specific characteristic | B
Importance in context of competitive learning | Overall score
(A x B) |
	Weight	Rating	
Dynamic competitive environment	10.00	0	0.00
Assets	15.00	.20	3.00
Capabilities and competencies	12.50	.30	3.75
Strategy	15.00	.50	7.50
Organisational infrastructure	10.00	.20	2.00
Management mindset	12.50	1.00	12.50
Environmental relationships	10.00	.20	2.00
Future intent	15.00	.50	7.50
Overall score	**100**		**38.25**

As is evident in the above-mentioned evaluation, according to the DACSOMEF evaluation scale, competitive behaviour analysis addresses certain key elements in the quest for competitive learning about a competitive force, in particular the management mindset of a competitive force. The analytical approach is, however, radically different from those followed in more quantitatively inclined analysis models and techniques because it focuses beyond the obvious on the forces initiating the decision making of the key individuals of a competitive force. In this regard, competitive behavioural analysis emphasises the fact that the personal style of individual leaders has a pronounced influence on their major decisions. These, in turn, shape the firms they lead and set the tone for the way they function (Barndt 1994:78). Despite these apparent advantages, it became obvious in a study by Rigby (1997, cited in Fleisher & Bensoussan 2003:228),

under the auspices of Bain and Company, that competitor personality profiling was not among the 25 most popular management tools and techniques. It ranked as a far less-utilised tool relative to more traditional analytical methods.

In contrast to this fair reflection of the view in the business world about competitive behavioural analysis, is its application in the military arena. Going back in history it is evident that two of World War II's most effective ground commanders – Germany's Field Marshal Erwin Rommel and America's General George Patton studied their adversaries as an integral part of battlefield preparations. Their knowledge of how their opponents "ticked" was as much a part of their strategic preparations as their surveys of the terrain, their assessment of their respective resources, and their commitment to contingency planning (Barndt 1994:76).

In the final instance, it is evident that in competitive behavioural analysis, management can be exposed to a different kind of knowledge of a competitive force – the psychological truths of the key decision makers in such a competitive force. However, in order to develop a comprehensive and all-inclusive understanding of the future intentions of a competitive force, the competitive behavioural analytical method needs to be substantiated by means of additional analysis.

4.5.12   Competitor analysis

4.5.12.1   *Introduction*

Since the dawn of civilisation, conflict has been a central topic in the existence of humankind. Over the years and through an immense number of conflicting periods, various authors have addressed the topic. However, as far back as 4 000 BC, Sun Tzu, a Chinese warrior captured the essence of dealing with this matter in his classic work, *The art of war* (McNeilly 1996). Today, the essence of his work applies to the business environment.

Against the backdrop of the foregoing, it is a fact that over time, firms have always been concerned about their competitors, and many of the competitive principles of today (excluding the intensity) have been in use for years. However, everything received a new focus in the landmark work of Michael Porter (1980), *Competitive strategy: Techniques for analysing industries and competitors*. Porter argues that conflict and competition between firms are the most influential issues impacting on any firm's future prosperity. In a subsequent work, he (1998:1) emphasises the fact that competition has intensified dramatically over the last decades, in virtually all parts of the world. In addition, few industries remain in which competition has not intruded on stability and market dominance. No firm can afford to ignore the need to compete, and must thus try to understand and master competition.

At macro level, competition has an indispensable function in the global economy. This is reflected in the efficient direction of what goods and services to produce, how they should be produced, at what price and for whom. In such an environment, business firms seek to improve their efficiency and develop new products and services. Consequently, these firms are forced to excel by competing for consumer patronage against the backdrop of slowing economic growth (Attansio 1988:16).

After the competitive evolution first described by Porter in 1980, the necessity of competitor intelligence and competitor analysis became increasingly apparent. The concept of competitor analysis was borrowed from military strategists who have long used it as an effective and efficient way to determine what the competitive threat may be (Fleisher & Bensoussan 2003:144; Grant 1998:94). Michael Porter's essential premise was that since a firm's strategy is concerned with finding a unique and differential customer value relative to rivals, competitor analysis should be a central point of strategy (Attansio 1988:16). A corollary to this is the fact that competitor analysis should focus upon a specific purpose for the home firm. This could include the following (Fleisher & Bensoussan 2003:144; Attansio 1988:16):

▪ to identify the competitor's future strategies and plans and market thrusts

- to predict competitor's likely reactions to competitive initiatives

- to determine how well matched a competitor's strategy actually is to its capabilities

- to understand a competitor's weaknesses

- to react more quickly and effectively to competitor changes

Despite the essence and important role it has to play in the contemporary business environment, many firms do not formally analyse their rivals with the systematic rigour required during competitor analysis. In surveys investigating practices of competitor analysis in US firms, the Corporate Strategy Board found in 1988 that only 3% of the firms surveyed had fully developed systematic competitor analysis systems in place. Their 1998 survey, however, indicated that 24% of the firms surveyed had a fully functional, advanced competitor-analysis programme (Fleisher & Bensoussan 2003:148). These two authors go on to say that it is apparent that Western firms are slowly starting to learn valuable lessons from their East Asian counterparts, who have benefited from advanced competitive analysis for at least a decade, if not longer.

4.5.12.2   *Different views of competitor analysis*

Since Porter's pioneering work in 1980, various authors have addressed the concept of competitor or competitive intelligence (Gilad & Gilad 1988; Gilad 1994; 1996 (reprinted); Jaworski & Chee Wee 1993; Fuld 1995; 1998; Simon & Blixt 1996; Tyson 1998; Ram & Samir 1998:9; Miller 2000; Prescott & Miller 2001). Although most of these studies address the wider concept of competitive intelligence, a few of them pay specific attention to competitor analysis. These include Porter (1980), Fuld (1995; 1997), Grant (1998), Tyson (1998), Fahey (1999), and Fleisher & Bensoussan (2003). Central to studying the different authors' approach to competitor analysis is the fact that competitor analysis has evolved in width and breadth since the early days of Porter. Some of the

most prominent categories distinguished by the different authors in the context of competitor analysis are depicted in the following table:

Table 4.22: Analytical categories applicable to competitor analysis

No.	Issues	Porter	Tyson	Fuld	Grant	Fahey	Fleisher & Bensoussan
1	Dynamic external environment		X	X			
2	Assets	X	X	X	X	X	
3	Capabilities and competencies	X	X	X	X	X	X
4	Strategy, goals and objectives	X		X	X	X	X
5	Organisational infrastructure					X	X
6	Initiatives (eg operations, marketing)		X	X		X	X
7	Managerial mindset	X	X	X	X	X	X
8	Environmental relationships					X	X
9	Future scenarios	X	X	X	X	X	
10	Other		X				X

Source: Porter (1980); Tyson (1995; 1997); Fuld (1998); Grant (1997); Tyson (1998); Fahey (1999); Fleisher & Bensoussan (2003)

According to the above-mentioned summary, most of the authors cover a number of the essential competitor analytical categories. The approach to competitive analysis and the investigative depth of the analysis, however, differ considerably. Porter's initial approach to competitor analysis represents more of a conceptual framework. Tyson's competitor profile checklist (1998:12-16, appendix 3) develops a strong quantitative view of a competitor, whilst Grant (1998:97) elaborates on the initial Porter model. Fuld (1995) on the other hand, addresses a number of analytical categories, but focuses heavily on answering the issue (key intelligence topic) that leads to the intelligence enquiry. Fleisher and Bensoussan (2003:147), like Tyson (1998) provide a comprehensive list of issues to be analysed during competitor analysis.

Despite all these views on competitor analysis, almost all of them lack any comprehensive, coherent and integrated framework of analysis to guide competitor learning. According to Fahey (1999:57), these approaches to competitor analysis primarily offer the categories that should be addressed and types of data that should be collected. Fahey's (1999:57) view differs markedly from these views because his approach to competitor analysis is focused upon acquiring competitive insight into the future intent of a competitor, in order to outwit, outmanoeuvre and outperform it. This view represents a watershed compared with the approaches to competitor analysis.

In order to explain the evolution of competitor analysis since 1980, Porter and Fahey's views will now be discussed.

a   ***Porter's view on competitive analysis***

As indicated above, Michael Porter was one of the first writers to propose a formal and systematic process through which to gather and analyse information about competitors. This model is depicted in the following figure:

```
┌─────────────────────────────────────────────────────────────────────┐
│              Figure 4.5: Porter's view of competitor analysis          │
│                                                                        │
│   ┌──────────────────┐          ┊          ┌──────────────────┐        │
│   │  What drives the │          ┊          │ What is the competitor│     │
│   │   competitor?    │          ┊          │  doing and can do??  │     │
│   └──────────────────┘          ┊          └──────────────────┘        │
│                                  ┊                                     │
│     ┌──────────────┐             ┊            ┌──────────────┐          │
│     │ Future goals │             ┊            │Current strategy│        │
│     │ At all levels of│          ┊            │   How is the  │         │
│     │ management and │           ┊            │business currently│       │
│     │  in multiple   │           ┊            │  competing?   │         │
│     │  businesses    │           ┊            └──────────────┘          │
│     └──────────────┘                                                    │
│                                                                        │
│          ┌────────────────────────────────────────────────┐           │
│          │        Competitor's response profile             │          │
│          │  Is the competitor satisfied with his current position?│    │
│          │ What likely moves or strategy shifts will the competitor make?│
│          │       Where is the competitor vulnerable?        │          │
│          │ What will provoke the greatest and most effective retaliation│
│          │              by the competitor?                  │          │
│          └────────────────────────────────────────────────┘           │
│                                                                        │
│   Assumptions                              ┌──────────────┐            │
│   Held about itself                        │ Capabilities │            │
│   and the industry                         │Both strengths│            │
│                                            │and weaknesses│            │
│                                            └──────────────┘            │
└─────────────────────────────────────────────────────────────────────┘
```

Source: Fleisher & Bensoussan (2003:145)

As shown in the above figure, Porter focuses upon two overriding dimensions in competitor analysis, namely What drives the competitor? and What is the competitor doing and can do? With regard to the former, two issues are important:

▪ What are the competitor's future goals at all levels?

▪ What are the assumptions it holds about itself and the industry in which it is involved?

- ▪ Regarding to the question: What is the competitor doing and can do? Porter, again, highlights two issues:

- ▪ What is the competitor's current strategy of the competitor?

- ▪ What are its capabilities?

In addition, Porter addresses the influence of the four dimensions on the competitor's strategic intent, and its vulnerability to the home firm (Fleisher & Bensoussan 2003:145).

b   *Fahey's view on competitive analysis*

The competitor analysis framework as proposed by Fahey (1999:56) is based on three related levels:

- ▪ a system of competitors

- ▪ an individual competitor as a whole

- ▪ specific components of a competitor

According to Fahey (1999), each of the above-mentioned levels constitutes a distinct focus for competitive learning. At the systems level, the intent is to map the competitive environment in order to identify the different competitors competing in a specific industry. However, a principal shortcoming of competitive analysis at the systems level is that potential competitors receive minimal attention, thus creating the possibility of competitive surprises for the home firm.

Once competitor analysis has been conducted at the systems level, according to Fahey (1999:56), competitor analysis should switch to developing a comprehensive understanding of an individual competitor. In this context, the focus is, firstly, on the macro level, and specifically its marketplace strategies (See figure 4.6 below), and

secondly, on the micro-level whereby specific components should be thoroughly analysed in the context of competitor learning.

Figure 4.6: Fahey's competitor analysis framework

The organisation

1 Infrastructure
2 Culture

Assets and Capabilities

1 Assets
2 Capabilities/
competencies
3 Technology

Current strategy

Future strategy

Firm in the environment

1 Activity/value chain
2 Strategic alliances/
 special relationships
3 Networks

Mind-set

1 Assumptions
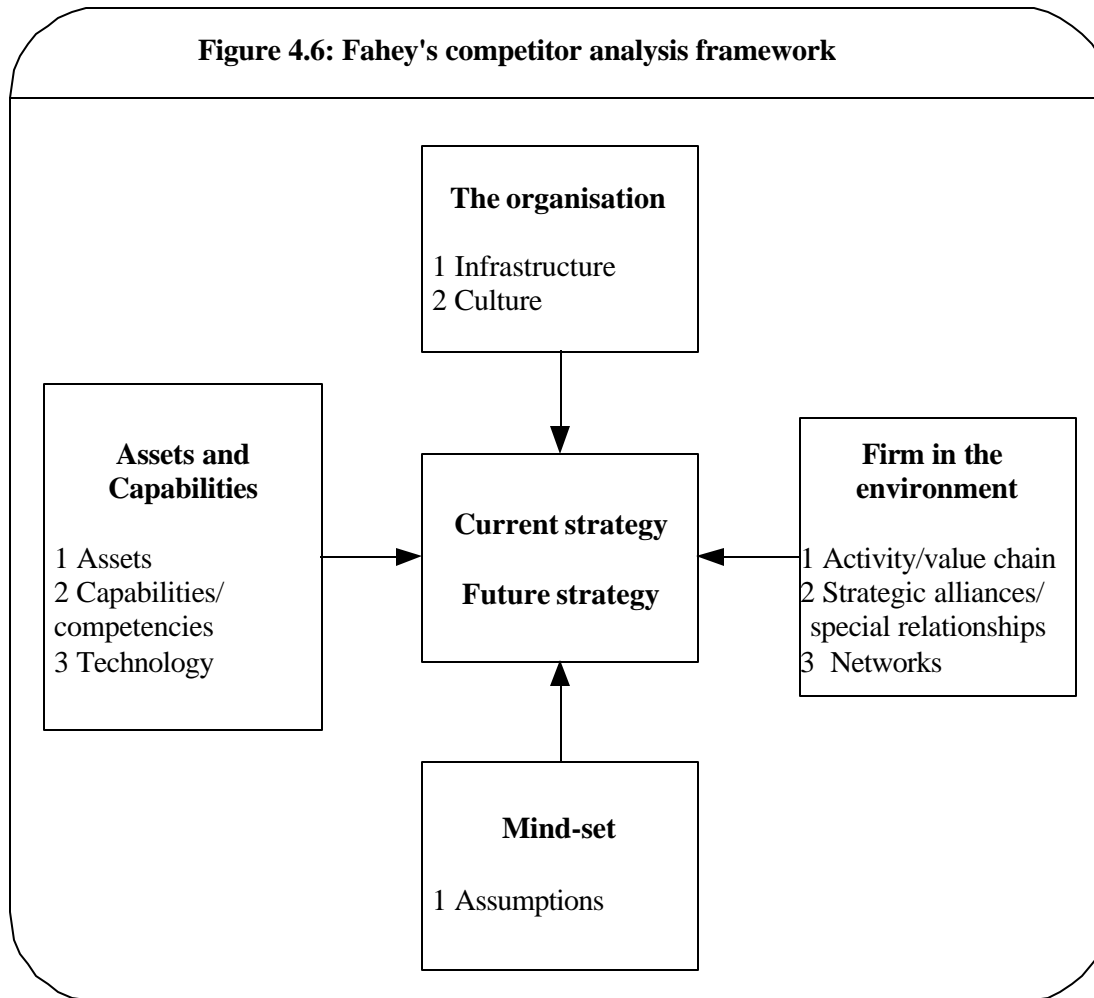
Source: Fahey (1999:57)

Micro-level analysis furnishes a description and understanding of the components as depicted in the above-mentioned figure. According to Fahey (1999:57), micro-level concerns have been the focus of various analytical tools and techniques. A case in point is financial tools and techniques that permit intensive analysis of financial assets. In addition, cultural analysis tools and techniques facilitate the dissection of the competitor's culture – its values, norms, beliefs and modes of behaviour. However, in order to paint a picture of the competitor as a total entity, it is necessary to integrate

micro-level and macro-level analysis. This view largely supports the very basis of this thesis regarding the wider subject of competitive analysis.

4.5.12.3   Process

To develop true competitive knowledge about a competitor, a structured analytical process needs to be adhered to. Such a process could include the following:

Table 4.23: The competitor analysis process

No.	What	How
Step 1	Map the competitive terrain	▪ Identify current and potential competitors competing in the same industry, as well as competitors producing substitute products
Step 2	Analyse a specific competitor at the macro level	▪ Determine the different components of a competitor which have an overriding influence on its current and future strategies
Step 3	Analyse the competitor at the micro level	▪ Marketplace strategy (determine the following): ✓ What product-customer segments is the competitor in or does it want to be in? ✓ How does it compete or want to compete in these marketplace segments? ✓ What is the purpose of being in these segments? The answers to these questions constitute the elements of any firm's marketplace strategy, consisting of scope, posture and goals

No.	What	How

No.	What	How
Step 3 (continued)		

```
                                              ┌──────────┐
                                         ┌───▶│ Current  │
                                         │    │ position │
                             ┌───────┐   │    └──────────┘
                        ┌───▶│ Scope │───┤
                        │    └───────┘   │    ┌──────────┐
                        │                └───▶│  Moves   │
                        │                     └──────────┘
                        │
                        │                     ┌──────────┐
                        │                ┌───▶│ Current  │
   ┌─────────────┐      │    ┌─────────┐ │    │ position │
   │ Marketplace │      │    │         │ │    └──────────┘
   │  strategy   │──────┼───▶│ Posture │─┤
   └─────────────┘      │    └─────────┘ │    ┌──────────┐
                        │                └───▶│  Shifts  │
                        │                     └──────────┘
                        │
                        │                     ┌──────────┐
                        │                ┌───▶│ Current  │
                        │    ┌───────┐   │    │  goals   │
                        └───▶│ Goals │───┤    └──────────┘
                             └───────┘   │    ┌──────────┐
                                         └───▶│ Changes  │
                                              └──────────┘
```

- Assets (determine the following):

  ✓ Tangible
    o Physical
    o Financial
  ✓ Intangible
    o Human skills
    o Knowledge

  ✓ Understand a competitor's assets in context of their:
    o Availability
    o Specificity
    o Sustainability
    o Replicability
    o Substitutability

  ✓ Determine the influence of the competitor's assets on its current

		and future competitive advantage

		▪ Capabilities and competencies
		    ✓ Determine the sources of a competitor's capabilities and competencies
		    ✓ Monitor and project any changes in capabilities and competencies
		    ✓ Determine the most critical capabilities and competencies
		    ✓ Determine how existing and projected capabilities and competencies affect future strategy
		
		▪ Technology
		    ✓ Determine a competitor's technology strategy
		    ✓ Identify a competitor's application of technology along its activity/value chain
		    ✓ Determine a competitor's technology assets
		    ✓ Determine a competitor's technological capabilities and competencies
		    ✓ Determine the influence of the competitor's view and application of technology on future marketplace changes
		
		▪ Organisational infrastructure
		    ✓ Understand the competitor's organisational infrastructure in the context of the following:
		       o structure
		       o systems (flow of information, resources, reward, motivation and control)
		       o people
		       o decision-making processes (eg formal, hierarchical, bureaucratic, authoritarian)
		    ✓ Monitor, identify and assess infrastructure changes
		    ✓ Determine the influence of infrastructure changes on the competitor's future marketplace strategy
		
		▪ Culture
		    ✓ Determine the behaviours, norms, beliefs and values of a competitor
		    ✓ Determine a competitor's culture in the context of:

		o Integration
		o Embeddedness
		o Alignment
		o Durability
		o Adaptability
		✓ Monitor, identify and assess cultural changes
		✓ Determine the influence of cultural changes on the competitor's future marketplace strategy
		▪ Assumptions
		✓ Determine the competitor's assumptions about its external environment and its own organisation
		✓ Evaluate its assumptions according to the following attributes:
		o Validity
		o Breadth
		o Consistency
		o Dispersion
		o Endurance
		✓ Monitor, identify and assess changes in assumptions
		✓ Determine the influence of changes in assumptions on the competitor's future marketplace strategy
		▪ Activity/value chain
		✓ Identify the relevant units in the competitor's activity/value chain
		✓ Evaluate its activity/value chain in context of
		o External connectedness
		o Internal connectedness
		o Uniqueness
		o Value-adding capability
		✓ Monitor, identify and assess changes in the activity/value chain
		✓ Determine the influence of changes in the activity/value chain on the competitor's future marketplace strategy
		▪ Alliances and special relationships
		✓ Identify the competitor's alliances and special relationships

		✓ Evaluate its alliances and special relationships chain in context of
		  o Origin
		  o Goals
		  o Key individuals involved
		  o Exclusivity
		✓ Monitor, identify and assess changes in alliances and special relationships
		✓ Determine the influence of changes in the alliances and special relationships on the competitor's future marketplace strategy
		
		▪ Networks
		✓ Identify the different types of networks that the competitor's has (vertical, technology, development, ownership and political)
		✓ Monitor, identify and assess changes in the competitor's networks
		✓ Determine the influence of changes in its networks on the competitor's future marketplace strategy
		
		▪ Future marketplace strategies
		✓ Based upon all the information about the competitor, construct competitor scenarios
		✓ Determine the plot, driving force, logic and end state of each scenario
		✓ Assess and understand competitor scenarios
		✓ Determine the consequences for the competitor
		✓ Determine the possible implications of the various scenarios for the focal firm

Source: Fahey (1999:54–484); Fleisher & Bensoussan (2003:150–159)

4.5.12.4   Strengths and weaknesses

a   Strengths

According to Pearce and Robinson (2003:69), the essence of strategy formulation is to cope with competition. Superior knowledge of the underlying sources of competitive pressure instigated by competitors thus forms a vital cornerstone on which to build a competitive advantage. Against this backdrop, competitor analysis, if properly executed, can provide a basis for competitive learning that could reveal strategic weaknesses in rivals that the firm may exploit or strengths it may wish to avoid.

In addition, the proactive stance that competitor analysis allows the home firm ensures that the firm may be in a far better position to anticipate the strategic intention of a rival firm. Moreover, competitor analysis could also assist in anticipating the response of rivals to the firm's planned strategies, the strategies of other competing firms and changes in the macroenvironment. This proactive knowledge will, furthermore, give the home firm strategic agility. Similarly, a defensive strategy can be employed more deftly in order to counter the threat of rival firms from exploiting the firm's own weaknesses (Fleisher & Bensoussan 2003:148).

b   Weaknesses

Despite the many advantages competitor analysis may bring to the firm, a disturbingly large number of firms around the world still do not formally conduct competitor analysis (Fleisher & Bensoussan 2003:148). This in itself is cause for concern.

Another major point of criticism regarding to competitor analysis relates to the temptation of many firms to make it the all-encompassing cornerstone of competitive strategy, thus creating a false impression of the firm's agility against competitive onslaughts. Hence competitive analysis should be a dynamic process and not only be conducted once a year during the strategic planning session. If competitor analysis is conducted in an ad hoc manner, it may not be able to create true competitive learning.

Consequently, it may lead to a situation in which the home firm will only be able to copy the strategic thrusts of competitors and thus remain a follower.

However, these weaknesses are all strongly linked to a firm's commitment to apply competitor analysis and develop a true competitive learning capability about its competitors and the competitive environment at large.

4.5.12.5   DACSOMEF evaluation

After Michael Porter first focused the attention on a structured approach to competitor analysis in 1980, an avalanche of work on this topic emerged. Fahey (1999:57), however, emphasises the fact that most of this work does not approach the topic in a comprehensive, coherent and integrated matter in order to guide competitive learning. However, if competitor analysis is approached according to the process discussed in section 4.5.13.3, which is broadly based upon Fahey's approach to competitive analysis, the findings below apply from a competitive learning perspective. These findings are based upon the identified key elements of the DACSOMEF rating and evaluation scale.

a   Dynamic competitive environment

Competitor analysis does make provision for mapping the competitive terrain in order to identify current and potential competitors competing in the same industry, as well as competitors producing substitute products. However, a more comprehensive scanning of the competitive environment of the competitor under investigation could add a more holistic dimension to competitor analysis.

b   Assets

The assets of a competitor are comprehensively covered in competitor analysis. This includes its tangible and intangible assets. It also makes provision for determining such assets' availability, specificity, sustainability, replicability and substitutability. In addition, assets are analysed in the context of its influence on the competitor's current and future competitive advantage. Competitor analysis also makes provision for analysing the activity or value chain of the competitor.

c   *Capabilities and competencies*

A competitor's capabilities and competencies, like its assets, are well covered in competitor analysis. In this regard, the origin, and more importantly, the influence of the competitor's capabilities and competencies do receive specific attention.

d   *Strategy*

Capturing the essence of a competitor's marketplace strategy is central to laying the foundation for acquiring a competitive advantage over such a competitor. In this regard, competitor analysis makes ample provision for determining what product-customer segments the competitor is in or wants to be in, how it competes or wants to compete in these marketplace segments, and what its purpose is in being in these segments?

Answers to these questions give real insight into a competitor's strategic intent in the marketplace.

e   *Organisational infrastructure*

The influence of a competitor's organisational infrastructure and culture on its strategic intent, and of significance, any changes that stem from this, are strongly monitored and assessed in competitor analysis.

f   *Management mindset*

During competitor analysis, provision is made for determining and assessing the assumptions that a competitor has about its competitive environment, and about itself. In addition, the influence of changes in assumptions on the competitor's future marketplace strategy is also investigated.

However, focused management profiling could add a deeper dimension to competitor analysis.

g   *Environmental relationships*

The competitor's activity/value chain, alliances and networks are thoroughly investigated in competitor analysis. In addition, its influence on such a competitor's future strategic intent is also extensively analysed.

h   *Future intent*

Based upon all the information collected and analysed about a competitor, competitor analysis makes provision for constructing possible competitor scenarios. In addition, the consequences of such scenarios on the competitor's future marketplace strategies are analysed, whilst the possible implications for the focal firm are also been determined in competitor analysis.

4.5.12.6   Conclusion

Competitor analysis, as described in section 4.5.13.3, focuses strongly on the key determinants of a competitor's future intent. According to the DACSOMEF key elements and rating scale, competitor analysis generates the following score out of 100:

Table 4.24: Rating of the competitor analysis model according to the DACSOMEF evaluation scale

Characteristic	Rating scale		Overall score (A x B)
	A Extent to which model addresses specific characteristic	B Importance in context of competitive learning	
	Weight	Rating	
Dynamic competitive environment	10.00	.70	7.00
Assets	15.00	0.9	13.50
Capabilities and competencies	12.50	0.9	11.25
Strategy	15.00	0.90	13.50
Organisational infrastructure	10.00	0.80	8.00
Management mindset	12.50	0.70	8.75
Environmental relationships	10.00	0.70	7.00
Future intent	15.00	.90	13.50
Overall score	**100.00**		**82.50**

As indicated in the above-mentioned evaluation, competitor analysis comprehensively addresses the key elements in the DACSOMEF scale. It is thus obvious that if a firm has the necessary discipline to apply competitor analysis in a structured and diligent manner, it could acquire valuable insight into the future or strategic intent of a competitor. Fleisher and Bensoussan (2003:160) agree with this notion that if competitor analysis is correctly applied, it is one of the most pervasive analytical tools in contributing to the achievement of competitive advantage. However, it is important for the competitor learning created through competitor analysis, to be integrated into the home firm's strategic decision making and implementation processes. In conclusion, ideally the

above-mentioned approach to competitor analysis should primarily form the very basis of the wider concept of competitive analysis.

4.5.13   Stakeholder analysis

4.5.13.1   Introduction

The confluence of a number of pressures emanating from the contemporary global competitive environment has compelled firms around the world to reconsider their relationships with this environment. These pressures have forced the command and control structures with sharply defined boundaries of the typical firm from a previous era, to transform into a loosely knit organisation with a vast number of relationship-based tentacles. Pearce and Robinson (2003:288), argue that this phenomenon is not isolated, and that true 21st century corporations will increasingly see their structure becoming an elaborate network of external and internal relationships or a whole network constellation.

The external groups, with whom the home firm, willingly or unwillingly has relations, can commonly be defined as stakeholders. A firm's stakeholders not only include stockholders and employees, but also customers, suppliers, governments, unions, competitors, joint venture-, alliance– or consortium partners, community groups and the general public (Pearce & Robinson 2003:38; Fleisher & Bensoussan 2003:299; http://www.landcareresearch.co.nz 2003). The influence of these stakeholders on a firm's future prosperity stems from the growing recognition that many groups, in addition to a firm's owners, have had to be reasonably satisfied with its strategic objectives (Fleisher & Bensoussan 2003:298).

Several typical relationships flow from the typical stakeholder influence on the firm. The growing influence of corporate social responsibility due to the pressure of the general public, unions, community groups and certain activist groups on a firm's future prosperity creates its own challenges. In addition, many firms no longer have well defined and formalised relationships with many of their suppliers, competitors and customers. In this regard, it is becoming increasingly common for two firms to engage in

a competitive relationship in one market segment, while collaborating as suppliers or customers in other sectors. This in itself poses certain challenges for the firm. It is also fairly common for firms to no longer possess or control sufficient independent resources to compete effectively in all market segments. They are therefore compelled to enter into collaborative partnerships as a means of creating scale and business efficiencies, that would otherwise have been impossible (Corporate Strategy Board 1997:1-2). This approach to business gives rise to the formation of joint ventures, strategic alliances and consortia.

To this end, the firm has to recognise the critical influence on its prosperity of the vast array of internal and external forces to which it is linked. It thus needs to acquire knowledge about the real intention of these forces or stakeholders, in order to predict and proactively address their actions and behaviours. In this regard, stakeholder analysis can be extremely helpful and can be defined as (adapted from Fleisher & Bensoussan 2003:298; www.landcareresearch.com):

A systematically analytical method that can be used to identify important groups or individuals, who could exert a significant amount of influence on the firm. It serves as a technique in helping the firm decide which stakeholders are important to its global activities and operations, assess their interests and capabilities and determine when and how to involve them or when to initiate actions regarding them. It could also be useful in determining how to allocate firm resources among critical stakeholders in order to maximize the likelihood of competitive success.

- For the purpose of this thesis, stakeholder analysis will be confined to the analytical process regarding any social or community group or nontraditional business partner with whom the home firm has a nonproprietary relationship and who could influence a particular business initiative, or the home firm's future prosperity. Based upon the above-mentioned definition and supportive description, stakeholder analysis could be used for the following reasons (Fleisher & Bensoussan 2003:300;

http://www.landcareresearch.co.nz/ 2003; http://www.enterprise-impact.org.uk. 2003):

- identify people, groups and institutions that will positively or adversely influence the firm

- anticipate the capacity, characteristics or kind and degree of influence, positive or negative, which their actions will have on the focal firm's market and business initiatives

- assess the appropriate type of participation by different stakeholders in the business initiatives of the home firm

- identify conflicts of interests between stakeholders, which will influence the firm's assessment of a business venture

- Identify relations between stakeholders that can be built upon, and may promote beneficial coalitions to enhance business success

- order to acquire the most effective support possible for organisational initiatives

- reduce any obstacle to successful strategy implementation

4.5.13.2 Process

According to Fleisher and Bensoussan (2003:298), stakeholder analysis should always be conducted at the beginning or formulation stage of a new business initiative. However, it should also be done any time the firm is considering a significant change in its business and marketplace strategies or is experiencing problems during a particular business project or venture. A team-based approach to analysis is, furthermore, likely to be more effective than a single person conducting the analysis alone. The following figure depicts the different steps in stakeholder analysis:

Table 4.25: Stakeholder analysis

No.	What	How

Step 1	Determine who the firm's stakeholders are?	• Follow a systematic approach to identify the firm's stakeholders
		
		• Identify both generic and specific stakeholder groups:
		  ✓ Generic stakeholders include consumers, employees, governments, interest groups, and shareholders
		  ✓ Specific stakeholders are subgroups within generic stakeholders who have material stakes associated with an issue or potential issue facing the firm
		
		• Identify specific individuals within stakeholder groups who are influential
		
		• Draw up a stakeholder table, that covers the following issues:
		
		Stakeholder
		
		Interest(s) or demands
		
		Impact
		Importance of stakeholder to project success
		
		Stakeholder's strengths
		
		Stakeholder's weaknesses
		
		1
		
		2

		3
		4
		n
		*) Strongly in favour: ++; weakly in favour: +; indifferent or undecided: o; weakly opposed: - -; strongly opposed: - -

No.	What	How

Step 2	Determine the different stakeholder's stakes	▪ Identify the different stakes of each stakeholder. This should be done according to the following categories:
		  ✓ Single or multiple issue stakes
		  ✓ Economic or social stakes
		  ✓ Concrete or symbolic stakes
		  ✓ Local, national, or international interests
		
		▪ Determine what responsibility the firm has to the different stakeholders:
		  ✓ Economic
		  ✓ Legal
		  ✓ Ethical
		  ✓ Discretionary
		
		▪ Determine each stakeholder's interest by asking the following questions:
		  ✓ What are the stakeholder's expectations for the planned initiative?
		  ✓ What benefits are likely for the stakeholder from the initiative?
		  ✓ What resources will the stakeholder wish to commit to the initiative?
		  ✓ What other interests does the stakeholder have that may conflict with the project?
		  ✓ How does the stakeholder regard other stakeholders in the domain of the initiative?

Step 3	What opportunities and challenges do stakeholders present to the home firm?	▪ Assess the likely impact of the initiative on each interest (positive, negative, or unknown)
		
		▪ Determine the opportunities and threats associated with stakeholders by way of the following categories:
		  ✓ Direction of effect
		  ✓ Importance of effect
		  ✓ Immediacy of effect
		  ✓ Probability of resolution
		
		▪ Rate the above on a quantitative scale (eg, 1 – 5, with 1 being supportive/friendly and 5 being nonsupportive/adversarial)
		
		▪ Determine the influence and importance of each stakeholder

✓ Influence is the power that stakeholders have over an initiative

✓ Assess the following variables:

   o The stakeholder controls important resources needed by the firm

   o The stakeholder is more powerful than the firm

   o The stakeholder is likely to take action supportive of the firm

   o The stakeholder is looking to ally and collaborate with other supportive or adversarial stakeholders

✓ Importance focuses upon the role a stakeholder has to play in a specific initiative

▪ Plot the different stakeholders on an influence/importance matrix

Importance

High   **Low**

   Low

Influence

   High

   A

		Special initiatives will be required to protect their interests
		D
		May require limited monitoring or evaluation, but of low priority
		These stakeholders are unlikely to be the subject of managed activities by the home firm
		B
		Construct good working relationships with them to ensure their support
		These stakeholders provide the basis of the initiative coalition of support and are potential partners in planning and implementation
		C
		These stakeholders may be a source of significant risk and require careful monitoring and management
		Key stakeholders plotted here may be managed by being consulted or informed

No.	What	How

Step 4	What strategies or actions should the home firm implement with respect to its stakeholders?	▪ Consider several basic approaches:
		  ✓ Does the firm deal directly or indirectly with stakeholders?
		  ✓ Does the firm take the offence or defence with stakeholders?
		  ✓ Does the firm accommodate, negotiate, manipulate or resist stakeholder claims?
		  ✓ Does the firm employ a combination of the above strategies or pursue a singular course of action?
		▪ Consider the following tactical issues with regard to the home firm's responses:
		  ✓ Timing
		  ✓ Technique
		  ✓ Vehicles
		  ✓ Style
		▪ Establish the time of the firm's response according to:
		  ✓ Strategic timing (ie proactive, interactive, reactive, inactive)
		  ✓ Time horizon (ie immediate, short term, medium term, long term)
		▪ Draft a summary participation matrix and plot each stakeholder accordingly:
		
		Type of participation
		Inform
		Consult
		Partnership
		Control
		
		Identification
		
		Planning
		
		Implementation

| | | Monitoring |
| | | Determine style (tone or manner in which the firm will respond): ✓ Confrontational ✓ Neutral ✓ Conciliatory ✓ Collaboratory ✓ Involving the different stakeholders ✓ Defending ✓ Monitoring |

Source: Fleisher & Bensoussan (2003:298–312); http://www.enterprise-impact.org.uk/ (2003); http://www.landcareresearch.co.nz/ (2003); http://www.euforic.org/ (2003); http://www.scu.edu.au/ (2003)

4.5.13.3   Strengths and weaknesses

a   *Strengths*

According to Fleisher and Bensoussan (2003:300), stakeholder analysis provides a different perspective from most other planning tools because it addresses the individuals and groups that are most likely to support or resist the firm's marketplace or business initiatives. This is partially necessary because of the exponential growth in the field of corporate social responsibility around the world in the last decade. Consequently, more firms than ever before are engaged in serious efforts to define and integrate their corporate social responsibility into all aspects of their business (http://www.bsr.org/BSRResources/IssueBrief 2003).

It is also a fact that in the contemporary competitive environment, business arrangements such as alliances, networks and partnerships are often the difference between marketplace success and failure. To this end, alliances and other nonproprietary arrangements account for an ever-increasing share of corporate revenue, as they become a preferred method for achieving a range of strategic objectives (Corporate Strategy Board 2000:3). Stakeholder analysis is, furthermore, one of the few tools that explicitly considers both competitors and complementors.

Implicit in the principle is the view that firms that manage stakeholder relationships effectively over time should have an advantage relative to competitors that are less effective. Some stakeholders are also in a position to influence the "rules of the game". In addition, firms that have superior investor relations also receive better support from investment analysts. There is also strong evidence that treating employees, community, environment, customers and others is closely related to successful financial performance (Fleisher & Bensoussan 2003:301).

Stakeholder analysis could thus be a powerful management technique to apply in the international competitive environment because it provides a way for firms to pro-actively consider the individuals and groups they need to partner with in their international business endeavours. Stakeholder analysis is also one of the few analytical tools that explicitly requires consideration of the social and ethical aspects of business activity. The

fundamental principle here is in the fact that stakeholder analysis is a way of systemising what many firms naturally try to achieve in the external environment. (Fleisher & Bensoussan 2003:301).

b   Weaknesses

According to Gib and Gooding (Fleisher & Bensoussan 2003:300), firms do not use stakeholder analysis effectively or extensively in strategy development. Various reasons could be attributed to this phenomenon. Suggestions are that it does not provide enough specificity of action and direction and that it is difficult to address quantitatively (Fleisher & Bensoussan 2003:300). In addition, stakeholders may be notoriously difficult to forecast and predict, because they can change their views quite quickly. Consequently, stakeholder analysis is, in many instances, based upon a high degree of subjectivity. Fleisher and Bensoussan (2003:302) argue that stakeholder analysis needs to be practised regularly over time if any real value is to be extracted from it. Constant environmental and competitive scanning is thus necessary.

4.5.13.4   DACSOMEF evaluation

As a catalyst to the foregoing is the fact that firms are, willingly or unwillingly being forced into relationships with various external forces or stakeholders. This happens either by own choice or a firm is forced into it because of its social responsibility, commitment or new age collaborative business engagements. The importance of the analysis of such forces (stakeholder analysis) is thus self-evident. In the context of competitive learning, on which competitive analysis should be based, the findings below apply to stakeholder analysis. These findings are based upon the identified key elements of the DACSOMEF rating and evaluation scale.

a   Dynamic competitive environment

Stakeholder analysis by its very nature focuses upon the wide range of forces from the external environment impeding, negatively or positively, on a specific business venture or the firm in its totality. In this sense it does make provision for developing basic competitive learning about the home firm's external environmental forces or stakeholders. To this end,

stakeholder analysis makes little provision for in-depth learning about the different forces impacting on a particular stakeholder.

b   *Assets*

Apart from the possibility that a specific asset may be included as a possible strength or weakness of a particular stakeholder in stakeholder analysis, there is hardly any in-depth focus on the tangible and intangible assets of such a stakeholder. The analytical technique thus needs support from additional research, in order to initiate real competitive learning of a stakeholder's tangible and intangible assets.

c   *Capabilities and competencies*

As in the case of assets, stakeholder analysis could possibly address the capabilities and competencies of a competitive force as particular strengths and weaknesses. Again no in depth assessment about such a capability or competency is included. In addition, changes in a stakeholder's capabilities and competencies are also not properly addressed, whilst the future consequences of such a change for a particular stakeholder are hardly emphasised. Stakeholder analysis thus needs support from additional competitive analysis.

d   *Strategy*

Stakeholder analysis does address the interests and demands of a particular stakeholder, which could be perceived as being representative of some of its strategies. However, in most instances, the identification of such interests and demands flows from group discussions during the stakeholder analysis session, and may thus be biased or subjective. There is also no focus on the detailed elements of a stakeholder's strategy (scope, posture and goals). It is again evident that in order to acquire true competitive learning about the strategy of a particular stakeholder, additional competitive analysis is necessary to verify possible subjective allegations about a particular stakeholder's strategic intent.

e   *Organisational infrastructure*

There is hardly any focus on the influence of a competitive force's organisational infrastructure and culture on its future intent during stakeholder analysis. To this end, it

needs to be emphasised that a stakeholder's organisational infrastructure serves to direct, support and reinforce its initiatives in the external environment. This issue is not properly addressed in stakeholder analysis and thus underlines certain limitations of the analytical method. In addition, a stakeholder's values, beliefs, norms and behaviours, and the influence of these on its strategic intent are also not addressed in stakeholder analysis. It is thus evident that stakeholder analysis needs the support of additional competitive analysis in order to determine the possible influence of the shareholder's organisational infrastructure and culture on its approach to the future.

f **Management mindset**

Apart from focusing upon the interest and demands of a particular stakeholder, where some attention may be given to the management mindset of such a stakeholder, the analytical framework lacks the in-depth focus on the influence of the behavioural pattern of a particular key individual within a stake holding group or the decision-making dynamics of such a group. Supportive competitive analysis on a particular stakeholder's management mindset could be most beneficial during stakeholder analysis in order to improve the home firm's approach to a particular stakeholder.

g **Environmental relationships**

Hardly any attention is paid to the environmental relationships of a particular stakeholder during stakeholder analysis, and their influence on its future intent.

h **Future scenarios**

The only focus during stakeholder analysis upon future scenarios possible for a particular stakeholder, is the participation matrix. Obviously, it lacks any in-depth knowledge of such a competitive force's future intent.

4.5.13.5 **Conclusion**

It is evident from the process explained in section 4.5.13.2 that stakeholder analysis is much more a stakeholder management process than an in-depth analysis of the firm's

stakeholders. According to Fleisher and Bensoussan (2003:312), stakeholder analysis is most valuable when used as part of a larger strategic stakeholder management process. According to the DACSOMEF key elements and rating scale, stakeholder analysis generates the following score out of 100:

Table 4.26: Rating of stakeholder analysis according to the DACSOMEF evaluation scale

Characteristic	Rating scale		Overall score (A x B)
	A Extent to which model addresses specific characteristic	B Importance in context of competitive learning	
	Weight	Rating	
Dynamic competitive environment	10.00	.4	4.00
Assets	15.00	.2	3.00
Capabilities and competencies	12.50	.2	2.50
Strategy	15.00	.4	6.00
Organisational infrastructure	10.00	.1	1.00
Management mindset	12.50	.4	5.00
Environmental relationships	10.00	.1	1.00
Future scenarios	15.00	.4	6.00
Overall score	**100.00**		**28.50**

The above-mentioned evaluation indicates that stakeholder analysis does address certain key elements in the quest for competitive learning according to the DACSOMEF evaluation scale. However, it does not promote any in-depth knowledge of the influencing factors of a particular stakeholder's future intent. Some subjectivity may thus

be included in the stakeholder analytical model as addressed in section 4.5.13.2. In addition, stakeholder analysis has a low to medium focus on the future intent of a competitive force because, in practice it usually focuses upon emerging issues as opposed to longer-term forecasts (Fleisher & Bensoussan 2003:311).

In conclusion, it is clear that stakeholder analysis could serve a real purpose for any firm by addressing its relationships in the external environment in a structured way. Stakeholder analysis, as described in section 4.5.13.2, however, is more a stakeholder management process than any in-depth analysis about the firm's stakeholders. Consequently, in today's intensely competitive marketplace, firms cannot overlook any genuine opportunity to acquire competitive insight into the stakeholders they encounter in their daily endeavours. Additional competitive analysis is thus necessary to substantiate stakeholder analysis in order to initiate true competitive learning about a particular stakeholder or group of stakeholders.

4.5.14   Scenario analysis

4.5.14.1   Introduction

In today's global economy, firms experience great turbulence, uncertainty, and complexity in the competitive environment, which substantially influences the context and eventual outcome of most of their business decisions. It is thus an accepted principle that sooner or later every firm will experience some type of discontinuous change – new markets, new competitors, new combinations of technology, new distribution channels and new legislation (Fahey & Randall 1998:3). In order for firms to remain competitive amidst such turbulence, uncertainty and complexity, they need to respond not just by reacting to change but also by anticipating it, and indeed provoking it (Kippenberger 1999:14). In this regard, firms have relied upon various forecasting methods in order to anticipate what the future holds. A number of authors (Fahey & Randall 1998:3; Fleisher & Bensoussan 2003:285; Fink & Schlake 2000:37), however, have challenged the validity of traditional forecasting methodologies and have found their accuracy and ability to anticipate the future to be lacking

In the context of competitive analysis, it is also a fact that all too often it focuses upon documenting and understanding these competitive forces' current and past strategies and actions, whilst what they might do in future, why they would do so, and what the implications might be, receive comparatively little attention (Fahey 1999:65). Hence very little competitive learning about such a competitive force's future intent is evident. A different approach to these traditional forecasting and analytical methodologies is based upon the application of scenario planning or scenario analysis, which could be defined as follows (adapted from Fahey & Randall 1998:6; Schwartz 1991:36):

> *Perceiving descriptive narratives of plausible alternative projections of a specific part of the future, in the present.*

Fahey and Randall (1998:5), however, disregard scenario planning and refer to scenario learning for a number of reasons:

- Learning is not just a means of generating or acquiring knowledge, but a process to apply such knowledge.

- Scenarios challenge the mindset of managers by developing plausible alternatives with regard to the future.

- Learning implies discussion or dialogue.

- Learning suggests that scenarios are continual input into decision making and those actions and decisions, in turn, spawn further reflection and thinking – hence further learning.

The above-mentioned view supports the very basis of this thesis, which is primarily focused upon the application of competitive analysis in the context of competitive learning.

4.5.14.2 *The history and development of scenario learning*

Scenarios first emerged after World War II, as a method for military planning. In this regard, the US Air Force tried to imagine what its opponents might do, in order to prepare alternative strategies. One of the first scenario-based projects was the so-called "Manhattan" project, which used simulation techniques to estimate the chance that the first nuclear explosion might extinguish all life on earth. In the 1960s, Herman Kahn, who had been part of the US Air Force effort, refined scenarios as a tool for business prognostication (Fleisher & Bensoussan 2003:285; Schwartz 1991:7).

The next major development in the evolution of scenario analysis came from the RAND Corporation, which adapted scenario analysis while consulting for the US Air Defence Missile Command. Military strategists at RAND were the first to formally define scenarios as "hypothetical sequences of events constructed for the purpose of focusing attention on casual processes and decision points" (Kahn & Wiener 1967, in Fleisher & Bensoussan 2003:285).

Despite the fact that most of these early scenario techniques were highly quantitative, more qualitative scenario analysis was also evolving during this period. The most notable qualitative approach to scenario analysis was the Delphi method (developed by Helmer in 1960). Essentially the Delphi method relies on the iterative inputs from expert panels rather than complex mathematical methods (Fleisher & Bensoussan 2003:286). However, scenarios reached a new dimension in the early 1970s, with the work of Pierre Wack, who was a planner in the London offices of Royal Dutch/Shell, the international oil enterprise. Wack and others at Royal Dutch/Shell were looking for events that might affect the price of oil, which had been more or less steady since World War II. They wrote up two sets of scenarios – each a complete set of stories about the future. One story presented the conventional wisdom, whilst the second scenario looked at the more plausible future. The so-called "Yom Kippur" War in the Middle East in 1973 initiated the second scenario. Of the major oil companies, Shell was emotionally prepared for the

change. From one of the weaker ones of the seven largest global oil companies, it became one of the largest two, and arguably the most profitable (Schwartz 1991:7–9).

Scenario analysis gained further credence through the 1982 study conducted by SRI International, "Seven Tomorrows" (Hawken, Ogilvy & Schwartz 1982, in Fleisher & Bensoussan 2003:285). As a corollary to this, the 1990s witnessed some corporate interest in scenario analysis and this received wide attention in the business world. Table 4.27, depicts professional service firms and recent publications dedicated to scenario planning:

Table 4.27: Professional service firms and publications dedicated to scenario planning

Professional firms	Publications
Global Business Network	20/20 Foresight: Crafting strategy in an uncertain world (Courtney 2001)
Northeast Consulting Resources, Inc	The mind of a fox: Scenario planning in action (Ilbury & Sunter 2001)
Strategy Futures International	Scenario planning (Ringland 1998)
SRI International	Learning from the future (Fahey & Randall 1998)
The Futures Group	The living company (De Geus 1997)
Idon Associates	Scenario thinking: how to navigate the uncertainties of unknown futures (Galt, Chicoine-Piper & Hodgson 1997)
Scenario Management International AG	Scenarios, the art of strategic conversation (Van der Heijden 1996)
Die Denkfabrik, GmbH	The Art of the long view (Schwartz 1991/1996)
SINUS Software and Consulting, GmbH	

Source: Corporate Strategy Board (1999:3); Fahey (1999:65); Mchaeli (2003); Van der Heijden (2002); Ilbury & Sunter (2001); Courtney (2001); Fahey & Randall (1998); SINUS Software and Consulting GmBH (2003)

In practical terms, scenarios have been applied over a wide field, ranging from a broad PEST analysis, to focusing upon a particular political situation in a country (South

Africa's post apartheid era) (Ilbury & Sunter 2001:122). Scenario analysis has also been applied to anticipate the influence of a specific event in the world on the future (eg the 1973 oil crisis and the events of 11 September 2001) (Schwartz 1991:7; Ilbury & Sunter 2001:120). A corollary to this is the fact that scenarios have recently diffused into the competitive intelligence domain (Gilbert 2000:13), and have been applied to aspects such as industry, competitor and customer value analysis (Fahey & Randall 1998). It is thus evident that scenarios could be applied over a wide spectrum of issues. In the context of this thesis, the focus would be on scenario learning in order to determine the future intent of a competitive force.

4.5.14.3 *Process*

Through the years, different approaches to scenario analysis have been developed. Fleisher and Bensoussan (2003:285) concur that there are four general types of approaches to scenario analysis. These are as follows:

a *Quantitative methods*

- Computer-generated econometric models

b *Qualitative methods*

- Intuitive methods

- Delphi method

- Cross-impact analysis

Based upon these methods, scenario analysis could be applied in certain very specific fields. These include the following:

- STEEP scenario

- Sensitivity scenario

- Industry scenario

- Diversification scenario

- Public issue scenario (Fleisher & Bensoussan 2003:288).

Fahey and Randall (1998) add the following applications:

- Competitor scenarios
  - Emergent scenarios (building from the ground up)
  - Unconstrained "what-if" scenarios
  - Constrained "what-if" scenarios (Fahey 1999:67)

- Technology investment scenarios

- Customer-driven scenarios

- Consumer product scenarios

From the literature, it is thus evident that each author approaches scenario analysis, in his or her own unique way. This is especially true because of the wide range of applications of scenario analysis. Fahey and Randall (1998:67) concur with this fact when the say that there is no one right way to design scenarios. In this regard, different organisational cultures, different facilitation styles, and above all, different industries may dictate the use of one or another of the approaches for settling on the basic logics of a few scenarios. This also applies to the different steps in scenario analysis. The following table depicts a number of authors' views on the different steps in scenario analysis:

Table 4.28: Different views on the scenario analysis process

Scenario step	Fleisher & Bensous-san	Fahey & Randall (General)	Schwartz	Gilbert	Sawka	Fink & Schlake	Tessun	Ilbury & Sunter	Kippen-berger	Kober & Michaeli
Define scope	X	X	X	X	X	X	X	X	X	X
Scenario field analysis	X	X	X		X	X	X	X		X
Identify and challenge key environmental forces	X	X	X	X			X		X	X
Identify uncertainties	X			X				X		
Construct and challenge possible scenario themes	X	X	X	X		X			X	X
Check for consistency and plausibility	X		X	X						
Develop learning scenarios	X	X	X	X	X	X	X	X	X	X
Identify research needs	X				X					
Scenario interpretation			X	X	X	X	X			
Develop quantitative models	X									
Map strategies against scenarios				X			X	X		
Scenario transfer towards a strategic decision	X	X		X		X	X	X	X	X

Source: Fleisher & Bensoussan (2003:291–292); Gilbert (2000:13–19); Sawka (2003); Tessun (1997:31–33); Fink & Schlake (2000:37-45); Fahey & Randall (1998:83; 231); Fahey (1999:65); Schwartz (1991:241–246), Kippenberger (1999:17–19); Kober (2003); Michaeli (2003)

From the above-mentioned comparison, it is apparent that the various authors have different views on the different phases in scenario analysis. However, certain common phases are evident. The following table depicts the scenario analysis process and is based strongly upon the German approach to scenario analysis and the work of Kippenberger (1999), Gausemeier (Kippenberger 1999), Kober (2003) and Michaeli (2003):

Table 4.29: The scenario analysis process

No.	What	How
Step 1	Define the scope of the analysis (scenario field)	▪ Develop a common understanding of what should be analysed, in other words, define the scenario field (subject of scenario creation)
Step 2	Conduct scenario field analysis	▪ Conduct detailed field analysis ▪ Select and systematically analyse all the trends and influencing factors (every scenario field could consist of up to 150 influencing factors) ▪ The external factors can relate to the industry (eg competitors,), the industrial environment (suppliers, customers, etc) or the global environment (technology, economics, societal shifts, etc), depending on the scope of the analysis ▪ Draw up an influencing matrix (complete a cross-impact matrix on which to evaluate the connections and interrelationships between all the key factors and driving trends)

Influence matrix

Question: How strong is the impact of factor A (row) on factor B (column)?

Scale
0 = no impact
1 = weak and delayed impact
2 = medium impact
3 = strong and direct impact

activity (sum of rows): How strong is the impact of a factor on all other factors?

	1 buying habits	2 cashless money	3 size of purchas	4 home shopping	5 buying power	6 hours off openi	7 use off credit ca	8 use of consum	9 point-of-sa	••••	35 system of valu	36 growth rate	active sum
1 buying habits		2	2	3	–	1	2	2	1		–	–	13
2 cashless money transfer	1		–	–	–	–	3	2	3		–	–	17
3 size of purchasing points	–	1		2	–	1	–	3	3		–	–	13
4 home shopping	–	2	1		–	–	**3**	–	–		–	–	10
5 buying power	3	2	–	1		–	–	–	–		–	2	15
6 hours of opening	2	2	2	3	–		–	–	–		–	–	13
7 use of credit cards	–	1	–	–	–	–		1	1		–	–	10
8 use of consumer cards	–	1	–	–	–	–	2		3		–	–	6
35 system of values	3	–	–	1	–	–	–	–	–			2	26
36 growth rate	2	–	–	–	3	1	–	–	–		–		19
passive sum	30	41	13	31	14	7	25	17	24		10	14	

passivity (sum of columns): How strong is a factor impacted by all the others?

▪ Grade each factor's influence on every other factor to determine the critical influences that need to be considered (0 = no impact; 1 = weak and delayed impact; 2 = medium impact; 3 = strong impact)

▪ From the influencing matrix, it will become evident which are the critical

		factors that need to be considered
		Plot the different influencing factors according to their activeness and passiveness
Step 3	Projection	▪ Define a time horizon (the time in the future that should be described by the scenarios) ▪ Project each influencing factor forward to the chosen time horizon ▪ Develop each factor in various different ways (do not exclude extreme projections) ▪ Investigate ways that are highly unlikely, but which may have a great influence on the scenario if they do happen (ie an atomic accident) ▪ Establish a logic rationale, whilst intuition, insight and creativity should be applied at all times

Step 4	Develop learning scenarios (build draft scenarios)	▪ Bundle key factors together focused upon a particular possible end state
		
		▪ Bundles should be checked for consistency
		
		▪ Five criteria are applicable:
		  ✓ Plausibility - the scenarios must fall within the limits of what might conceivably happen
		  ✓ Differentiation - they should be structurally different
		  ✓ Consistency - they must be internally consistent
		  ✓ Decision-making utility - each scenario, and all the scenarios as a set, should contribute specific insights into the future that will have a bearing on the decision focus
		  ✓ Challenge - the scenarios should challenge the organisation's conventional wisdom about the future
		
		▪ Individuals involved should disengage themselves from their own firm
		
		▪ Construct possible scenario themes
		
		▪ Select between two and five alternative scenarios
		
		▪ Formulate scenarios into standard language, whilst creatively thinking about the evolving future
		
		▪ Articulate scenarios into a "stage-set" description
		
		▪ Keep them short!

Step			
Step 5	Scenario interpretation	▪ Establish consequences based on the assumption that one particular scenario will take place in the future (cause-effect statements)	
		▪ For every chosen future world, both positive and risky consequences are suggested and interpreted	
Step 6	Scenario transfer towards a strategic decision	▪ Analyse the scenarios in detail and ask some fundamental questions such as:	
		✓ What are the strategic implications of the scenarios for the particular decision?	
		✓ How does a particular strategy augment the home firm's understanding of the competitive force, the broader competitive environment and the home firm?	
		✓ How can the particular projected strategy help the home firm analyse own assumptions, assets and capabilities?	
		▪ The following approaches could be followed:	
		✓ opportunities/threats assessment	
		✓ testing laboratory	
		▪ Use the different scenarios to strategise	
		▪ Validate alternative strategies	
		▪ Develop outcomes and implications	
		▪ Corporate or business strategies can be applied out in one of three ways:	
		✓ planning-oriented strategy	
		✓ preventive strategy	
		✓ proactive strategy	
		▪ Select or adapt the most robust strategy	

Source: Fleisher & Bensoussan (2003:291–292); Gilbert (2000:13–19); Sawka (2003); Tessun (1997:31–33); Fink & Schlake (2000:37-45); Fahey & Randall (1998:83; 231); Fahey (1999:65); Schwartz (1991:241–246), Kippenberger (1999:17–19); Kober (2003); Michaeli (2003); Flowers (2003:29-33)

From the above-mentioned process, it is evident that the scenario process involves a continuous and dedicated approach to gathering information. This should be practised both narrowly – to pursue facts needed for a specific scenario, and broadly – to educate (Schwartz 1991:60). However, scenarios, like all forecasting techniques, can only be as good as the information on which they are based. Consequently, the process should be

handled with much rigour (Fahey 2003:33). However, it is important not to complicate matters. In this context, it is argued that the simpler the scenario process is, the more effective it may be. Even Shell, which is reportedly the world's leading commercial user of scenario forecasting, now uses relatively simple techniques to create its scenarios; ones that are far removed from the academic sophistication of earlier times (Mercer 1995:33).

4.5.14.4   *The strategic rationale of scenario analysis*

Scenario learning is not only about constructing scenarios; it is ultimately about informing decision makers and influencing and enhancing decision making. Hence, Fahey and Randall (1998:12) argue that scenario learning emphasises the importance of augmenting decision makers, understanding of possible futures as a prelude to decision making. A firm should thus adopt scenario learning if it has reason to believe that its future business context – products, customers, distribution channels, suppliers, competitors, technology and governmental regulation – will be significantly different from that prevailing today (Fahey 2003:37). It could thus be argued that a firm can never create for itself a safe haven that isolates it from having to confront the strategic challenge of how to anticipate and interpret change in and around its marketplace; and how to leverage that change into winning strategies.

Consequently, four broad strategic reasons can be identified for the application of scenario learning. The following questions emphasise these strategic reasons (Fahey 2003:6, 7 & 38):

▪   Does the firm have some sense of the different ways in which its broader competitive environment might evolve over the medium to long term?

▪   Does the firm know which factors or forces of change are most likely to dominate its industry or how its marketplace will evolve around it?

- Does the firm know what its strategic and organisational responses would be if a future were to unfold that was distinctly different from the one anticipated by the current business plan?

- What are the different competitive forces' strategic initiatives that could catch the firm off-guard?

4.5.14.5   Strengths and weaknesses

In the application of scenario analysis in the competitive analysis context, a number of strength and weaknesses can be highlighted.

a   Strengths

Various strengths can be attributed to scenario analysis. In this regard, one valuable aspect of scenario development is the sensitisation of management to the importance of adapting to the possible impact of a specific scenario field (Industry's evolution, market evolution, competitive force evolution or country developments). Scenario analysis is also extremely flexible in that the relative degree of quantification/qualification or formal/informal characteristics of the scenario approaches taken can be tailored to the individual firm's culture and capabilities.

Scenario analysis, furthermore, often incorporates forecasting techniques for raw analytical inputs, but goes one step further. Through narrative stories, scenario analysis starts where traditional forecasting ends. By including informal qualitative assessments of possible future environments, scenario analysis is able to embrace many more relevant variables that are beyond the quantitative purview of established forecasting techniques. A corollary to this statement is the fact that scenario analysis has the unique ability to reduce an overwhelming amount of data and information into actionable intelligence. By its very nature, scenario analysis is structured to help in the process to understand future competitive environments (Fleisher & Bensoussan 2003:289-290).

Apart from the fact that scenario analysis is a powerful and versatile planning tool (Sawka 2003:51), it also offers a framework in which to manage uncertainty to a level that allows the selection of various strategic intents. Consequently, scenarios also embrace qualitative perspectives and the potential for sharp discontinuities that econometric and other stable-state quantitative methods exclude (Fleisher & Bensoussan 2003:295). An additional critical issue is the fact that scenarios facilitate learning of low real and opportunity costs (Gilbert 2000:13), and compared with other analytical techniques, increase the likelihood of intelligence actionability. Scenario analysis also enables the firm to build a strong early warning foundation with regard to the uncertain and dynamic competitive environment, whilst it has the ability to develop senior management support (Sawka 1997:86).

As a corollary to the above-mentioned strengths, scenarios can be used to help determine a competitive force's source of competitive advantage, whilst it can also be used to predict both its possible offensive and defensive moves. In addition, few frameworks of analysis are so ideally suited to link the strategy and knowledge challenges in the firm as scenarios. (Fahey 2003:7). In this context, scenarios serve a number of strategy-related purposes. These include the following:

- Scenarios foster preparedness and improve strategic decision making (Corporate Strategy Board 1999:9).

- Scenarios compel management to anticipate a range of potential futures, and to prepare for them before they occur.

- Scenario learning entails the development of knowledge about the future (and the present) and the interpretation of such knowledge into decision making (Fahey 2003:8).

Lastly, it can be argued that scenarios allow the firm to develop a new understanding of the present (Fahey 2003:12&13).

b   *Weaknesses*

In contrast to the number of strengths mentioned above, in the last number of years, the application of the scenario analysis methodology has declined markedly. This is, however, common with most forms of long-range forecasting. According to the Corporate Strategy Board (1999:18), it is possible that some part of this reduction in use arose from the shortening of planning horizons that accompanied the deepening global recession during the early 1990s. On the other hand, the evidence suggests that the fall from favour of scenario analysis started earlier than this, and was at least as much the result of the complexity of the process itself. This complexity could no longer be supported when the large corporate planning departments were disbanded, and many of the responsibilities passed to line management, earlier in the 1980s. As a corollary to this, in a Bain and Company study, scenario analysis scored third lowest from 25 management tools with regard to the user's satisfaction (in Corporate Strategy Board 1999:4).

In addition to the above-mentioned limitations, scenarios have been designed to clarify longer-term visions without regard for shorter-term decisions. As a result, middle and senior managers often find that time-consuming scenario analysis efforts are distractions that provide little insight into the crucial strategic decisions at hand. Too often, scenario planners have ''spent too much time going down paths that most of the organisation didn't feel were the slightest bit relevant'' (Courtney 2003:14). Scenario writers should therefore keep a fine balance between anticipating creatively what the future holds and still being realistic about it.

Another danger in scenario analysis is the fact that management may relegate strategy formulation solely to scenario analysis, whilst the scenario group may employ the tendency to select the scenario that best fits the firm's current strengths. In addition, group consensus may be difficult to reach. The significant time investment that scenario analysis demands often prevents sufficient decision-maker participation, undermining effective use and hindering a direct link with decision making; practitioners should seek to demonstrate

strategic relevance of scenario analysis to decision makers in order to secure the minimum necessary level of participation (Corporate Strategy Board 1999:18).

Scenario analysis users frequently have misconceptions about the tool's time horizon for recouping its sizable initial investment. Hence they often become disillusioned when tangible evidence of the effect of scenario analysis's on strategic decisions fails to materialise quickly (Corporate Strategy Board 1999:22). In addition, the ongoing resource intensity that scenario analysis requires, coupled with the intangibility of results, may erode organisational support over time (Corporate Strategy Board 1999:28).

4.5.14.6   *DACSOMEF evaluation*

It is evident from the foregoing discussion that scenario analysis could be applied over a wide spectrum of possible topics. The methodology also relies heavily upon the underlying analysis preparation, as well as the time and funding available for a particular project. Consequently, it could be somewhat subjective to apply the DACSOMEF evaluation method to the analysis methodology. However, taking into consideration the optimal underlying analysis support available, the findings below apply to scenario analysis from a competitive learning perspective. These findings are based upon the identified key elements of the DACSOMEF rating and evaluation scale.

a   *Dynamic competitive environment*

Scenario analysis in the context of competitive analysis is primarily focused upon anticipating the influence of the different forces and activities in the competitive environment. However, the depth of understanding the dynamics in the competitive environment would largely depend upon the specific scope of the particular scenario analysis project. From the identified steps in table 4.29, it is evident that a great deal emphasis should be placed on the analysis of the competitive environment.

In this regard, Courtney (2003:14), views scenario analysis as the perfect tool for managers making strategic decisions in today's highly uncertain, turbulent business environments. Yet according to a Bain and Company survey, a declining number of

business executives use scenario-planning tools. However, if well applied, scenario analysis could amply assist a firm to develop better decisions today about possible alternative outcomes tomorrow.

b **Assets**

Based upon the specific topic being analysed, scenario analysis does not primarily apply a qualitative or quantitative view of a competitive force's assets. However, it would utilise such information accrued from other analytical methodologies to narratively describe possible future outcomes for a competitive force, based upon its assets. Of importance is the fact that in the context of competitive learning, scenario analysis would have a future oriented view of a competitive force's assets.

c **Capabilities and competencies**

As in the case of analysing a competitive force's assets, scenario analysis does not by first intent make provision for the in-depth analysis of such a force's capabilities and competencies. However, it does use information accrued from other analytical methodologies and sources to determine the possible future influence thereof on such a competitive force's future intent.

d **Strategy**

Scenario analysis focuses strongly upon the influence of various possible futures on a firm's future strategy. Consequently, it could be argued that the analytical methodology makes provision for determining the possible future strategic alternatives available to a competitive force.

e **Organisational infrastructure**

Scenario analysis does not primarily make provision for an in-depth analysis of a competitive force's organisational infrastructure and culture. However, it does use information accrued from other analytical methodologies and sources to determine the possible future influence thereof on such a competitive force's future intent.

f   *Management mindset*

Scenario analysis does not primarily make provision for an in-depth analysis of a competitive force's management mindset. However, if properly applied, it does use information obtained from other analytical methodologies and sources to determine the possible future influence thereof on such a competitive force's future intent.

g   *Environmental relationships*

Scenario analysis does not primarily make provision for an in-depth analysis of a competitive force's environmental relationships. However, if properly applied, it does use information collected from other analytical methodologies and sources to determine the possible future influence thereof on such a competitive force's future intent.

h   *Future intent*

Scenario analysis is primarily focused upon possible alternative outcomes of a specific part of the future. In this regard, scenario analysis is one of the leading analytical methodologies that endeavours to initiate competitive and scenario learning about the future. However, the focus in scenario analysis is not primarily to develop an accurate picture of tomorrow, but to initiate better decisions about the future, today. Consequently, one of the major advantages of scenario analysis, if correctly applied, is the liberation of people's insights (Schwartz 1991:7–9).

In addition, the final and indeed most critical stage in scenario analysis from a competitive learning perspective is the determination of decision and action implications for the home firm. The different phases of the scenario analysis process, as indicated in section 4.5.16.3, are intended to help identify these types of implications. Hence the emphasis and focus should shift from understanding a competitive issue or competitive force to determining what the home firm might do, and why (Fahey 1999:81).

4.5.14.7   Conclusion

Scenario analysis, as described in section 4.5.16.3, focuses strongly on the alternative future outcomes of a wide array of possible topics. According to the DACSOMEF key elements and rating scale, scenario analysis generates the following score out of 100:

Table 4.30: Rating of scenario analysis according to the DACSOMEF evaluation scale

Characteristic	Rating scale		
	A Extent to which model addresses specific characteristic	B Importance in context of competitive learning	Overall Score (A x B)
	Weight	Rating	
Dynamic competitive environment	10.00	0.90	9.00
Assets	15.00	.50	7.50
Capabilities	12.50	.50	6.25
Strategy	15.00	.80	12.00
Organisational infrastructure	10.00	.50	5.00
Management mindset	12.50	.50	6.25
Environmental relationships	10.00	.50	7.50
Future intent	15.00	1.00	15.00
Overall score	**100**		**68.50**

It is evident in the above-mentioned evaluation that scenario analysis does comprehensively address certain key elements in the DACSOMEF scale. However, its effectiveness is strongly dependent on the supporting information sources and analysis. An important fact about the analytical methodology is its future orientation. In this regard, the analytical methodology is not primarily focused upon an accurate picture of tomorrow but to initiate better decisions today (Fleisher & Bensoussan 2003:295).

According to the Corporate Strategy Board (1999:1), a fast-paced and increasingly global economy, along with recent high-profile corporate losses, is leading firms to consider a more comprehensive approach to manage risk. Research suggests, and it is thus recommended, that to maximise the effectiveness of a firm's ability to manage future uncertainties and risk in the competitive environment, firms should integrate different techniques such as early warning systems, competitive and scenario analysis processes, as part of a larger, dynamic risk management process (Corporate Strategy Board 2002:1).

4.6   COMPETITIVE ANALYSIS IN ITS STRATEGIC CONTEXT

4.6.1   Introduction

Through the myriad of competitive analysis models, techniques and frameworks being used by firms around the world, of which 12 of the most prominent methods have been analysed in this thesis, it is evident why the competitive analysis phase in the competitive intelligence cycle is perceived to be the real value-creating part thereof. It is also apparent why competitive analysis defines the very demeanor of competitive learning.

Competitive intelligence, and for that matter the ultimate objective of competitive analysis is to capture the learning coefficient from the impact of the competitive environment on the home firm, creating insight and incorporating such wisdom into the firm's competitive strategies. In a competitive environment fraught with uncertainty, the latter task becomes extremely difficult, even at the best of times (Courtney, Kirkland & Viguerie 1997:3) The accelerating speed and complexity of change in the business environment places a heightened premium on the timely and rigorous understanding of developing threats and opportunities (Corporate Strategy Board 2000:2). Hoyt (2002:11) elaborates on this view when he argues:

> *The biggest challenge firms face today is outside of the organisation. These challenges are not only from outside the firm, but in many instances outside the industry.*

As a corollary to the above-mentioned views, a firm's competitive intelligence system should thus play a critical role in monitoring the external impact on the firm. Such a competitive intelligence capability should thus have its one foot, in a manner of speaking, in the reality of the business environment, whilst the other foot should be firmly positioned in the firm's strategic decision-making process. From this systems perspective, a chain with interrelated links comes to mind. The Scenario Management Institute (2003) perceives such a competitive intelligence system graphically as depicted in the following figure:

Figure 4. 7: A systems approach to strategic or competitive analysis, early warning, scenario development and strategic planning
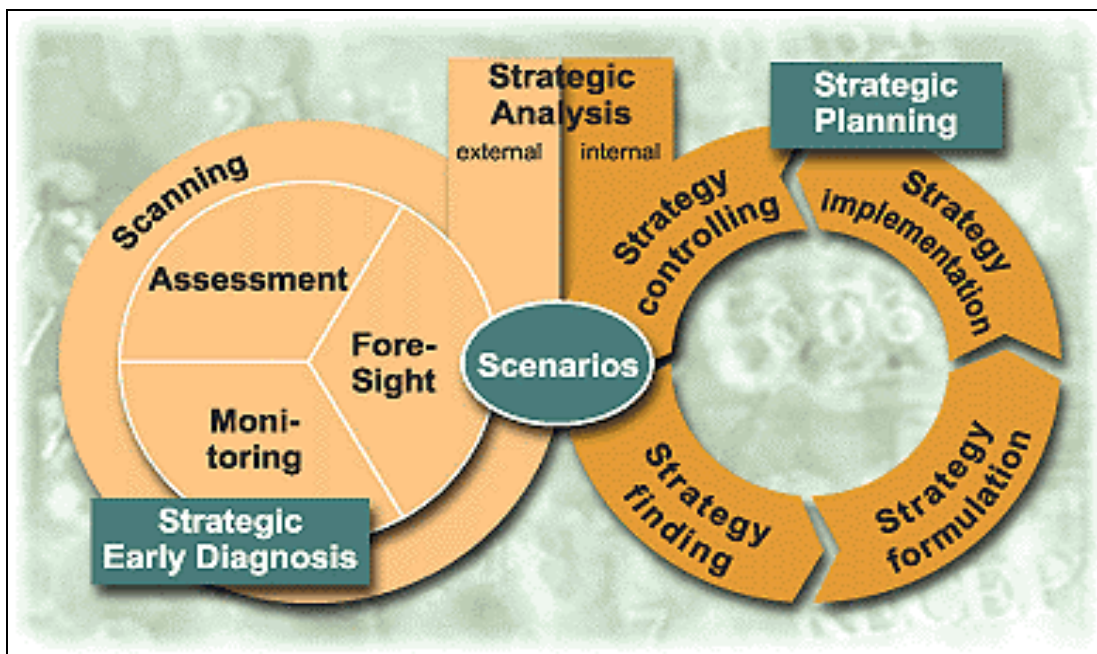
Source: Scenario Management Institute (2003)

Certain interrelated links, albeit each focusing upon the bigger issue of competitive advantage in the context of competitive learning, is clearly evident in the above-mentioned figure. These interrelated parts include:

- strategic and competitive analysis

- early warning

- scenario development

- strategic planning and implementation

Various authors (Gilad 2003; Sawka 2003; Hoyt 2002; Kober 2003; Michaeli 2003) largely concur with this view. Apart from the important role of competitive analysis and scenario development, already discussed in this thesis, Hoyt (2002:11), in particular, views early warning and strategy both as critical components of the firm's position in the competitive environment. In this regard, strategy concerns the firm's intentions for the world, whilst early warning focuses upon what the world wants to do with the firm.

A brief discussion of two of the above-mentioned steps, that is strategic early warning and the link between competitive analysis and the firm's strategic process, requires some additional explanation.

4.6.2 Competitive early warning

The best way to describe the need for early warning is found in the words of Fuld (2003:1) when he argues that a firm should never say:

Why didn't we see this coming?

However, in today's information-rich business environment, many firms, even with the best intentions, easily become bogged down by the vast amount of data available – from market and financial reports to trade journals and surveys, to many other related pieces of

data. The more difficult part, however, is to separate the wheat from the chaff. According to Fuld (2003:1), that is exactly where an early warning system comes into play.

Various authors (Hoyt 2002; Sawka 1998; Fuld 2003; Kober 2003; Michaeli 2003; Gilad 2004) each have their own personal views on creating an early warning system within the competitive intelligence process. Although there are specific personal inclinations about the dynamics and process of such a system, the over-riding importance of an early warning system remains largely in tact – that the firm should not be surprised!

As a corollary to the above, the objective of an early warning system is to scan the competitive environment in order to detect, at an early stage, any changes that may have an impact on the firm. This should be done in such a way that the home firm should not be surprised. In this vein, an early warning system should be able to scan the competitive environment in order to pick up early on any changes that may have an impact on the firm. According to Gilad (2004:60) and Fahey (1999:79), scanning the competitive environment needs to be conducted in a structured and meticulous manner in order to move continuously towards an improved view of events happening as signs of early risk and opportunities appear. Such an early warning system can be graphically illustrated as in figure 4. 8 below:

Figure 4.8: The competitive early warning triangle

Competitive environment

Risk identification

Continued monitoring

Gathering competitive data

Management decisions & action

Monitoring intelligence signals

Assess competitive implications
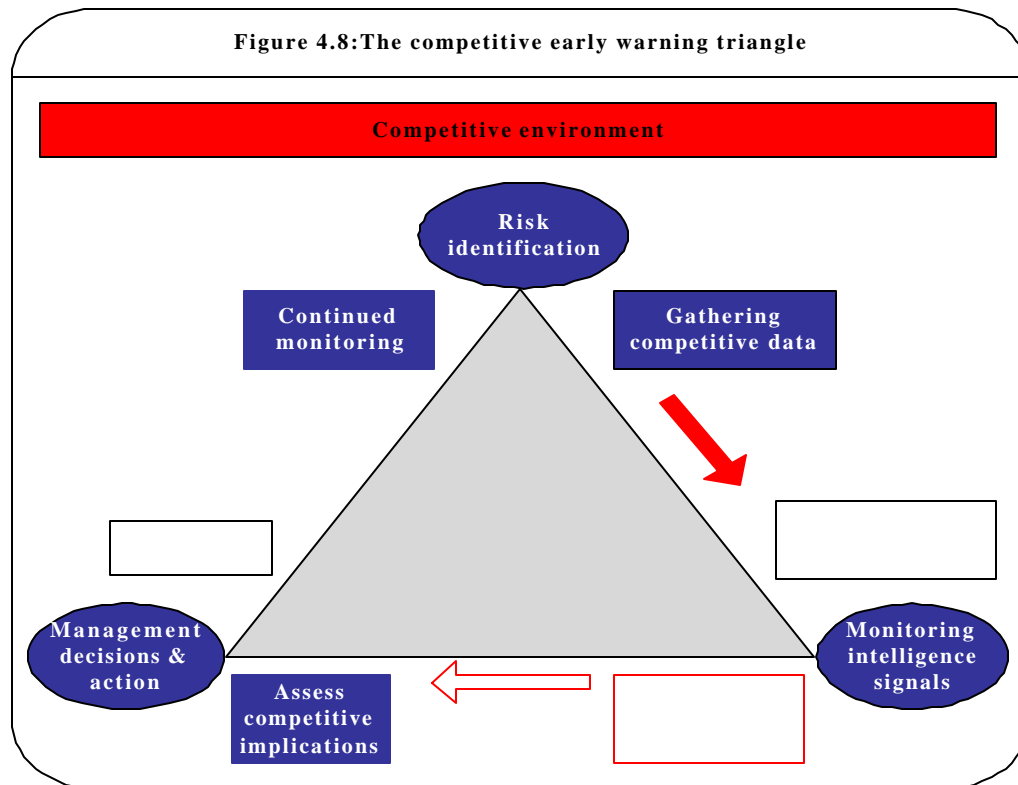
Source: Adapted from Gilad (2004:60); Fahey (1999:79)

Gilad (2004:59) also concurs that an early warning framework begins with the identification of broad areas of strategic risks (and opportunities), proceeds through monitoring for early signs or anomalies, and ends up with inducing management action. Hoyt (2002:10) emphasises the fact that the mentioned early signs of change or anomalies, in many instances, easily go unnoticed, because the contemporary business complexities demand concentration by management on other crucial issues. Additionally, critical and significant information is often purposely concealed or disguised.

According to Hoyt (2002:11) an early warning system should be an integral part of any competitive intelligence system, the objective being to scan the competitive environment in order to detect change early. It should also be closely linked to the firm's strategic decision making process.

4.6.3   Competitive analysis and the firm's strategic decision-making process

Over the years, the quality of strategic decision making in the business context has always relied heavily on the acquisition and usage of knowledge about the external or competitive environment. Various authors have substantiated this phenomenon (Porter 1980; 1985; 1998; Grant 1998:176; Ghemawat 2001:1–16; 35; Pearce & Robinson, 2003:3; 56-94).

However, as the business environment becomes more turbulent and less predictable, with competition intensifying, firms have been seeking for improved ways to collect and analyse information that could have an impact on their strategic priorities (Corporate Strategy Board 2000:vi). In this context, competitive analysis, as part of a comprehensive and structured competitive intelligence process, has branched out from marketing research and added a new dimension to the acquisition of knowledge about the competitive environment. A significant benefit of contemporary competitive intelligence is that it is geared towards the provision and interpretation of certain kinds of qualitative analysis. In so doing, it embraces techniques from military and political intelligence (Walle 1999). In the competitive analysis context, this "qualitative analysis" is done in combination with contemporary quantitative business analysis.

The Corporate Strategy Board (2000:1) argues that when a firm strengthens the links between strategy and competitive intelligence, it allows for nimbler and more responsive strategy creation. Consequently, a growing number of firms around the world have established competitive intelligence functions. In a survey by Frost and Sullivan (Corporate Strategy Board 2002:1) it surfaced that 78% of the successful firms (ie firms experiencing consistent growth in revenues) that were polled stated that the competitive intelligence function was a critical element of their business and marketing strategy. It is thus evident that the integration of competitive intelligence, and for that matter competitive analysis, into a company's organisational and strategic fabric is a critical element of such a firm's long-term competitive advantage. However, if the firm's top management perceives competitive analysis as yet another "backroom" ad hoc function, it becomes a futile exercise.

Contrary to the findings of Frost and Sullivan (1998), Venter (2001:16) ascertains in another study that, in a strategic context the information gaps for top management are the largest for the most important categories of information (ie competitor strategies and customer feedback or their real intentions). In addition, Fahey (1999:65–85) emphasises the fact that competitive analysis, as practised in many firms, focuses far too heavily on the current strategies of the different competitive forces and neglects their likely future strategic alternatives. Competitive analysis all too often concentrates on documenting and understanding a competitive force's current and past strategies and actions. By contrast, what a competitive force's real future intentions are, why they would do so, and what the implications might be, receive comparatively little attention. Hughes-Wilson (1999:7) elaborates on this node when he argues that determining a competitive force's real intentions is fiendishly difficult to quantify because it can change like the weather.

Consequently, strategy formulation that pays little, or worse, no attention to the future intentions of the various competitive forces in the competitive environment is extremely risky, or downright imprudent. Hence the delivery of actionable intelligence about the future intent of a competitive force on which decision makers in the firm can base informed decisions, stands out as the pinnacle of competitive learning. A catalyst to the foregoing is the fact that ambitious, intelligent and entrepreneurial firms are not satisfied with adhering to the game's prevailing conditions, because they want to set the rules of engagement, or at least influence those rules in a major way. They, furthermore, recognise that flux breeds opportunity, which should be exploited before other firms take the initiative (Fahey 1999:13).

Determining the dynamic future intent of the various forces in the competitive environment and the dynamic relationships between the various parties should thus be the all encompassing focus of competitive analysis in the context of competitive learning and strategic decision making. However, many firms receive little value from their annual strategic-planning processes because, in many instances, they are based upon rather an ad hoc once-a-year scanning of the competitive environment. Beinhocker and Kaplan

(2002:49) argue that these processes should be redesigned to support real-time strategy making and to encourage "creative accidents".

In addition, it is apparent that many corporate competitive environmental scanning processes in firms are frequently conducted from the home firm's own perspective and pay scant attention to the real future intention of the various forces in the competitive environment. Competitive analysis, properly focused upon these competitive intentions, could play a major role in improving a firm's strategic decisions and hence its long-term competitive advantage. This topic, however, provides much scope for future research.

4.7   COMPETITIVE ANALYSIS AND GLOBAL COMPETITIVENESS

According to Govindarajan and Gupta (2001:1), we live in an increasingly global world, which means that a firm should not only care about its domestic business endeavours, but also and perhaps even more about the risks, opportunities and influences awaiting it across its national borders. The Asian financial crisis of the late 1990s, increased trade and trade agreements between countries, developments in information and transportation technologies, disasters such as 11 September 2001 event, increased competition, and evolving customer attitudes illustrate this mere fact quite explicitly. Consequently, the above authors (2001:2) argue that every industry must be considered a global industry and every firm must realise that globalisation is no longer an option but a strategic imperative for all but the smallest firm.

In such a global world, a firm may need to change from one that allows individual subsidiaries to compete independently in different domestic markets, to a global organisation, which coordinates and involves its entire worldwide system of product and market position against the competition (Porter 1998:289-290). Hence the global competitive scenario compels such a firm's top management to change the way it thinks about and operates its businesses (Porter 1998:302). In this regard, Fleisher and Bensoussan (2003:7) emphasise the fact that firms can no longer expect competitive

forces to compete or conduct business by means of outmoded rules or methods of competing because global business, in many instances, may not even appear logical, insightful or even ethical, yet still remain legal. Against this background, Pearce and Robinson (2003:103), argue that global strategic planning is far more complex than purely domestic planning for a number of reasons:

- Global firms face multiple political, economic, legal, social and cultural environments as well as various rates of changes in each of them.

- Interactions between the national and foreign environments are complex, because of national sovereignty issues, and widely differing economic and social conditions.

- Geographic separation, cultural and national differences, and variations in business practices all tend to make communication and control efforts between headquarters and overseas affiliates difficult.

- Global firms face extreme competition, because of differences in industry structures.

- Global firms are restricted in their selection of competitive strategies by various regional blocs and economic integrations (ie the European Economic Community, the Latin American Free Trade Area, etc).

Pearce and Robinson's reasoning about the complexity of conducting global business, relates strongly to Gupta and Govundarajan's (2001:8) constructs of globality, necessary to create a global competitive advantage. Based upon this argument, it is evident that the overriding factor about global business is its increased complexity and the balancing act necessary to achieve the evasive global sustainable competitive advantage. This is evident in the vast number of strategic actions available to any global firm, which apart from outmoded one-dimensional production and sale initiatives, may include the following:

- niche market exporting

- licensing/contract manufacturing

- franchising

- joint ventures

- foreign branching

- wholly owned subsidiaries (Pearce & Robinson 2003:112–115)

- mergers and acquisitions

- co-opetition

The above-mentioned strategic actions by no means factor-in all the risks and opportunities impacting in a dynamic manner on the firm's competitiveness, but still confirm the dynamics and complexity of the global business environment. Consequently, the dynamic collection and analysis of global competitive information takes on a whole new demeanour. Fleisher and Bensoussan (2003:7) emphasise this fact when they argue that because of this new global competitive culture, the need to thoroughly understand its dynamic context grows in importance.

The question thus arises: how should a firm conducting business in a global manner, address this complex issue? John Pepper (1999:4) previous chairman and chief executive officer (1995–1999) of the global consumer goods firm, Procter and Gamble, however, has strong views on this matter:

> *I can't imagine a time in history when the competencies, the skills, and the knowledge of the men and women in competitive intelligence are more needed and more relevant to a firm being able to design a winning strategy and act on it.*

Pepper (1999), subsequently realising the critical importance of competitive intelligence in conducting business in a hostile global business environment, based his theorem on certain critical aspects, which include the following:

- It is necessary to change the firm's attitude towards information from a "need to know" to a "need to share" basis.

- Competitive intelligence should be embedded in the firm's strategy development and option analysis.

- Top management should be deeply involved in all the firm's competitive intelligence endeavours and be the primary client for the competitive intelligence division's products and insights.

- It is necessary to create a "hub & spoke" competitive intelligence structure whereby every business unit or division has a competitive intelligence capability, all linked to the central coordinating corporate function.

- Competitive intelligence collection is not a single person or division's responsibility, but should be a corporate wide responsibility.

- Dynamic competitive response modelling or analysis is important.

Several other global firms largely concur with the Procter and Gamble approach to conducting business in a global environment and the critical importance of intelligence and competitive analysis information therein. In a benchmark study initiated by the American Productivity and Quality Centre (APQC) in 1996 (Prescott, Herring & Panfely 1997) certain key issues, largely supporting the Procter and Gamble approach, were highlighted. These are:

- evolving, yet a stable competitive intelligence infrastructure

- institutionalising an intelligence culture in the firm

- decentralised, but coordinated collection intelligence networks

- a responsive information technology system, operating as a learning system

- linking competitive intelligence to the strategic process in the firm

- linking competitive intelligence to client feedback and implementation

- hypothesis-driven analysis and recommendations

With regard to the latter, in the same study, Herring concurs that a critical attribute of competitive analysis should be the ability to assess a current situation with an intelligent mind and be able to put that situation into a future context. This attribute largely supports the very basis of this thesis that is competitive learning by means of competitive analysis. In conclusion, it gives much substance to the words of Hamel (Fahey & Randall (1998:vii):

> *The race to the future is the race to maximise the ratio of learning over investment…*

4.8   SUMMARY AND KEY FINDINGS

An organisation needs to recognise the basic fact that competitive learning about the competitive forces in its competitive environment should rely heavily upon an open-ended learning process. In an effort to link answers to key questions surrounding certain competitive forces, more than a hundred analytical models, methods and techniques have been used in competitive analysis endeavours. Many of these analytical techniques and

models have been adaptations of business, industry, strategy, marketing, financial and technology analysis techniques because very few pure competitive intelligence analytical techniques and models have been developed. Competitive analysis is, however, perceived to be more a process than the application of a specific type of technique – often requiring the appropriate combination of analytical techniques and intelligence collection to generate appropriate action.

Recent years have seen the competitive analytical task in organisations becoming more quantitative in character, whilst such analysis is based largely on training from business schools, primarily focusing on financial and management accounting. In addition, most businesspeople conducting competitive analysis in organisations base their analysis on historical data and financial ratios, on the strength of the data they happen to have easily on hand, as opposed to the data they should have. However, in the context of competitive learning, determining the future intent of a competitive force should be the all-encompassing focus of competitive analysis. In this regard, certain key characteristics are perceived in this thesis to be important in the context of competitive analysis, with regard to the determination of the future intent of a competitive force. These key characteristics are known as the **DACSOMEF** characteristics, and include the following:

- **D**ynamics: What are the dynamics in the competitive environment that such a competitive force experiences on a continuous basis?

- **A**ssets: What tangible and intangible assets does the competitive force have?

- **C**apabilities and competencies: What are the competitive force's capabilities and competencies?

- **S**trategy: What strategies does it follow?

- **O**rganisational infrastructure: What does the competitive force's organisational structure look like?

- **M**indset of the management: What behaviour can we expect from the key decision makers in a competitive force?

- **E**nvironmental relationships: What environmental relationships does the competitive force have with other stakeholders in its competitive environment?

- **F**uture intent: What is the future intent of a competitive force?

Hence a rating scale based on the General Electric Business Screen Matrix has been developed to assess the capability of an analytical technique or model to determine the future intent of a competitive force in the context of competitive learning, according to the DACSOMEF key characteristics. According to the latter rating scale, 13 competitive analysis methods and techniques that best serve the purpose of competitive analysis the best, achieve the following scores out of 100, as indicated in table 4.31.

Table 4.31: Summary of 13 analytical methods and techniques according to the DACSOMEF evaluation scale

Analytical technique vis-à-vis DACSOMEF	Dynamic competitive environment (10)	Assets (15)	Competencies & capabilities (12.50)	Strategy (15)	Organisational structure & culture (10)	Management mindset (12.50)	Environmental networks (10)	Future intent (15)	Overall score out of 100
Porter's five forces	8.00	9.00	2.50	10.50	2.00	1.25	6.00	7.50	46.75
Strategic group analysis	8.00	10.50	5.00	12.00	2.00	1.25	6.00	9.00	53.75
Functional capability & resource analysis	8.00	13.50	10.00	13.50	7.00	7.50	8.00	12.00	79.50
Financial ratio & statement analysis	3.00	12.00	1.25	6.00	1.00	3.75	3.00	4.50	34.50
Strategic funds programming	0.00	7.50	0.00	12.00	0.00	3.75	1.00	7.50	31.75
Sustainable growth rate analysis	1.00	6.00	0.00	7.50	0.00	3.75	2.00	7.50	27.75
BCG's growth-share matrix	2.00	4.50	0.00	6.00	0.00	3.75	2.00	4.50	22.75
SWOT-analysis	4.00	6.00	5.00	6.00	3.00	2.50	3.00	3.00	32.50
Value chain analysis	5.00	9.00	7.50	7.50	4.00	3.75	5.00	7.50	49.25
Competitive behaviour profiling	0.00	3.00	3.75	7.50	2.00	12.50	2.00	7.50	38.25
Competitor analysis	7.00	13.50	11.25	13.50	8.00	8.75	7.00	13.50	82.50
Stakeholder analysis	4.00	3.00	2.50	6.00	1.00	5.00	1.00	6.00	28.50
Scenario analysis	9.00	7.50	6.25	12.00	5.00	6.25	7.50	15.00	68.50

After studying the myriad of competitive analysis models, techniques and frameworks used by firms around the world, of which 13 of the most prominent methods were analysed in this study and summarised in table 4.31, it is evident that competitor analysis (82.50%), functional capability and resource analysis (79.50%), and scenario analysis (68.50%) were the analytical methods that received the highest fallout according to the DACSOMEF evaluation and rating scale. Hence it could be argued that the latter analytical methods could form the foundation of the envisaged DACSOMEF analytical method, which will be discussed in chapter 7.

As a catalyst to the foregoing, a firm's competitive intelligence system, and thus competitive analysis, should play a critical role in monitoring and analysing the turbulence in the competitive environment. In this regard, it is important to strengthen the links between strategy and competitive intelligence, and for that matter, competitive analysis. In such an event, it allows the firm to respond in a nimbler and more responsive manner in its strategy creation to the turbulence of the competitive environment.

CHAPTER 5

RESEARCH METHODOLOGY

5.1 INTRODUCTION

Research involves the application of various objective methods and techniques to create scientifically obtained knowledge (Welman & Kruger 2001:2). This view explicitly implies that a research project should be well organised and planned, and that it should be unbiased and unemotional in fulfilling its responsibilities.

In accordance with the aforementioned requirements, the first four chapters of this thesis provided a theoretical outline of the general business context and dynamics of the global mining industry and focused upon competitive analysis as part of a comprehensive competitive intelligence system. It also provided an assessment of 13 of the most applicable analytical techniques which, according to various authors (Fleisher & Bensoussan 2003; Ghemawat 2001; Grant 1998), best serve the purpose of competitive and strategic analysis. The latter assessment was done according to certain key characteristics included in the DACSOMEF evaluation and rating scale, in the context of competitive learning.

This chapter builds upon the previous chapters and outlines the research methodology followed to complete the empirical part of this thesis as detailed in chapter 6. This empirical research will be conducted in order to achieve the primary objective of this thesis - the development of a dynamic competitive analysis model for a global mining firm, which will be covered in chapter 7.

The latter analytical model will be developed from an inductive perspective, according to the principles of grounded theory (Strauss & Corbin 1998; Glaser & Strauss 1967). In such an inductive approach, the researcher begins with detailed observations of the world and moves towards more abstract generalisations and ideas. Grounded theory is part of an inductive approach in which a researcher builds ideas and theoretical generalisations after closely examining and creatively thinking about the data (Neuman 2003:51–52). Grounded theory was deemed suitable because it provides a framework for the development of a new theory (model) from existing sources. In addition, the analytical

model will be broadly be based upon Beer's holistic view of the organisation (Beer 1972 & 1979).

The steps in the research process followed in this study are depicted in figure 5.1.

Figure 5.1:
The research process

```
                    1
          Defining the research
               objectives
                    |
                    v
                    2
            Research design
                    |
                    v
                    3
              Collecting
               the data
                    |
                    v
                    4
          Data analysis and  ------------------->        5
           interpretation of                    Develop a dynamic competitive
               results                          analysis model according to the
                                                 principles of grounded theory
                                                             |
                    6                                        |
           Conclusions and   <-------------------------------
           recommendations
```
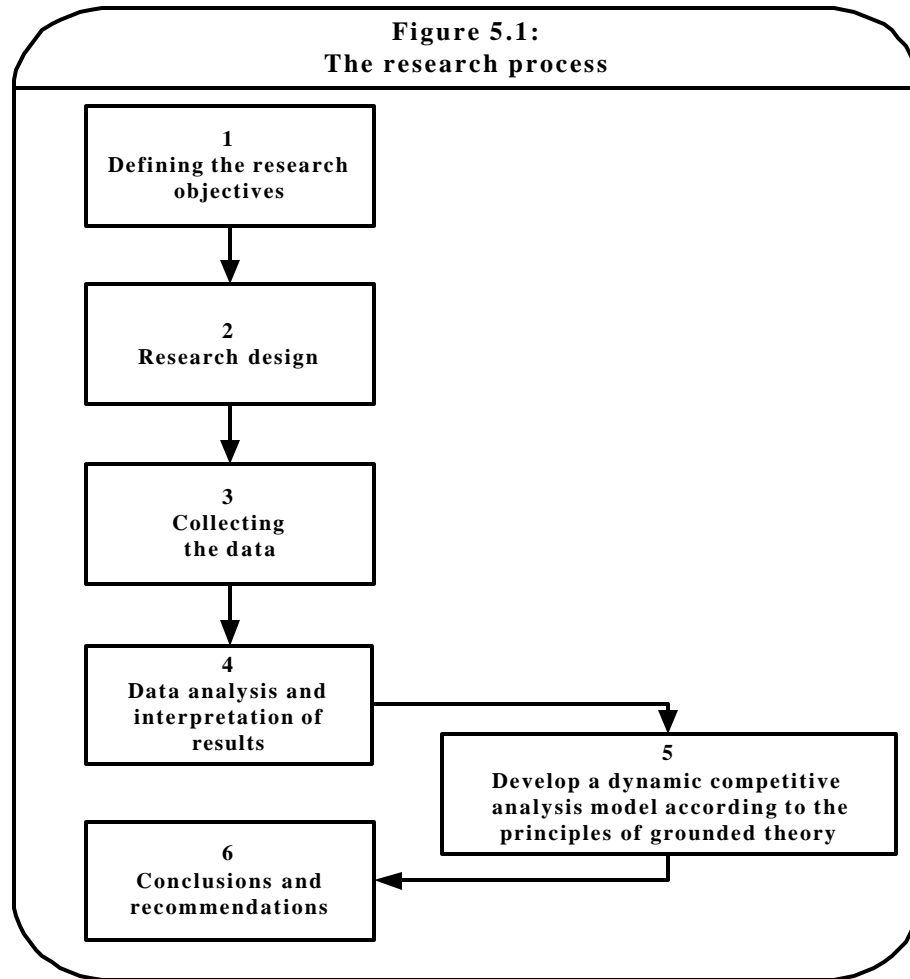
Source: Adapted from Brink (1997:243); Welman & Kruger (2001:32) Strauss & Corbin (1998); Glaser & Strauss (1967); Neuman (2003:51–52)

5.2   RESEARCH OBJECTIVES

This section reviews the research objectives formulated in chapter 1 (see section 1.3). The primary objective of this study is to develop a dynamic competitive analysis model for a firm active in the global mining industry.

The secondary objectives of the study involve the following:

- To obtain insight into the business characteristics and dynamics of the contemporary global mining industry

- To conduct an in-depth study of competitive analysis, and determine the global trends in competitive analysis

- To determine whether there is a need for competitive analysis in global mining firms

- To promote an understanding of how competitive analysis is being applied in the global mining industry

- To determine the influence of competitive analysis on the effectiveness of global mining firms' strategic decision making.

5.3   RESEARCH DESIGN

5.3.1   Introduction

According to Brink (1997:244) and Malhotra (1996:86), a research design is a framework or a detailed blueprint to guide a research project towards its objectives. The following figure illustrates the five components included in a research design.

Figure 5.2: Components of a research design

| Design the exploratory and/or conclusive phase of the research | → | Determine the sources of data | → | Define the population | → | Determine the data collection approaches and methods | → | Construct and pretest the question-naire |
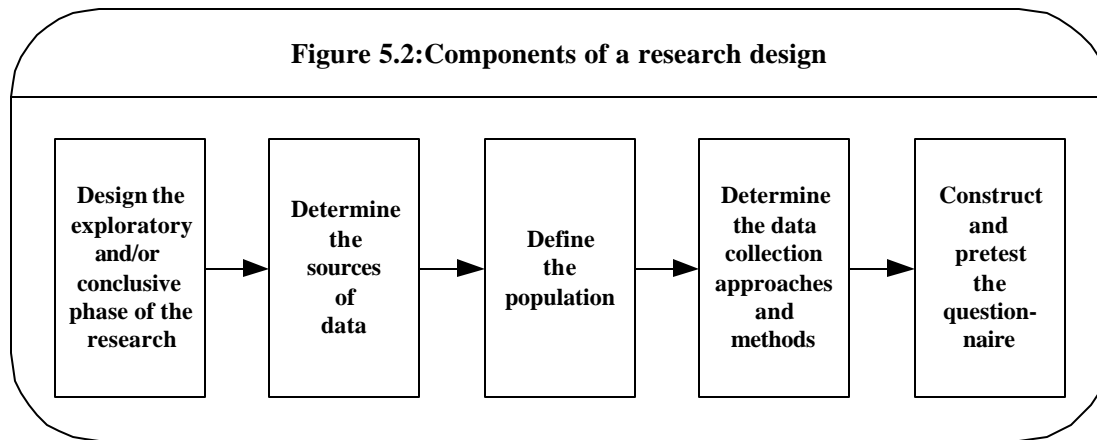
Source: Brink (1997:244); Rudansky-Kloppers (2002:235); Malhotra (1996:91); Van der Walt, Strydom, Marx & Jooste (1996:148–151)

The components included in a research design will now be discussed separately.

5.3.2 Design the exploratory and/or conclusive phase of the research

One of the most significant decisions in a research project is the choice of the research design because it determines how information for the project will be obtained. Research designs may broadly be classified as exploratory or conclusive (Brink 1997:63 & 245; Malhotra (1996:84–102); Kinnear & Taylor (1996:139).

5.3.2.1 Exploratory research designs

The primary objective of exploratory research is to understand the general nature of a problem, the possible decision alternatives available and relevant variables that need to be considered. In addition, there is little prior knowledge of the problem. Exploratory research is also highly flexible, unstructured and qualitative. This is so because the researcher starts without firm preconceptions about what will be found. It can thus be argued that the absence of structure permits some pursuit of interesting ideas about the problem. Exploratory research includes secondary data sources, literature reviews, observation, unstructured individual and group interviews with knowledgeable persons, as well as case studies (Brink 1997:245).

The literature study undertaken in chapters 2 to 4 reflects the exploratory phase of this study. This exploratory research had one important goal – to learn from others and stimulate new ideas (Neuman 2003:96). The bibliography of this study contains a comprehensive list of secondary sources consulted, and falls, according to Mouton (2001:96), falls within an acceptable range of between 150 to 580 references for a doctoral thesis in the social sciences.

In the context of the literature study of this thesis, the following important criteria were adhered to. These are (Mouton 2001:90-91):

- It should be exhaustive in its coverage of the main aspects of the study.

- It should be fair in its treatment of authors.

- It should be topical and not dated.

- It should not be confined to Internet searches only.

- It should be well organised, structured and logical.

5.3.2.2 *Conclusive research designs*

Conclusive research provides information, that helps the researcher to evaluate and select a course of action. Conclusive research can be subclassified into causal and descriptive research (Brink 1997:245-246); Rudansky-Kloppers 2002:236-237).

a *Causal research*

Causal research is normally used to obtain evidence of cause and effect relationships. Causal research is conducted by controlling various factors in order to determine which variable is the cause of what is being predicted. The aim is to understand the functional relationship between the causal factors and the effect to be predicted. Although causal

research designs promote a high level of understanding of the variables being studied, the designs often require experiments. Against the background of the foregoing discussion, the research for this thesis did not focus on causal research.

b   *Descriptive research*

The objective of descriptive research is to describe certain variables. Descriptive research may be conducted to describe the characteristics of relevant groups in the research project. Because descriptive research assumes that the researcher has prior knowledge about the problem situation, the information required is clearly defined. Effective descriptive research is characterised by a clear statement of the problem, specific research objectives and detailed research design.

Descriptive research typically makes use of the survey research design, which is useful in describing the key characteristics of the relevant groups in the research project. Hence in this thesis, descriptive research was selected to investigate the application of competitive analysis and its influence on strategic decision making in global mining firms.

5.3.3   Determine the sources of data

In general, there are two types of information available to a researcher, namely secondary and primary sources. Secondary sources include data and information that have already been published, collected for purposes other than the specific research needs under investigation. Primary data are collected specifically for the research problem at hand.

Secondary data can be collected relatively quickly and inexpensively from libraries, industry associations, regulatory bodies, marketing and financial analysis organisations, tertiary educational institutions, bulletins, journals and the Internet. This type of information can be of assistance in the research process in various ways. These include the following (Brink 1997:246–247):

- Help to identify the research problem.

- Better define the problem.

- Develop an approach to the problem.

- Formulate an appropriate research design.

- Answer certain research questions.

- Test some hypotheses.

- Interpret primary data more insightfully.

In this study, extensive use was made of secondary data on the global mining industry and competitive analysis, as is evident in the first four chapters. As indicated above, the other types of data available in a research project are primary data. Various authors (Malhotra 1996:163; Kinnear & Taylor 1996:143) confirm that primary data may be qualitative or quantitative. Qualitative research involves the collection, analysis and interpretation of data through the observation of people. In contrast, quantitative research is perceived as the traditional pinnacle of the research industry whereby a representative sample of the population under investigation is involved. A formalised procedure for gathering the data is being used, whilst some form of statistical analysis is conducted. The empirical phase of this study was based upon quantitative research, using a self-reporting survey questionnaire with predetermined and structured questions (Mouton 2001:99; Welman & Kruger 2001:146). In certain instances, personal interviews based upon the structured questions of the questionnaire were conducted with those respondents requesting the latter.

5.3.4 Define the population

According to Welman and Kruger (2001:46), a research project usually has a bearing on some or other population. The population of a research project can thus be defined as the study object and may include individuals, groups, organisations, human products and

events, or the conditions to which they are exposed. The target population for this study was globally listed mining firms, the names of which were obtained from the Royal Bank of Canada (2004) and Rothschild (2004). Different parameters, such as market capitalisation or value of mine production, can be used to determine a research population in the global mining industry.

It was thus decided that market capitalisation of globally listed mining firms would be the determining parameter for the research population and sample. In this regard, approximately 416 globally listed mining firms were identified as representing the units of analysis of the population of the global mining industry. These 416 firms had a combined market capitalisation of approximately US$ 500 billion. Additional sources such as Bloomberg (2004), Hoovers (2004) and Yahoo Finance (2004) were also consulted to verify the comprehensiveness of the study's global population.

This was particularly problematic with the inclusion of mining firms from the former Soviet Union and China in the research population. An additional problem was the fact that the value of listed mining firms on bourses around the world fluctuated on a day-to-day basis, whilst various firms were listed on different bourses, each with different share groups, some included with their primary listing and others not.

In most research projects, however, the size of the population usually makes it impractical and uneconomical to involve all members (Welman & Kruger 2001:46). Consequently, researchers have to rely on the data obtained from a sample of the research population. The latter two authors distinguish between the following different samples:

5.3.4.1 *Probability samples*

In probability samples, the researcher can determine the probability that any element or member of the population will be included. Four probability samples can consequently be distinguished (Welman & Kruger 2001:53-67):

- **Simple random samples.** In such a sample, each member of the population has the same chance of being included.

- **Stratified random samples.** If the population is composed of clearly recognisable, nonoverlapping subpopulations that differ from one another mutually in terms of the variable in question (ie male and female), a stratified random sample can be used.

- **Systematic samples.** Systematic samples relate to a sample that are drawn up from a population that are numbered from 1 to N. Consequently, every N/th element is included in the sample (eg numbers 3, 13, 23, 33, etc.).

- **Cluster samples**. In large-scale surveys it is usually difficult, if not impossible, to obtain lists of all the members of the population. Consequently, pre-existing, heterogeneous groups, called clusters, and all the members of the selected clusters form the eventual sample.

A probability sample was not used in this thesis.

5.3.4.2   *Nonprobability samples*

In nonprobability samples, by contrast, the researcher cannot specify the probability that any element or member of the population will be included in the sample, because some elements of the population have no chance of being included in the sample. Four non-probability samples can be distinguished:

- **Accidental or incidental samples.** This form of non-probability samples consists of the most convenient collection of members of the population that are nearby and readily available for research purposes.

- **Quota samples.** In a quota sample, an effort is made to have the same proportions of units of analysis in important strata such as sex and age. However, the units of analysis are obtained in any particular stratum accidentally.

- **Snowball samples.** In the first phase of this kind of sampling, a few individuals are approached from the relevant population. These individuals then act as informants and identify other members from the same population for inclusion in the sample.

- **Purposive samples.** In this thesis, it was decided that a nonprobability purposive sample of listed firms in the global mining industry would be drawn from the research population. A purposive sample is perceived to be the most important kind of non-probability sample, where researchers normally rely on their experience, ingenuity and/or previous research findings to deliberately obtain inputs from the population in such a manner that the sample may be regarded as being representative of the relevant population (Welman & Kruger 2001:63).

A general rule, which researchers should adhere to in selecting a sample, is the fact that it should not have fewer than 15 units of analysis, but preferably more than 25 units (Welman & Kruger 2001:64). In an attempt to obtain representative empirical information on the application of competitive analysis in the global mining industry, it was thus decided that the research sample for this study would be confined to 50 of the largest global mining firms, each with a market capitalisation larger than US$ 1.5 billion.

The dominance of the latter 50 firms in the global mining industry is clearly emphasised because combined, they account for approximately 82% of the total market value of the global industry, comprising approximately 416 firms. In addition, the 50 firms included in the research sample consisted of 25 with a diversified corporate strategy, according to commodities included in their portfolios, and being geographically diversified in terms of their operations and the markets they target. Also included were 25 single-commodity firms that are either vertically integrated or diversified in terms of the geographical spread of their operations. A general observation here is that one would expect that some

of these 50 firms would largely determine the future of the mining industry in the coming decades. The following firms were thus included in the research sample (See table 5.1):

Table 5.1: Nonprobability purposive sample of 50 large global mining firms with a market capitalisation of > US\$ 1,5 billion

No	Firm	Country of Primary listing	Market capitalisation (US\$ 000 million)	Corporate strategy
1	BHP Billiton	UK	58 000	Diversified
2	Rio Tinto plc	UK	42 100	Diversified
3	Anglo American plc	UK	33 000	Diversified
4	Alcoa	USA	28 600	Single-commodity
5	Newmont Mining Corporation	USA	19 000	Single-commodity
6	Alcan	Canada	17 200	Single-commodity
7	Cia Vale do Rio Doce	Brazil	15 700	Diversified
8	Norilisk NIC-MMS	Russia	13 700	Single-commodity
9	Barrick Gold	Canada	11 600	Single-commodity
10	Xstrata plc	UK	10 300	Diversified
11	Anglo Gold Ashanti	RSA	10 300	Single-commodity
12	Placer Dome Inc	Canada	8 700	Single-commodity
13	Anglo Platinum	RSA	8 500	Single-commodity
14	Phelps Dodge	USA	8 400	Diversified
15	Gold Fields Ltd	RSA	7 100	Single commodity
16	Inco Ltd	Canada	6 700	Diversified
17	Freeport-MCM	USA	6 200	Diversified
18	Impala Platinum	RSA	5 400	Single-commodity
19	Noranda Inc	Canada	5 000	Diversified
20	Alumina Ltd	Australia	4 800	Single-commodity
21	Cameco Corp	USA	4 700	Diversified
22	Teck-Cominco	Canada	4 700	Diversified
23	Falconbridge	Canada	4 600	Diversified
24	WMC Resources Ltd	Australia	4 400	Diversified
25	Peabody Energy	USA	4 100	Single-commodity
26	Newcrest Mining	Australia	4 000	Diversified
27	Yanzhou Coal-A	China	3 900	Single-commodity
28	Sumitomo Metals & Mining	Japan	3 900	Diversified
29	Antofagasta plc	UK	3 800	Single-commodity
30	Grupo Mexico-B	Mexico	3 700	Diversified
31	Outokumpu	Finland	3 200	Diversified
32	Consol Energy	USA	3 200	Diversified
33	Harmony Gold Mining	RSA	3 100	Single-commodity
34	Buenaventura-Com	Peru	3 100	Diversified
35	Lonmin plc	UK	2 700	Single-commodity
36	Goldcorp Inc	USA	2 600	Single-commodity
37	Glamis Gold Ltd	USA	2 500	Single-commodity
38	National Aluminium	India	2 400	Single-commodity
39	Kinross Gold	Canada	2 400	Single-commodity
40	Mitsubishi Materials	Japan	2 300	Diversified
41	Mitsui Mining & Smelting	Japan	2 200	Diversified
42	Kumba Resources	RSA	2 100	Diversified
43	Aber Diamond Corporation	Canada	2 000	Single-commodity
44	KGHM Polska Miedz	Poland	2 000	Single-commodity
45	Industrias Penoles	Mexico	1 900	Single-commodity

46	Vedanta Resources plc	UK	1 900	Diversified
47	Caemi Metal PRF	Brazil	1 800	Diversified
48	Sasol Mining	RSA	1 600	Single-commodity
49	Meridian Gold	USA	1 600	Single-commodity
50	Ivanhoe Mines	Canada	1 600	Diversified
Market capitalisation of 50 global mining firms			**408 300**	
Remainder of global mining industry			**91 700**	
Approximate market capitalisation of total global mining industry (416 firms)			**500 000**	

Source: Royal Bank of Canada (2004); http://www.hoovers.com (2004); Bloomberg (2004); Rothschild (2004); Yahoo Finance (2004)

5.3.5 Determine the data collection approaches and methods

After following the aforementioned steps in the research process, a researcher has to consider which data collection method is the most appropriate in the context of the research objective and the particular population in question (Welman & Kruger 2001:127). A variety of data collection methods can be used to collect data. These methods include the following (Mouton 2001:105):

▪ observation through experimental recordings, systematic field observations and participant observation

▪ testing, for example psychological or psychometric testing

▪ selecting and analysing texts through textual analysis, discourse analysis and historic or narrative analyses

▪ interviewing (also referred to as surveys) through structured self-administered questionnaires, structured telephone interviews, semistructured focus group interviewing and free attitude-interviewing methods

The data for the empirical investigation of this study were, however, collected by means of the interview or survey method. The interview or survey approach is by far the most common method of primary data collection (Malhotra 1996:197) and involves the

collection of problem-specific data from selected individuals (respondents) by means of direct or indirect questioning. In such an approach, the respondents are asked a variety of questions about their behaviour, intentions, attitudes, awareness, motivations and demographic and lifestyle characteristics, depending on the particular research objective. These questions may be asked verbally, in writing or telephonically, and the responses may be obtained in any of these forms (Van der Walt et al 1996:152).

In the context of the research problem of this thesis, the observation, testing and textual analysis methods were perceived as impractical and extremely expensive because the research sample was confined to 50 global mining firms, with head offices situated in 13 countries around the world. Against the backdrop of the foregoing, the chosen interview or sample method has several advantages, compared with other data collection methods. Questionnaires, for example, are easier to administer, while the data obtained are perceived to be reliable because the responses are limited to the alternatives stated. In addition, fixed response questions reduce the variability in the results caused. A critical disadvantage, however, is in the fact that respondents may be unable or unwilling to provide the desired information (Malhotra 1996:197). This was of particular concern in this study, given the apparent difference in culture, education and business acumen, as well as the geographical spread of the respondents of the firms included in the sample.

In the interviewing data collection method, the following three communication methods are available for obtaining data from respondents (Malhotra 1996:199; Kasper, Van Helsdingen & De Vries 1999:267):

- the telephonic interview

- the personal interview

- the mail interview.

In a telephonic interview, an interviewer asks respondents questions over the telephone. According to Van der Walt et al (1998:153 – 154), telephonic interviews are efficient and economical, and compared with personal interviews, reduce the potential for bias. However, a critical limitation of the telephonic interview relates to the limited amount of data that can be obtained, because it is normally shorter than a personal interview (Welman & Kruger 2001:159). The telephonic interview was not used in this study because the researcher felt that an electronic mail interview, and in a limited number of cases, a personal interview would be more practical (ie certain respondents were located in South Africa).

In a personal interview, an interviewer asks respondents questions in a face-to-face situation. The interviewer's task is to contact the respondent, ask the questions and record the responses. In a personal interview, however, it is important that questions be asked clearly and the answers be recorded accurately. A limiting factor in personal interviews is that respondents may bias their responses because of a desire to please or impress the interviewer. This is also an expensive method, and interviewers cannot always conduct personal interviews anonymously. In contrast to these limiting factors, the personal interview, however, is perceived to render the best responses, because there is less chance of the respondent eluding the interview. In addition, probably the main advantage of personal interviews is that the interviewer is in complete control of the interview situation (Welman & Kruger 2001:158-159).

As indicated earlier, personal interviews were conducted with those respondents situated in South Africa who preferred this survey method, as well as certain firms in countries such as Japan and the People's Republic of China.

In the mail interview, a questionnaire is mailed to preselected potential respondents, and the completed questionnaire is returned to the researcher. Mail interviews can be conducted by post mail or electronic mail. Mail questionnaires have many advantages. They are flexible in their application and relatively low in cost, whilst large amounts of data can be obtained. In mail interviews, respondents may also provide more honest

answers than they would to an unknown interviewer in person or telephonically. However, one of the major drawbacks of mail interviews is the problem of nonresponse error (Welman & Kruger 2001:147; Brink 1997:250).

In this study, it was decided to use the mail interview in the majority of cases in order to obtain data from an international research sample. An important factor in this regard is that the head offices of the latter 50 firms are located in 13 countries, whilst they have operational and marketing initiatives in most parts of the world. This phenomenon per se created its own complexity with regard to the success of the empirical survey.

5.3.6 Construct and pretest the questionnaire

5.3.6.1 Introduction

As indicated earlier, in this study, it was decided to collect primary data to achieve the research objectives by means of the interview or survey method. In this regard, a structured questionnaire was used. According to Brink (1997:252), a questionnaire is a formalised schedule for collecting data from respondents, and is designed to achieve three related goals:

- to maximise the relevance and accuracy of the data collected

- to maximise the participation and cooperation of target respondents

- to facilitate the collection and analysis of the data

Hence great care was taken during the construction of the questionnaire to prevent common errors committed by researchers with regard to questionnaires. These errors include the inclusion of ambiguous or vague items in the questionnaire, the use of ambiguous questions, the wrong sequence of questions, the use of leading questions or negatively phrased questions, poor and confusing layout, the use of sensitive or

threatening questions, and no exposure of the questionnaire to any pretesting (Mouton 2001:103).

A number of consultations were also held with staff of the Bureau of Market Research at Unisa, academics from other tertiary educational institutions, South African competitive intelligence consultants, as well as individuals employed at a South African mining firm that operates internationally, in order to obtain their professional input during the construction of the questionnaire.

5.3.6.2   *Question content and phrasing*

In using a questionnaire to obtain primary research data, it is essential for the researcher and respondent to assign the same meaning to the questions asked, because serious measurement errors may occur in the research results. This fact is even more critical in the light of the global sample consisting of respondents with diverse cultural backgrounds, education and business acumen. It is thus important to word the questions in questionnaires in such a way that even the less educated individual understands it (Brink 1997:252).

5.3.6.3   *Question sequence*

According to Rudansky-Kloppers (2002:242), the order or sequence of questions in a questionnaire should be determined by the need to gain and maintain the cooperation of respondents. In this regard, the above author (2002:242) and Brink (1997:253) recommend the funnel approach by moving from general-to-particular or from general-to-specific questions. It is thus imperative for the introductory questions to be easy and nonthreatening to put the respondents at ease and ensure their cooperation (Welman & Kruger 2001:170).

To this end, general topics in the questionnaire used in this study were placed at the beginning and those requiring more specific responses later. In this regard, the following topics were included in the questionnaire for this study:

- the key success factors for firms active in the global mining industry

- the need for competitive analysis in global mining firms with regard to the competitive environment

- the key requirements necessary for successful competitive analysis in a global mining firm

- the competitive analysis process supporting strategic decision making in a global mining firm

- the influence of competitive analysis on strategic decision making in global mining firms

Since the questionnaire was perceived to be reasonably lengthy, it was decided to place the part on the corpographical information of the respondent at the back of the questionnaire. This was done on the advice of staff at the Bureau of Market Research at Unisa, because most of the corpographical information could be obtained from the Internet websites of the firms included in the research sample.

5.3.6.4   *Question format*

Once the question sequence in the construction phase of the questionnaire has been addressed, it is necessary to format the questions. To adhere to this principle, one must take cognisance of the fact that basically two types of questions can be used in a questionnaire. These are unstructured (open-ended) and structured (fixed-alternative) questions (Rudansky-Kloppers 2002:243).

a   *Unstructured questions*

Unstructured questions are open-ended questions in which the respondent has the freedom to answer the question in his or her own words. In addition, unstructured questions have the ability to reveal more than structured questions, because respondents

are not limited in their answers. A disadvantage of the use of unstructured questions, however, is that the clarity of responses depends largely on how articulate the respondent is and his or her willingness to compose a written answer (Rudansky-Kloppers 2002:243).

b   *Structured questions*

In contrast to unstructured or open-ended questions, structured questions limit the respondent in choosing one or more possible answers in each question. The following structured questions can be used in the construction of a questionnaire:

- **Multiple-choice questions.** In multiple-choice questions, the researcher provides a choice of answers, and respondents are asked to select one or more of the alternatives. The response alternatives should include the set of all possible choices, as well as an option "other (please specify)" (Rudansky-Kloppers 2002:244; Brink 1997:254-255).

  According to Rudansky-Kloppers (2002:244), the most significant advantage of multiple-choice questions in surveys is that the answers of respondents are directly comparable.

- **Dichotomous questions.** These questions offer only two response alternatives from which to choose, for example: "Yes/No"; "Agree/Disagree". Dichotomous questions are mainly used to collect demographic and behavioural data, when only two answers logically exist (Rudansky-Kloppers 2002:244).

- **Frequency-determination questions.** The frequency-determination question is a determinant-choice question that asks for an answer about the general frequency of occurrence (Brink 1997:256).

- **Rankings.** In the rank-order method, respondents are asked to rank a set of items in terms of a given criterion. This type of question has certain disadvantages, however,

because respondents may be inclined to rate characteristics near the top of the list higher than those lower down (Rudansky-Kloppers 2002:245).

- **Scaled questions.** According to Welman and Kruger (2001:149-151), a scaled question can be used to determine an attitude towards a particular issue. The following four different types of attitude scales exist:

  - **The summated or Likert scale** was introduced by Likert (1903–1981), and is currently the most popular type of scale in the social sciences. Its popularity stems from the fact that it is easier to compile than any of the other attitude scales (particularly those of Guttman and Thurstone).

  - **The Guttman scale**

  - **The Thurstone scale**

  The Likert, Guttman and Thurstone scales were not used in this study. Hence, the latter two attitude scales will not be discussed.

  - Osgood, Suci and Tannenbaum (1971) developed the **semantic differential** in 1957. They followed a different approach from the Likert scale, whereby each item in a semantic differential scale consists mostly of a seven-point scale, of which the two end-points are two opposite adjectives, for example "Relevant/Irrelevant" or "Important/Unimportant".

    This technique attempts to measure what meaning a concept may have for people in terms of dimensions, which have been empirically defined and factor-analysed (Mindak 1961:28). In this regard, an important point of departure in the development of the semantic differential relates to the fact that the way a person behaves in a situation depends upon what that situation means (Osgood et al 1971:1). According to the authors, one of the principle

factors in social activity is meaning and change in meaning. This view ties in extremely well with the concepts of competitive analysis and competitive learning as researched in this thesis.

On a more practical note, semantic items are typically hand-coded with a number from 1 to 7, representing the particular space the respondent marked between the adjective pairs. Osgood et al (1971:29), gave the following meaning to the seven scale positions used in the semantic differential:

Table 5.2: Meaning of the scales of the semantic differential

Concept								
Polar term X	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Polar term Y**
1	Extremely X							
2	Quite X							
3	Slightly X							
4	Neither X nor Y; equally X and Y							
5	Slightly Y							
6	Quite Y							
7	Extremely Y							

An example of the use of the semantic differential in a questionnaire is provided in table 5.3.

Table 5.3: Example of a semantic differential questionnaire

To me, electronic mail is:		1	2	3	4	5	6	7	
1	Important								Unimportant
2	Boring								Interesting
3	Relevant								Irrelevant
4	Exciting								Unexciting
5	Means nothing								Means a lot
6	Appealing								Unappealing
7	Fascinating								Mundane
8	Worthless								Valuable
9	Involving								Un-involving
10	Not needed								Needed

Source: http://www.tcet.unt.edu/pubs/studies/survey/tatv1-1.htm)

According to Mindak (1961:33), the reliability of the semantic differential is reasonably high, whilst the measure has a high degree of face validity. This measurement scale has certain advantages, including the following (Mindak 1961:28–29):

▪ It is a quick, efficient means of getting in readily quantifiable form and for large samples, not only the direction but also intensity of opinions and attitudes towards a concept.

▪ It provides a comprehensive picture of the "image" or meaning of a concept.

▪ It represents a standardised technique.

▪ It is easily repeatable and quite reliable.

▪ It avoids stereotyped responses and allows for individual frames of reference.

- It eliminates some of the problems of question phrasing, such as ambiguity and overlapping of statements.

- It facilitates the interviewing of respondents who may not be too articulate in describing their reactions to abstruse factors.

Although no previous research could be found on the specific use of the semantic differential regarding the research on competitive analysis in the global mining industry, extensive use was made of the semantic differential in the questionnaire for the empirical part of this study. In this regard, a new semantic differential was subsequently developed from a collection of bipolar items. This approach was based mainly on the professional advice and inputs of staff at the Bureau of Market Research at Unisa.

In compiling the initial list of items, the researcher tried not to be too specific, but rather to develop a list of general attributes that would fit the research subject (global mining industry). An overly fine measurement might have misrepresented or misguided the real perceptions of the respondents. In addition, the researcher arbitrarily included a few additional items. It should, however, be emphasised that some important items could inadvertently have been omitted. This poses interesting challenges for future research.

The format of the questions used in the questionnaire for this study is summarised in the table below.

Table 5.4: Format of questions

Type of question	Questions in questionnaire
Unstructured questions	**Part 2 of questionnaire** 2.11 (part 2); 2.2.1 (part 2); 2.3.1 (part 1) 2.3.3; 2.3.5; 2.3.8; 2.3.9 (part 2); 2.3.10 (part 2); 2.4.1 (part 2); 2.4.3 (part 2) **Part 3 of questionnaire** 3.1; 3.2; 3.3; 3.4; 3.5; 3.6; 3.7; 3.8; 3.9; 3.10; 3.11
Structured questions	
✓ Multiple-choice questions	No questions
✓ Dichotomous questions	No questions
✓ Scaled questions	**Part 2 of questionnaire** 2.1.1 (part 1); 2.1.2 (part 1); 2.1.3; 2.1.4; 2.1.5; 2.1.6; 2.2.1 (part 1); 2.3.1 (part 1); 2.3.2; 2.3.4; 2.3.6; 2.3.7; 2.3.9 (part 1); 2.3.10 (part 1); 2.4.1 (part 1); 2.4.2; 2.4.3
✓ Frequency-determination questions	No questions
✓ Ranking questions	No questions

5.3.6.5   *Physical characteristics of the questionnaire*

According to Brink (1997:257) and Rudansky-Kloppers (2002:245), the appearance and layout of the questionnaire could have a significant effect on the results in the case of self-administered questionnaires. Consequently, researchers are advised to divide a questionnaire into different parts.

The questionnaire for this study was divided into different parts in an effort to make it more structured, as well as simplify completion and analysis. In this context, the questionnaire for this study consisted of three parts, and included the following:

▪ **Part 1** dealt with certain definitions, which explain key topics addressed in the questionnaire.

- **Part 2** focused on competitive analysis and was divided into four sections. The different sections in part 2 dealt with the following issues:

  - Section 1: The need for competitive analysis in a global mining firm with regard to its competitive environment

  - Section 2: The key requirements necessary for conducting successful competitive analysis in a global mining firm

  - Section 3: The competitive analysis process supporting strategic decision making in a global mining firm

  - Section 4: The influence of competitive analysis on the strategic decision making process of a global mining firm

- **Part 3** consisted of general organisational and demographical issues about respondent firms.

According to Brink (1997:259) instructions for answering questions should be positioned as closely as possible to the particular question. Consequently, instructions for answering the different questions in the questionnaire for this study were given in brackets immediately below the question.

5.3.6.6   *Pretesting the questionnaire*

To ensure that the questionnaire will satisfy the researcher's research needs, it is important to pretest it. According to Brink (1997:259), pretesting involves the testing of a questionnaire on a small sample of respondents in order to identify potential problems, which can be easily corrected.

To this end, the questionnaire for this study was sent to a number of individuals who are experts in their particular fields. These individuals included the following:

a   *Academics*
- Two professors from Unisa's College of Economic and Management Sciences (promoter and co-promoter for this study)
- One professor from Unisa's School for Business Leadership, who is a lecturer in strategy and marketing
- One professor from the Bureau of Market Research at Unisa
- Two professors from other tertiary educational institutions (one South African and one international academic), who are experts in the academic field of competitive intelligence

b   *Competitive intelligence consultants*
- Two senior South African-based consultants in the field of competitive intelligence employed by separate consultancy firms, with combined experience of more than 40 years in the field of intelligence

c   *Mining industry experts*
- One commodity analyst (a trained geologist) in a South African mining firm, with more than 30 years' experience in the mining industry
- Two strategic managers (trained engineers) of a South African mining firm, with approximately 40 years' combined experience in the mining industry
- Two business development managers (trained engineers) of a South African mining firm, with more than 40 years' combined experience in the mining industry
- One financial manager (trained chartered accountant) of a South African mining firm, with approximately 15 years' experience in the mining industry

Based upon the feedback from the individuals included in the pretesting panel, minor adjustments were subsequently made to the final questionnaire, after which it was printed

and distributed to the respondents included in the research sample. The questionnaire used in this study appears in annexure 1.

5.4 COLLECTING THE DATA

5.4.1 Introductory remarks

The empirical research conducted in this study was confined to the industrial sector because the mining industry is perceived to fall into that category and is not part of the consumer sector. The empirical research conducted in this study is similar to industrial marketing research. In this regard, Simkin (2000:155) and Cox (1979:22-23) argue that industrial marketing research, compared to research in consumer markets, is notoriously difficult to conduct for a number of reasons. These reasons are as follows:

- few, very large firms to be researched

- identifying the correct knowledgeable respondent and the influence of gate-keeping by secretaries and other individuals in the firm

- busy managers not wanting to "waste time" filling in questionnaires

- incentives for such completion not being as attractive as in much consumer research

- confidentiality concerns by firms participating in the research

Against the backdrop of the foregoing, the empirical part of this thesis was generally perceived to be the practical acid test in which the use of competitive analysis in the global mining industry would be evaluated. The importance of this speaks for itself. Hence, the empirical research process was preceded by various preliminary initiatives in an effort to obtain the acceptance of the respondents included in the research sample. The mere fact that 50 global mining firms with a combined market capitalisation of US$ 408

billion, representing approximately 82% of the total global mining industry, with head offices located in 13 countries and combined operations on all the world's continents where mining is allowed, were included in the research sample, created its own complexity with regard to the success of the empirical survey.

Great care was taken to persuade respondents that the information would be used in its generic context and not to typify an individual firm's use of competitive analysis. In this regard, reputable and well-networked senior executives in the global mining industry were asked to assist to gain the necessary support for the study from the firms included in the research population. The names of the individuals or respondents responsible in the different firms were thus obtained from the senior executives of the firms included in the research sample. An example of such assistance is included in annexure 2. Thus, 16 of the 50 firms included in the research sample were contacted in this way.

In addition, one individual, representing a firm included in the research sample and working in the competitive intelligence division of a global mining firm, was also a member of the Society of Competitive Intelligence Professionals (SCIP). This person was contacted to enlist his approval, support and willingness to participate in the research study. The remaining 33 firms where, however, contacted directly, on the basis of information obtained from their Internet websites.

In addition to the introductory efforts to muster support for the study from the firms included in the research sample, preliminary messages were mailed to all respondents in an endeavour to overcome their resistance and facilitate their cooperation. An example of such a preliminary letter for requesting assistance in the completion of the questionnaire is included in annexure 3. A letter of introduction from Unisa's College of Economic and Management Sciences was also included in the questionnaire, in order to explain the substance and objectives of the survey.

5.4.2 Collection

After establishing a positive working relationship with the target respondents, the majority of questionnaires were mailed electronically or sent in the mail. In two instances, however, the author held personal interviews with the respondents included in the research sample. These two respondents were located in South Africa and preferred a personal to a mailed interview.

Two additional interviews conducted by two external interviewers were held with a Japanese and Chinese concern included in the research sample. Both these individuals had experience of personal interviews. They had also established long-standing relations with the two firms in the past, as well as having a working knowledge of competitive intelligence and the global mining industry. Regarding the Chinese firm included in the research sample, the interviewer was of Chinese origin and had obtained a doctoral degree in geology, whilst the interviewer dealing with the Japanese firm was a competitive intelligence consultant who had established long-term relations with the particular firm in the past. In the context of the empirical results for this study, this approach to the two firms was deemed necessary because they would not have been willing to participate in the survey in any other way.

Annexure 4 provides a summary of all the endeavours to obtain completed, reliable and valid questionnaires from the respondents of the mining firms included in the global research sample. The upshot was that 23 of the 50 firms included in the research sample returned comprehensive completed questionnaires. This represented a success rate of 46% of the units of analysis included in the research sample. Based on the views of Welman and Kruger (2001:64), and supported by the Bureau of Market Research at Unisa, this represents an acceptable representative statistical ratio.

There were various reasons for certain firms included in the research sample not wishing to participate or not replying to the author's request for participation. The international context of the study, reaching beyond international borders, as well as cultural and language differences complicated matters. In addition, the probable confidential nature

and newness of the research into competitive analysis in the global mining industry, which is largely perceived to be a tangible asset-driven industry, and importantly, the "hassle factor", also complicated matters.

5.5   EVALUATION OF THE RELIABILITY AND VALIDITY OF THE RESEARCH

5.5.1   Background

According to Venter (2000:152), the data gathered in a research survey must be reliable and valid, if the survey results are to be credible. Although this view is extremely important in any social research, Neuman (2003:178), however, argues that perfect reliability and validity are virtually impossible to achieve. The concepts of reliability and validity will now discussed.

5.5.1.1   *Reliability*

According to various authors (Welman & Kruger 2001:139; McDaniel & Gates 2001:254), reliability refers to the extent to which the scores obtained may be generalised to the different measuring occasions, measurement/test forms and measurement/test administrators. In a different context, reliability involves the extent to which the results in the survey could be duplicated in similar surveys. Neuman (2003:179–180) identifies the following three types of reliability:

- **Stability reliability -** reliability across time

- **Representative reliability -** reliability across groups of people

- **Equivalence reliability -** when several items in a questionnaire all measure the same construct

5.5.1.2   *Validity*

Validity, on the other hand, addresses the issue of whether what was intended to be measured, was actually measured. Various interrelated categories of validity can be identified. These include the following (Neuman 2003:182–184; Welman & Kruger 2001:135-137; McDaniel & Gates 2001:259–260; Tull & Hawkins 1993:316):

- **Face validity.** This kind of validity addresses the question about whether or not the measuring instrument really measures what it is supposed to measure.

- **Content validity.** This kind of validity refers to the degree to which the instrument items represent the universe of the concept being studied.

- **Construct validity.** This kind of validity refers to the degree to which a measure confirms a hypothesis created from a theory based upon the concepts being investigated.

- **Criterion-related validity.** This kind of validity involves the degree to which diagnostic and selection measurement/tests correctly predict the relevant criterion. The relevant criterion refers to the variable that is to be diagnosed, or on which success is to be predicted. There are two forms of criterion-related validity, namely predictive validity and concurrent validity. The former refers to the extent to which a future level of a criterion can be predicted by a current measurement on a scale, while the latter concerns the extent to which a criterion variable measured at the same point in time as the variable of interest can be predicted by the measurement instrument.

5.5.2   Reliability in this study

In the context of the empirical part of this study, which focused on research into competitive analysis practices in the global mining industry, it was extremely difficult to meet the requirement of reliability, because the global mining industry is a dynamic continually evolving industry. In this regard, mergers and acquisitions, takeovers and

even disappearing from the business scene were found to be a reality. The individuals, who filled in the questionnaire on behalf of the different firms included in the sample, based it upon their own views, which could have been different from that of other individuals. During the empirical study, care was taken to prevent any random errors in order to safeguard the reliability of the measurement device used in this study. However, according to Aaker, Kumar & Day (1995:300) validity is of greater importance than reliability.

5.5.3   Validity in this study

In the context of the validity of the empirical part of this study, construct validity, or the degree to which a measuring instrument measures what it is supposed to, was achieved through pretesting the questionnaire with 14 individuals, representing the academic, competitive intelligence and global mining fraternity. As indicated earlier, their comments on the questionnaire led to minor adjustments being made, after which it was distributed to the respondents included in the sample.

Regarding criterion-related validity, or the degree to which diagnostic and selection measurement/tests correctly predict the relevant criterion, certain questions in the questionnaire were used as control questions. These questions continuously showed a positive correlation with other questions.

To sum up, the first three steps in the research process (figure 5.1) that is, defining the research object, research design and collecting the data, were discussed in chapter 5. The remaining three steps in the research process, namely data analysis and interpretation, the development of a dynamic competitive analysis model for a global mining firm and the conclusions and recommendations will be discussed in chapters 6, 7 and 8.

5.6 SUMMARY AND KEY FINDINGS

This chapter outlined the research methodology followed to complete the empirical part of the thesis. The steps in the research process were outlined, and this includes defining the research objectives, research design formulation and data collection. In this regard, the first step, namely defining the research objectives, was discussed in chapter 1. This chapter focused in broader terms upon the research design and data collection. It was shown that research design consists of various steps, including the design of the exploratory phase of the research, determining the sources of data, defining the research population, determining the data collection approaches and methods, and constructing and pretesting the questionnaire. To this end, it was decided to use a non-probable purposive sample, comprising 50 of the largest global mining firms with a market capitalisation exceeding US$ 1,500 million.

As explained in this chapter, data were collected from respondents by means of a questionnaire based largely upon the semantic differential. The questionnaire was subsequently pretested on a sample of respondents, consisting of academics, competitive intelligence consultants and mining industry experts. Based upon the feedback from the individuals included in the pretesting model, minor adjustments were made to the final questionnaire, after which it was printed and distributed to respondents.

The remaining three steps in the research process, namely data analysis and interpretation, the development of a dynamic competitive analysis model for a global mining firm and the conclusions and recommendations will be discussed in chapters 6, 7 and 8.

CHAPTER 6

ANALYSIS OF THE RESEARCH RESULTS

6.1   INTRODUCTION

The research methodology used to investigate competitive analysis in the global mining industry was explained in the previous chapter. The data were collected by means of descriptive research, focused upon a nonprobability purposive sample of 50 of the largest mining firms in the world. A structured questionnaire, based largely upon the semantic differential scale and supported by unstructured questions, was used to collect the data. Of the 50 questionnaires that were sent to respondents representing the global mining firms included in the research sample, 23 were comprehensively completed and returned. This represents a success rate of 46% of the units of analysis included in the research sample.

6.2   STATISTICAL ANALYSIS METHODOLOGY

6.2.1   Overview

The data received from the 23 firms were subsequently captured and analysed by means of the SPSS statistical software program. In this chapter, the next step in the research process, namely the analysis of the research results is presented. Basic descriptive statistical analysis, such as mean rating, t-test, effect sizes and certain linear correlation calculations were conducted on the empirical data submitted.

The mean rating was determined for each attribute in the various questions, and subsequently compared with the other attributes in the same question, in order to facilitate the discussion of the research results. As a corollary to this, a t-test was conducted on the different attributes in each question, based upon two data sets representing respondents from single-commodity and diversified global mining firms. This analysis is appropriate whenever the means of two groups are compared. In this regard, a t-test was conducted in order to assess whether the means of the two groups are statistically different from each other on each attribute in the various questions. As indicated in annexure 6, the t-value for 21 degrees of freedom (df) equals ± 1.721. If the

t-test value is near to, equal or greater than ± 1.721, one can say with 95% reliability that there is a difference in the means of the two data sets.

In addition, statistical significance tests the **probability** that the observed relationship (eg between variables) or a difference (eg between means) in a sample occurred by pure chance ("luck of the draw"), and that in the population from which the sample was drawn, no such relationship or differences exists. (http://www.statsoft.com/textbook/stathome.html). This probability is computed for each statistical test and expressed as a p-value.

The higher the p-value, the **less** we can believe that the observed relation between variables in the sample is a reliable indicator of the relation between the respective variables in the population. We would therefore in fact prefer a smaller p-value (http://www.statsoft.com/textbook/stathome.html). The most commonly used p-values are 0.01 or 0.05. The choice depends on the researcher and the level of risk of accepting a difference where in fact there is none that he or she is prepared to accept.

6.2.2   Effect sizes

As a corollary to the above-mentioned statistical calculations, the effect size was calculated for all attributes in each question in the questionnaire. In this regard, the significance value indicates the risk of making a Type I error (that we mistakenly reject the null hypothesis in favour for the alternative hypothesis- ie accepting differences that do not exist). There is, however also a chance that the researcher will mistakenly accept the null hypothesis-, in other words, consider two groups to be similar in results, while in fact they are not. This is referred to as a Type II error (Rosnow & Rosenthal 1996:256).

The calculation of the p-values, as indicators of significance, focuses on preventing a Type I error, referred to by Rosnow and Rosenthal (1998) as preventing "gullibility". Yet Rosnow and Rosenthal (1998) also warns that the emphasis on preventing gullibility may cause a researcher to risk being "blind to relationships" – thus making a Type II error.

The sample size plays a vital role in calculating the significance of differences. Increasing the sample size will increase the chances of picking up significant results. Yet in a study with a relatively small sample size, like the current study, there is a real risk of being "blind to relationships". Rosnow and Rosenthal (1996:276) suggest that to overcome the possibility of missing a significant effect, the effect size should be calculated. The effect size is not dependent on the sample size and provides a different insight into the p-value. It indicates the magnitude of the effect.

Many indices of effect size have been formulated, each test corresponding to a separate index or formula (www.med.monash.edu.au). Shaughnessy, Zechmeister & Zechmeister (2003) suggest that when comparing two means, Cohen's d is used. The formula for calculating Cohen's d is as follows:

Cohen's d = average of group1 – average of group 2/the population standard deviation.

Where the population standard deviation is calculated as follows:

Population standard deviation =   {(n1-1)(std1)+(n2-1)(std2)/n1+n2}

Whitley (2002) provides the following benchmarks according to Cohen's d:

- small effect: 0.20

- medium effect: 0.50

- large effect: 0.80

6.2.3   Additional statistical analysis

A number of linear correlation calculations were also conducted to determine whether there is any linear relationship between the respondents' perceptions of similar attributes in different questions (questions 2.3.7 & 2.3.9). In this regard, the correlation coefficient

measures the strength of a linear relationship between two variables, whereby the correlation coefficient is always between –1 and +1. The closer the correlation is to +/- 1, the closer the two variables are to a perfect linear relationship. The correlation coefficients given in annexure 7, can be interpreted with 95% reliability as follows:

- A correlation coefficient near –1, is an indication of a strong negative correlation between the variables.

- A correlation coefficient near +1, is an indication of a strong positive correlation between the variables.

- A correlation coefficient near 0 is an indication of no or little correlation between the variables.

The mean rating, t-test, and correlation matrix emanating from the empirical research are depicted in annexure 5, 6 and 7. Finally, cross-verification between similar attributes in different questions was used to determine the criterion-related validity of the respondents' answers.

The research results will now be analysed according to the different parts and sections in terms of which the questionnaire was structured. These sections included the following:

- corpographical characteristics of the respondents

- the need for competitive analysis in global mining firms with regard to their competitive environment

- the key requirements for successful competitive analysis in global mining firms

- the competitive analysis process supporting strategic decision making in global mining firms

- the influence of competitive analysis on strategic decision making in global mining firms

6.3   CORPOGRAPHICAL CHARACTERISTICS OF THE RESPONDENTS

The responses to part 3 of the questionnaire describe the corpographical characteristics of the respondents. The aim of questions 3.1 to 3.4 was to determine the respondents' contact details. The remaining questions in part 3 of the questionnaire were focused upon the global business strategies and endeavours of the respondents. Since all the firms included in the research sample were listed on bourses around the world, much of the corpographical characteristics of the respondents are in the public domain. Hence much of this information was collected from the various firms' annual reports and other management presentations.

The aim of question 3.5 was to collect information on the annual turnover of respondents. According to information obtained on this question, the respondents had an aggregate annual turnover of approximately US$ 92 billion in 2003 (http://www.hoovers.com, 2005).

As a corollary to the respondents' annual turnover, the purpose of question 3.6 was to ascertain the respondents' market capitalisation. In this regard, the respondents had a combined market capitalisation of approximately US$ 242 billion, which represents just more than 59% of the combined market capitalisation of the entire research sample of US$ 408 billion. This information is indicated in figure 6.1.

Figure 6.1: Combined market capitalisation of respondents compared with non-respondents
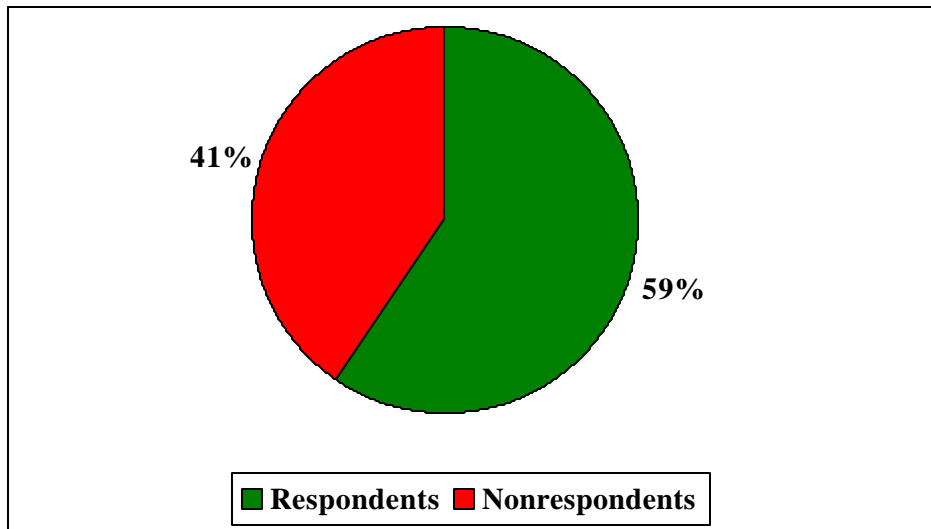
In addition to the dominance of the respondents in the defined research sample, these firms also play a key role in the total global mining industry. The global mining industry in this regard, comprises mining firms from North and South America, Western Europe, former CIS countries, Asia, China, Australia and Africa. In this context, the dominance of the respondents is clearly emphasised since their aggregate market capitalisation of US$ 242 billion represents 48% of the market capitalisation of the entire global mining industry, worth approximately US$ 500 billion. This value does not take into account the shareholding by certain mining firms in other listed mining firms. This matter, however restrains the indicated market capitalisation of the global mining industry, and is pinpointed as a topic for possible future research. The dominance of the respondents in the global mining industry is depicted in figure 6.2.

Figure 6.2: Combined market capitalisation of respondents vis-à-vis total global mining industry
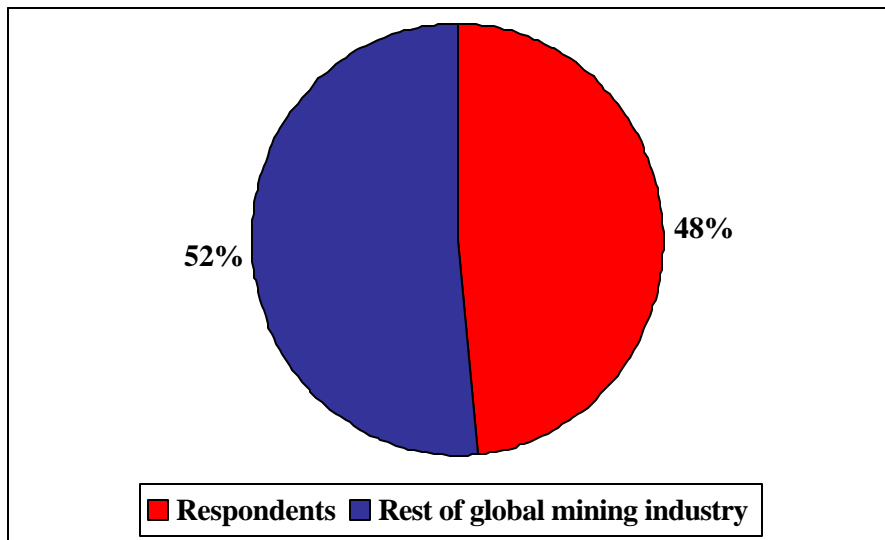
It is necessary to mention at this stage that the three largest global mining firms (see figure 1.6) are all included in this empirical study. These three firms alone represent approximately 30% of the market capitalisation of the total global mining industry. Furthermore, it is generally expected that these three mining firms will have a particularly strong influence on the future of the global industry in the coming decades.

The aim of question 3.7 of the questionnaire was to determine the nature of business of the respondents. This information is provided in figure 6.3.

Figure 6.3: Nature of business of respondents
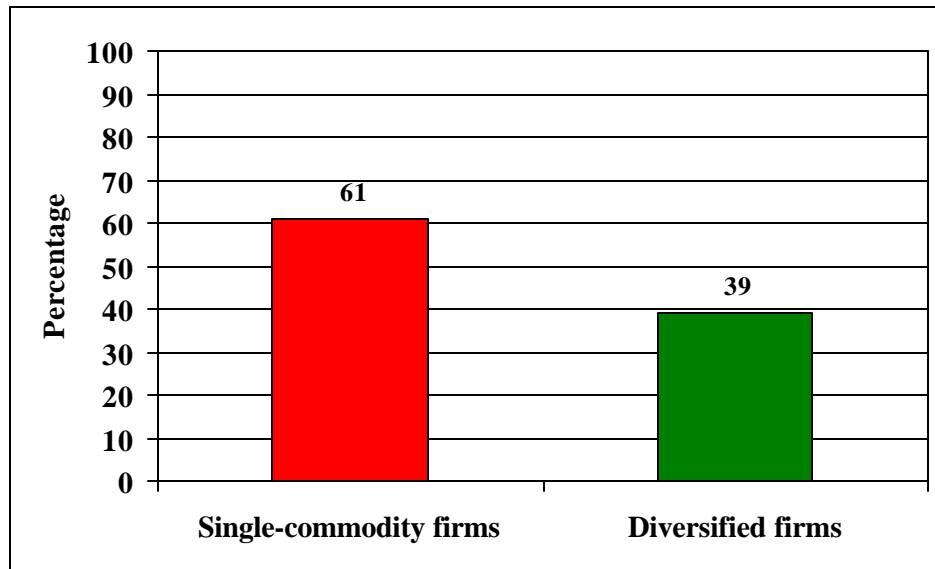
From this figure it is evident that 61% of the respondents in the research are single commodity mining firms, which means their product orientation is focused upon a single commodity range such as gold or the platinum group of products. In many instances these firms are to some extent vertically integrated. They are mostly diversified in terms of the geographical location of their operations or the markets they service. Of the respondents, 39% indicated that they are diversified mining firms, according to the commodities included in their product portfolios, as well as the location of their operations and the markets they target. These two groups of mining firms largely represent the bi-polar nature of corporate strategic thinking, which involves mitigating global business risk in the contemporary global mining industry.

An additional observation regarding question 3.7 of the questionnaire relates to the variety of commodities included in the respondents' portfolios, according to sales. This information is reflected in figure 6.4 for single-commodity and diversified respondents respectively.

Figure 6.4: Commodities in the respondent's portfolios according to sales
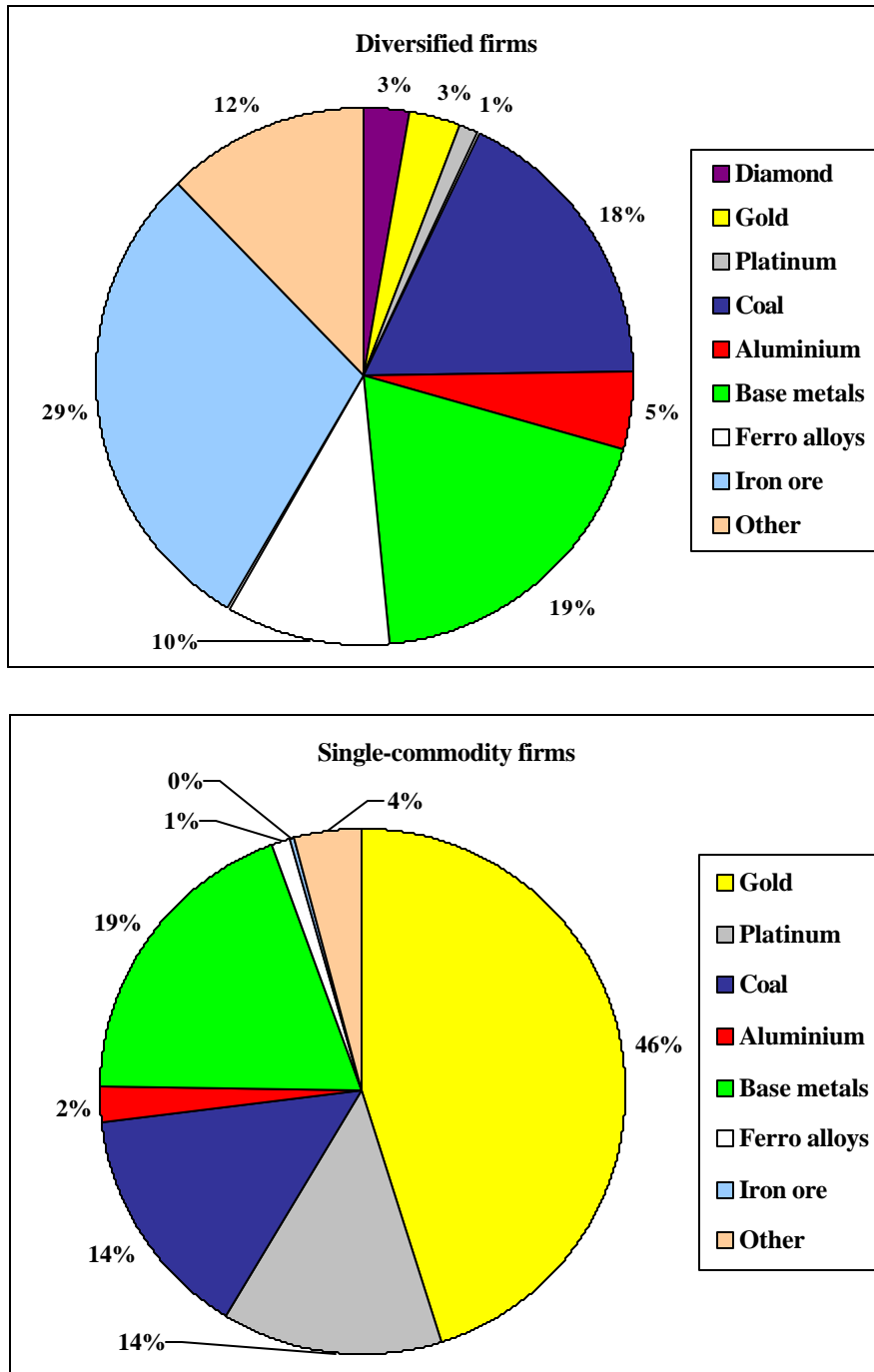
According to figure 6.4, the respondents from diversified mining firms indicated that on average, iron ore (29%), base metals (19%) and coal (18%) were the most prominent commodities in their product portfolios according to sales. In addition, the respondents

from single-commodity firms indicated that on average, gold (46%), base metals (19%) and coal (14%) were the most prominent products in their portfolios, according to sales.

Question 3.8 sought to gain clarity on which activities in the mining value chain the respondents were involved. The aim here was to determine which activities along the mining value chain were the most prominent. The respondents' answers indicated that it is extremely difficult to distinguish the exact asset or sales value of their activities. Most of the respondents' asset and sales value appear to reside in mining, whilst activities such as exploration and smelting are generally closely intertwined with mining activities. In addition, many respondents were unwilling to answer the specific question because of the confidential nature thereof. Figure 6.5 reflects the geographical location of the respondents' operations (question 3.9).

Figure 6.5: Combined geographical location of respondents' operations according to percentage of total asset value (n = 23)
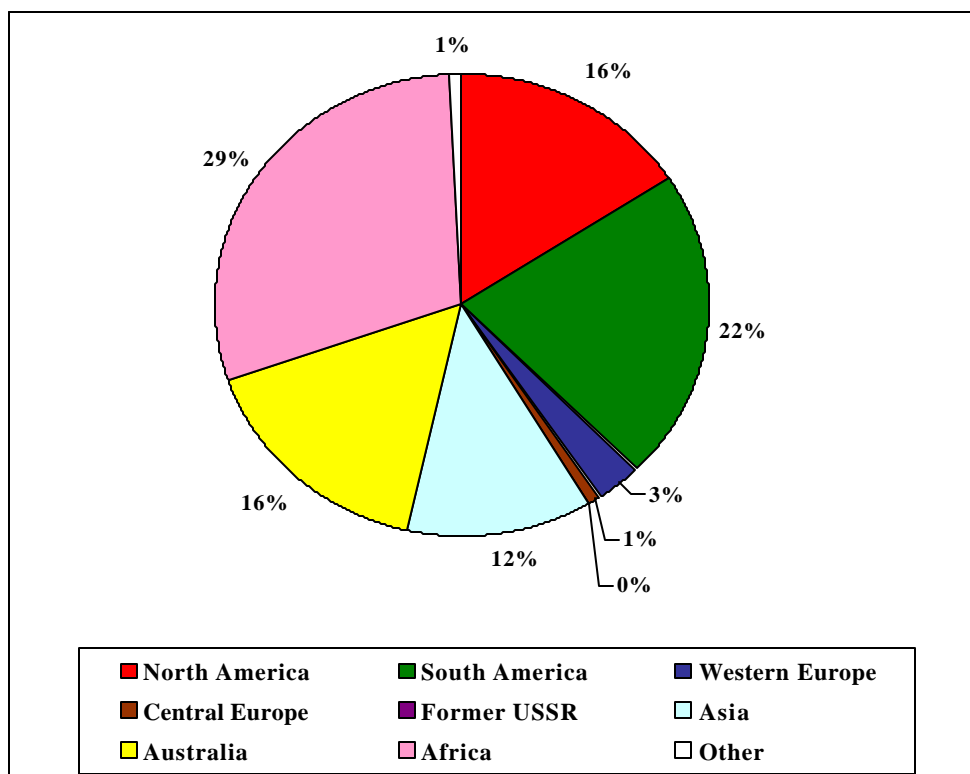
According to figure 6.5, the respondents' answers and information from their annual reports indicate that, according to the average percentage asset value, Africa (29%) and South America (22%) were the most prominent mining continents, with Australia (16%) and North America (16%) also important, albeit to a lesser extent. Contrary to the geographical location of the respondents' mining operations, sales are on average primarily destined for Asia (26%), North America (23%) and Western Europe (13%). This information is evident in figure 6.6 (question 3.10) and concurs with Weber-Fahr's (2001) view that mining is largely a developing country initiative. This argument is true of operational assets, although most of the respondents' head offices are located in developed countries, whilst the majority of their marketing initiatives are focused upon North America, Western Europe and Asia.

Figure 6.6: Combined geographical distribution of respondents' sales (n = 23)
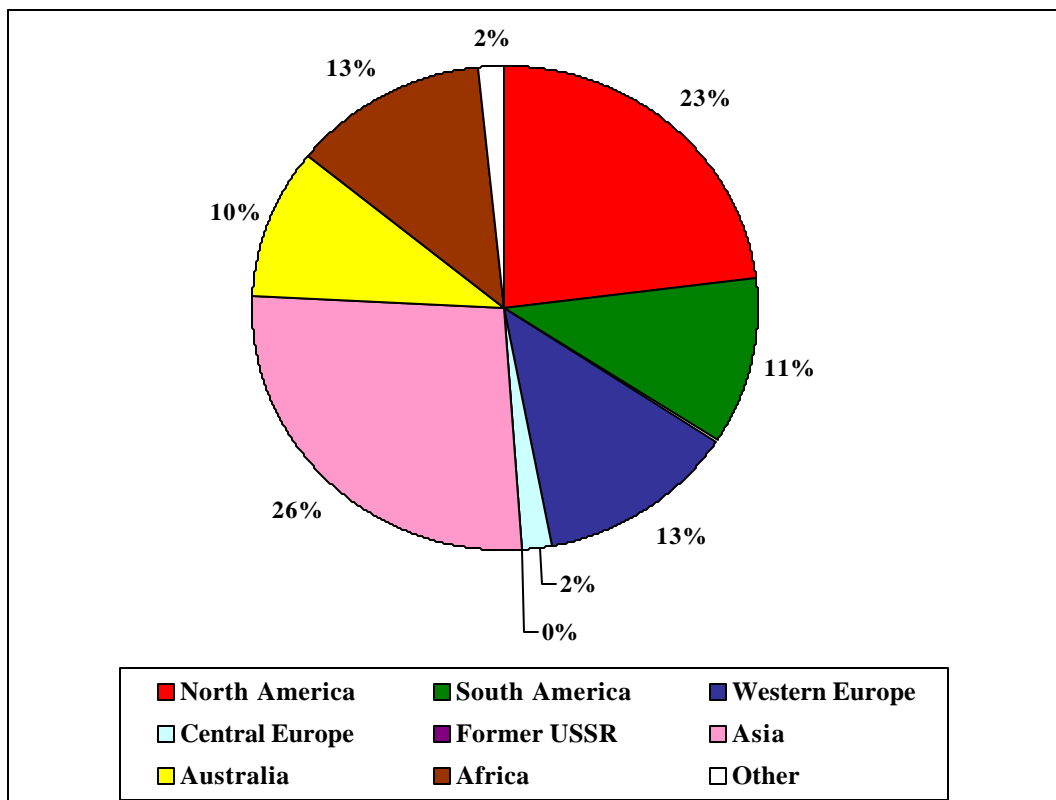
The purpose of question 3.11 was to determine the position and qualifications of the person completing the questionnaire. From the responses it is evident that the individuals all held either middle or senior management positions in their respective firms. In addition, the respondents indicate that they had acquired on average a minimum of two degrees, covering a wide range, from bachelor's degrees in commerce, science and engineering to master's degrees in engineering, MBAs and degrees in chartered accountancy. It is therefore clear that the respondents were well-educated individuals, which may contribute to the quality of the responses and the overall reliability and validity of the study.

Against the background of the corpographical characteristics of the respondents, the focus now shifts to part 2 of the questionnaire, which dealt with competitive analysis practices in the global mining industry. Analysis of these research results was largely conducted upon the respondents as a group. However, owing to the bi-polar nature of corporate strategic thinking in the global mining industry, the respondents were divided into two distinctive subgroups, namely:

- single-commodity global mining firms

- diversified global mining firms

Because of the mentioned bi-polar nature of strategic thinking in the global mining industry, a comparison will be made between the two subgroups in order to determine if any distinctive trends could be identified with regard to competitive analysis practices in the global mining industry.

6.4 THE NEED FOR COMPETITIVE ANALYSIS IN GLOBAL MINING FIRMS REGARDING THEIR COMPETITIVE ENVIRONMENT

The first section of part 2 of the questionnaire was developed from the perspective that any firm, and in this instance a global mining firm, is not an independent entity, but a system consisting of subsystems, which is part of a supra-system (Stacey 2003:24). This supra-system entails the competitive environment with various competitive environmental forces influencing it on a continuous basis. In this regard, Haines (2000:3) contends that people (and firms) are now, at the dawn of the 21st century, vulnerable to more multifaceted, simultaneous changes than ever before. These revolutionary changes present some harsh realities against a backdrop of promising horizons. In this context Haines (2000:5) argues that the next decade will bring even more change than the previous period, and at a greater pace. Various other authors (Gilad 2004; Lasserre 2003:10; Pearce & Robinson 2003:103; Hitt et al 2001:14; Hill 1994:5) concur with these views on the competitive environment and the influence of globalisation on a firm conducting business globally. This matter is of particular importance, and highlights a key influencing factor in this thesis.

Based upon this perspective of the dynamics and turbulence experienced in the competitive environment, the first section of part 2 of the questionnaire was intended to determine the need for competitive analysis in a global mining firm as regards its competitive environment. Questions were consequently developed to determine the following:

- What are the key success factors for global mining firms necessary to achieve a sustainable competitive advantage?

- Which competitive environmental forces and/or actions have most frequently impacted on global mining firms?

- To what extent have global mining firms ever been surprised by the apparent/misconstrued bona fides and/or actions of competitive forces?

- How are the latter firms alerted to strategic surprises developing in the competitive environment?

- How would global mining firms react if they were to identify the potential for a change in the strategic plans of a competitive force?

- To what extent do global mining firms expect an increase in the level of business risk emanating from the competitive environment?

The different questions in section 1, part 2 of the questionnaire will now be discussed.

6.4.1 Key success factors for a sustainable competitive advantage in the global mining industry

Question 2.1.1 dealt with the key success factors necessary to achieve a sustainable competitive advantage in the contemporary global mining industry. The mean scores of the 15 attributes of this question were calculated and presented graphically in figure 6.7. As indicated in this figure, all attributes in question 2.1.1 received scores of above 4 out of 7, which indicates that they are all important for a global mining firm (below 4 indicating degrees of irrelevance), although some more so than others. Global mining firms thus need to focus upon a multitude of factors in order to develop a sustainable competitive advantage, against the backdrop of a turbulent global competitive environment.

Figure 6.7: Key success factors necessary to achieve a sustainable competitive advantage (n = 23)
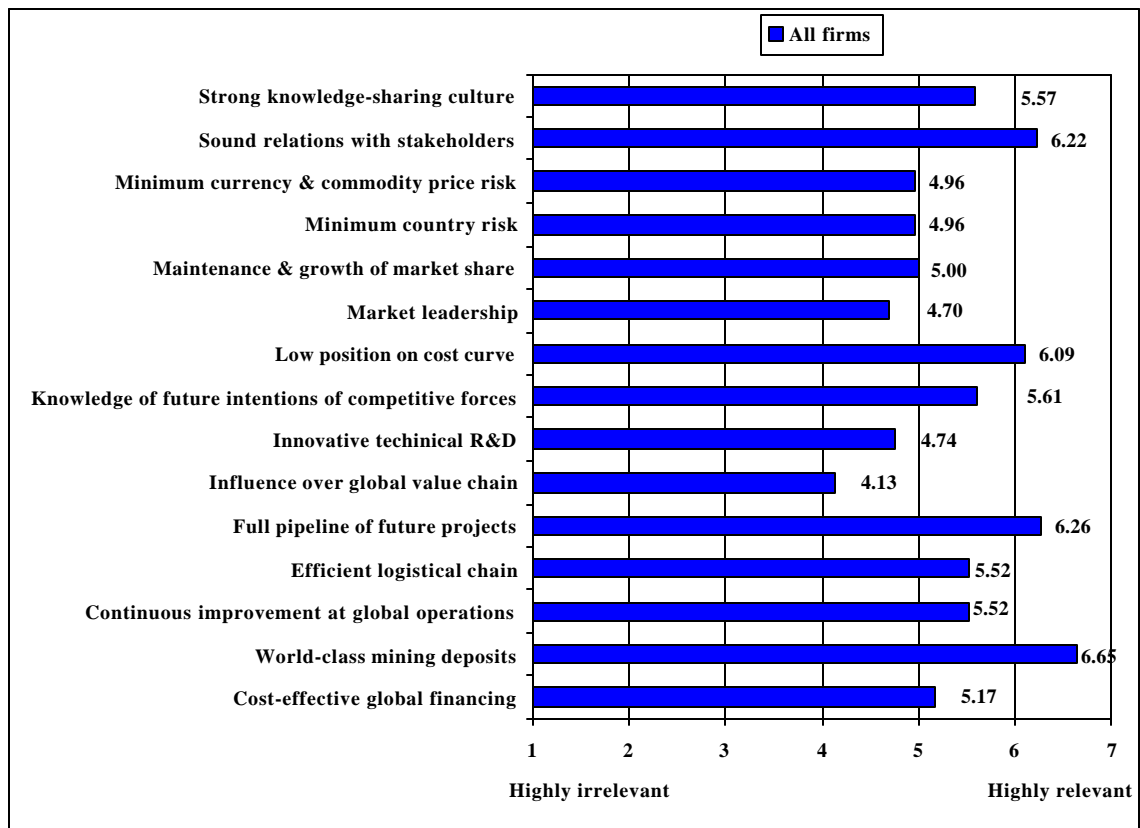
According to figure 6.7, the tangible asset-oriented attributes with the highest relevance are the following:

- access to world-class mining deposits (6.65)

- full pipeline of future projects (6.26)

- low position on the cost curve at world-class operations (6.09)

- an efficient logistical chain (5.52)

- continuous improvement practices at all global operations (5.52)

- cost-effective financing (5.17)

Although extremely important, these are all tangible asset-oriented attributes, which could be perceived as important barriers of entry into the global mining industry. It is also necessary to take cognisance of the fact that most of these attributes were furthermore important throughout the 200-year history of the modern mining industry (see chapter 2, section 2.4). Alone, however, this does not create a sustainable competitive advantage in the contemporary era (Kirkby 2003:1).

According to the respondents' answers, certain other attributes also achieved high relevance. These include the following:

- sound relations with stakeholders (6.22)

- knowledge of the future intensions of competitive forces (5.61)

- a strong knowledge-sharing culture (5.57)

The achievement of strong relations with stakeholders (6.22) reflects the growing importance of this interest group in the business endeavours of global mining firms. This could be attributed to recent developments in the global mining industry where sustainable development, ecologically friendly mining operations, community support in the proximity of mining operations and nonconflicting regulatory actions by the government in which country the mining operations take place, are becoming increasingly important (Wilson 2002:1; Kirkby 2003:1).

In addition, stronger stakeholder relations may also refer to stronger customer and supplier relations (Matthys 2003:6; Anderson 2002:9), with initiatives such as co-opetition in the case of bulk commodities like iron ore and coal, and market development

(platinum and gold), becoming increasingly important in the contemporary era. Examples include in-depth involvement of iron ore producers in the technical steel manufacturing processes of steel firms, or gold platinum producers becoming involved in the research and development of autocatalysts. One respondent firmly supported this matter because he perceives a good marketing organisation as becoming a non-negotiable key success factor in the contemporary global mining industry in order to truly understand and relay customers' needs to the home firm's strategic initiatives. This basic fact emphasising a stronger marketing orientation, should be viewed in light of the fact that the mining industry has traditionally been perceived largely as a commodity and production-oriented industry with limited marketing orientation.

The high score awarded to the attribute "knowledge of the future intentions of competitive forces" (5.61), in the context of this study, is of particular significance because it confirms the dynamic influence of the actions of competitive forces on global mining firms in the contemporary era. It also relates to the deeper demeanour of competitive learning, where knowledge of the various competitive forces should lead the home firm to reflect on its own actions in order to extend the range of its choices (Fahey 1999:26). This matter will be placed in more perspective during the discussions of the other questions.

However, if the perceptions of the two subgroups of respondents are scrutinised, additional trends become apparent. Figure 6.8 graphically illustrates the mean scores for the 15 attributes for single-commodity and diversified firms. In this regard, a t-test for independent means was calculated to test whether the differences between the two groups, single-commodity and diversified firms, are statistically significant. In addition to the t-test, the effect size was also calculated (see chapter 6, section 2). The results of the t-test and effect sizes on question 2.1.1 are indicated in table 6.1 (for the sake of brevity, only the p-value of the t-test is provided in table 6.1.) Annexure 5 contains the mean scores, whilst annexure 6 contains the full t-test results for all t-tests conducted for this study.

Figure 6.8: Key success factors for single-commodity and diversified global mining firms (n = 23)
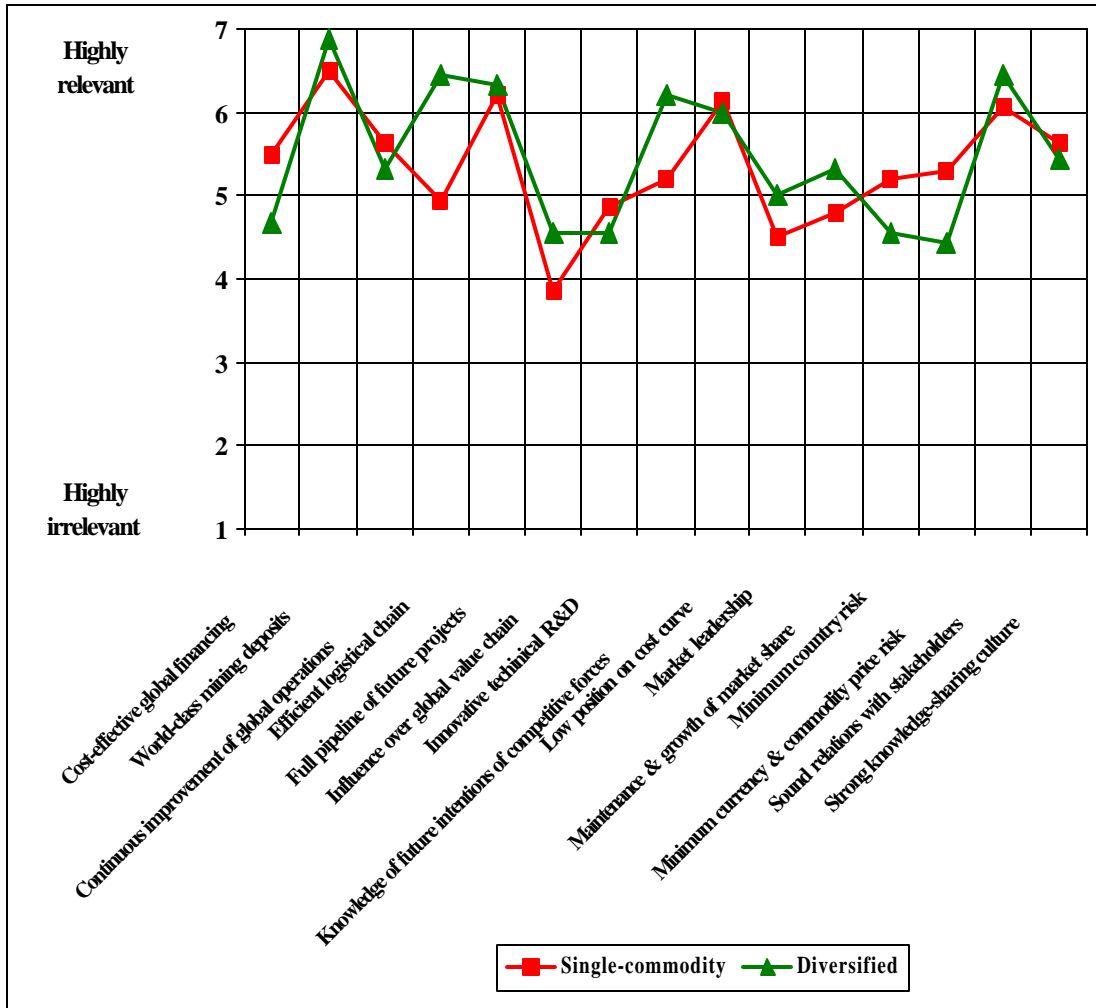
Source: Table 1, annexure 5; Table 1, annexure 6

The t-test for independent means indicates that the two types of firms differ significantly on two attributes, because these attributes show p-values below the indicated benchmark of 0.05. These attributes are:

- efficient logistical chain supporting global operations (p = 0.003)

- knowledge of the future intentions of competitive forces (p = 0.025)

Table 6.1: Comparison of diversified and single-commodity firms on the key success factors: t-test for differences and effect size

Key success factor	Diversified Mean	Single Mean	p-value	Effect size	Classification
Access to global finance	4.67	5.50	0.275	-0.64	Medium
Access to mining deposits	6.89	6.50	0.408	0.40	Small/medium
Continuous improvement initiatives	5.33	5.64	0.602	-0.27	Small
Efficient logistical chain	6.44	4.93	0.003	1.48	Very large
Full pipeline of future high value mining	6.33	6.21	0.825	0.11	Small
Influence over global value chain	4.56	3.86	0.249	0.60	Medium
Innovation technical R&D	4.56	4.86	0.661	-0.27	Small
Knowledge of future intentions of competitor	6.22	5.21	0.025	0.98	Large
Low position on cost curve	6.00	6.14	0.765	-0.13	Small
Market leadership	5.00	4.50	0.463	0.40	Medium/small
Maintenance and growth of market share	5.33	4.79	0.341	0.47	Medium/small
Minimum country risk	4.56	5.21	0.268	-0.56	Medium
Currency and commodity price fluctuations	4.44	5.29	0.221	-0.68	Medium
Stakeholder relationship	6.44	6.07	0.371	0.38	Small
Strong knowledge-sharing culture	5.44	5.64	0.677	-0.19	Small

Based upon figure 6.8 and table 6.1, it would seem that diversified firms regard an efficient logistical chain as being more important than single-commodity firms. This may be because of the fact that many of the commodities included in the portfolios of respondents from diversified firms, such as coal and iron ore, are of a bulk and low-value per unit nature, whereas many of the respondents of single-commodity firms were gold, base metal and platinum producers. Consequently, an effective logistical chain is perceived by diversified mining firms as being the differentiating factor between having a mere valuable mining asset and being able to implement a value-creating strategy (Hitt et al 2001:5), by supplying in order to satisfy global market demand.

In addition, diversified mining firms regard knowledge about the future intentions of the forces in their competitive environment as being significantly more important than single-commodity firms. This view of the respondents from diversified firms is of particular significance in this study, because it relates to the global range these firms have to cover regarding opportunities and threats in the 21st century competitive landscape. An early warning and analytical capability to monitor and add perspective to competitive force dynamics thus become imperative in order to achieve strategic competitiveness. According to the findings in this question, it could be argued that diversified global mining firms are more sensitive towards the dynamics of the competitive environment than single-commodity firms.

The effect size calculation presents an additional finding in which medium-sized effects is found, although, the t-test did not detect any significant differences because of the small base size (see chapter 6, section 2).

Medium effects are apparent between diversified and single-commodity firms in terms of:

- access to cost-effective financing (effect size = -0.64)

- influence over the firm's global value chain (effect size = 0.60)

- minimum country risk with regard to global operations (effect size =-0.56)

- influence of currency and commodity price fluctuations (effect size = -0.68)

In context of the above findings, it could be argued that access to global cost-effective financing is more relevant to single-commodity firms, while diversified firms indicated that the global value chain has a higher relevance for them than for single-commodity firms. Single-commodity firms are more susceptible to currency commodity and country risks than diversified firms. In this regard, it could be argued that diversified firms, compared with single commodity mining firms, have a wider range of commodities in their product portfolio, are geographically more diversified and market products with differing price cycles. Hence macroeconomic risk is spread more widely in diversified firms than in single-commodity firms.

6.4.2 Competitive environmental forces that have impacted most frequently on global mining firms

The aim of question 2.1.2 was to gauge respondents' perception of the competitive environmental forces and/or actions that have most frequently impacted on global mining firms' competitive position during the previous three years. The mean scores of the 14 attributes were calculated and are indicated in figure 6.9.

Figure 6.9: Competitive environmental forces that have impacted most frequently on global mining firms (n = 23)
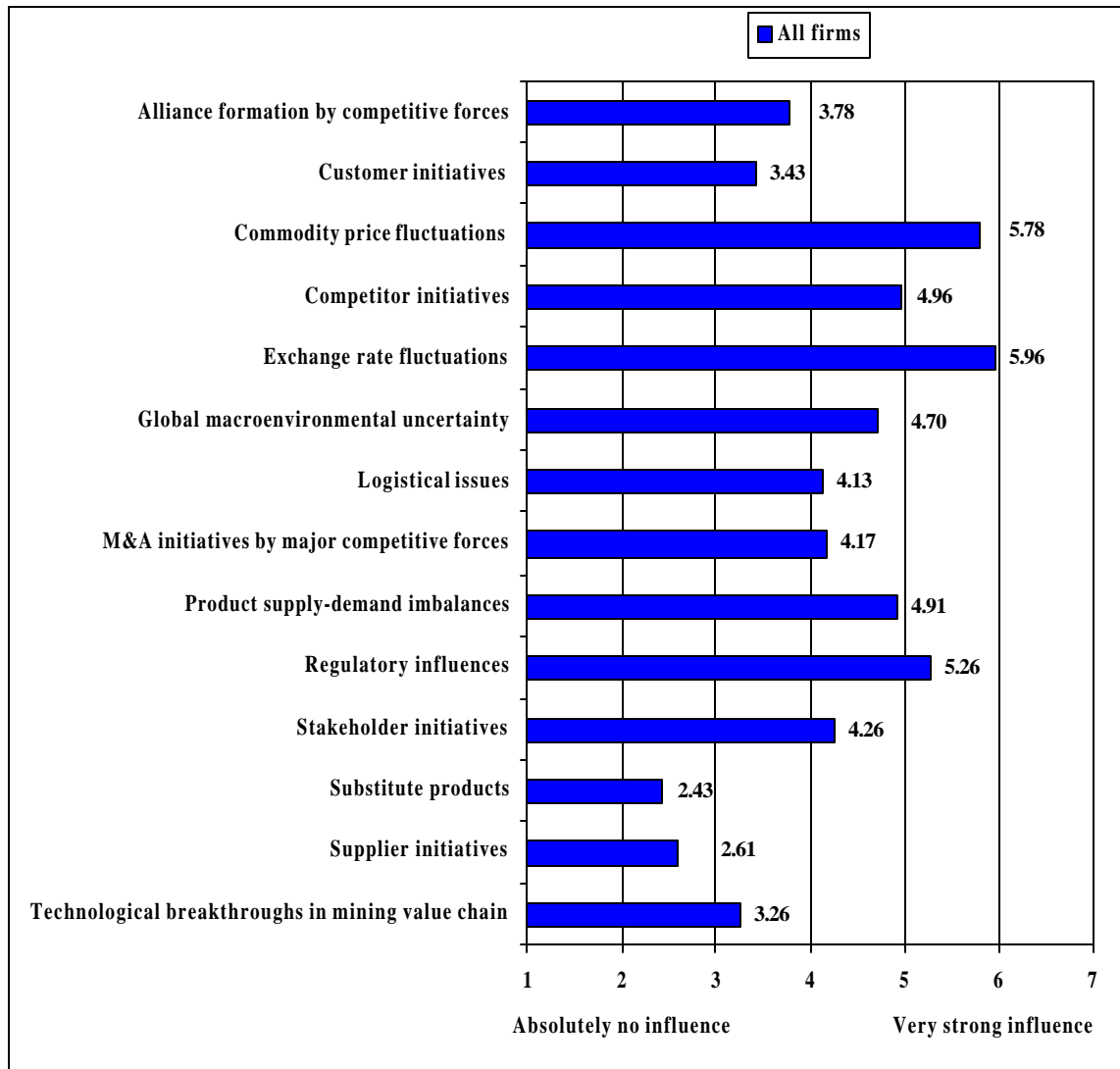
Source: Table 2, annexure 5

According to this figure, the respondents' answers indicated that the following competitive environmental forces have most frequently impacted on them during the past three years:

- exchange rate fluctuations (5.96)

- commodity price fluctuations (5.78)

- regulatory influences (5.26)

Second-tier competitive environmental influencing forces are the following:

- competitor initiatives (4.96)

- product supply-demand imbalances (4.91)

- global macroenvironmental uncertainty (4.70)

Apart from competitor initiatives, these influences largely confirm a strong macro environmental perspective by respondents.

In contrast to these strong influences, the respondents were of the opinion that substitute products (2.43), supplier initiatives (2.61), technological breakthroughs (3.26) and customer initiatives (3.43) have had hardly any influence on them. Of specific interest, however, is the fact that, according to figure 6.7, global mining firms view sound relations with stakeholders as a highly relevant key success factor (6.22). However respondents' perceptions in figure 6.9 indicate that stakeholder intentions have only had a slight influence on global mining firms during the past three years (4.26). This probably emphasises a "latent fear" by global mining firms regarding the possible influence stakeholders may have on their competitive advantage, which could generally be extremely detrimental. The need for an early warning and analytical capability to monitor and give perspective to these influences is again confirmed.

Figure 6.10 graphically reflects the mean scores for the 14 attributes in question 2.1.2 of respondents from single-commodity and diversified mining firms.

Figure 6.10: Competitive environmental forces that have most frequently impacted on single-commodity and diversified global mining firms (n = 23)
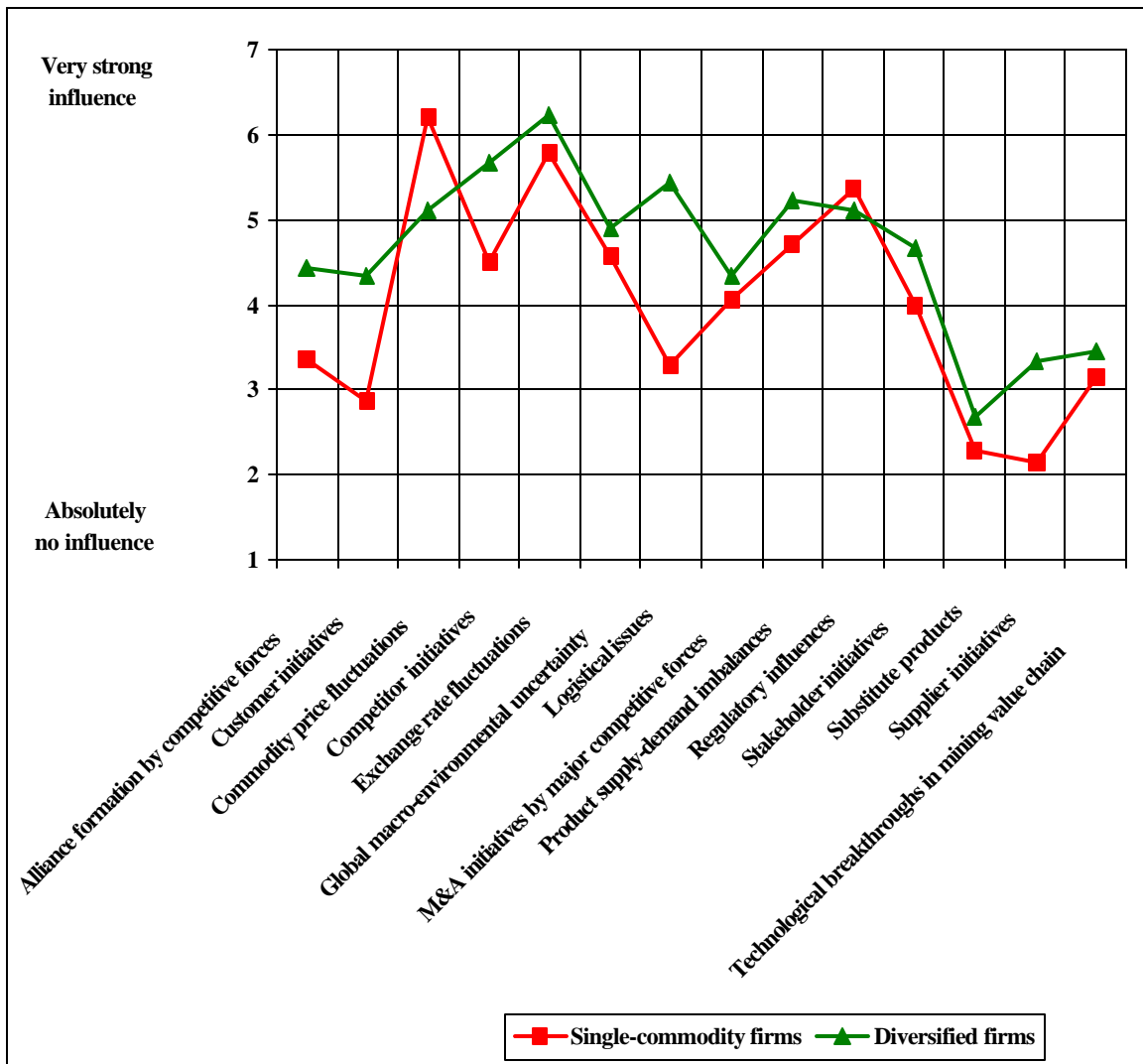
Source: Table 2, annexure 5; table 2, annexure 6

In addition to figure 6.10, table 6.2 contains the results from the t-test for differences and the effect size calculations on the above-mentioned 14 attributes.

Table 6.2: Comparison of diversified and single-commodity firms on the impact of competitive forces: t-test for differences and effect size

	Diversified mean	Single mean	p-value	Effect size	Classification
Alliances formed by competitors	4.44	3.36	0.194	0.78	Large
Customer initiatives	4.33	2.86	0.036	1.25	Very large
Commodity price fluctuations	5.11	6.21	0.046	-1.08	Very large
Competitor initiatives	5.67	4.5	0.048	1.09	Very large
Exchange rate fluctuations	6.22	5.79	0.515	0.37	Small
Global macroenvironmental uncertainty	4.89	4.57	0.614	0.28	Small
Logistical issues	5.44	3.29	0.001	2.01	Very large
Merger and acquisitions	4.33	4.07	0.766	0.19	Small
Product supply-demand imbalances	5.22	4.71	0.523	0.40	Small/medium
Regulatory influences	5.11	5.36	0.656	-0.23	Small
Stakeholder initiatives	4.67	4	0.374	0.54	Medium
Substitute products	2.67	2.29	0.539	0.33	Small
Supplier initiatives	3.33	2.14	0.029	1.15	Very large
Technology breakthroughs	3.44	3.14	0.623	0.26	Small

Based upon figure 6.10 and table 6.2, diversified firms appear to be significantly more likely to have been influenced by certain competitive environmental forces than single-commodity firms. These influences include the following:

- alliances formed by competitive forces (effect size = 0.194)

- customer initiatives (p = 0.036)

- competitor initiatives (p = 0.048)

- logistical issues (p = 0.001)

- supplier initiatives (p = 0.029)

From the above-mentioned finding, it is apparent that diversified firms have been influenced considerably more by competitive forces such as competitors, customers, suppliers and logistical firms than single-commodity firms. The reason for this could be that due to the larger global and commodity exposure of diversified firms in the competitive arena to such forces compared with single-commodity firms. By contrast, single-commodity firms, perceive commodity price fluctuations (p = 0.046) to have had a stronger influence on them in the last three years than diversified firms. A possible reason for this could the definite risk of being involved in only one commodity group for such firms.

A medium effect (effect size = 0.54) is also observed for stakeholder initiatives, where diversified firms view the influence of stakeholder initiatives in a far more serious light than single-commodity firms. This view of diversified firms, confirms that they regard developing sound relations with stakeholders as a highly relevant critical success factor compared with single-commodity mining firms. In addition, a comparison of figures 6.8 and 6.10 seems to indicate that diversified firms have been influenced to a lesser extent by stakeholders than what their perception of sound relations with stakeholders as a key success factor in the global mining industry indicates.

In general, it is apparent from these findings that diversified firms are more conscious about the influence of the wide array of competitive environmental forces on them compared with single-commodity firms.

6.4.3   The extent to which global mining firms have been surprised by competitive forces

The aim of question 2.1.3 was to determine the extent to which the apparent/misconstrued bona fides and/or actions of competitive forces have surprised global mining firms. The mean score of 3 was calculated for this question for the total group (n=23). Because the scale of this question ranged from 1, "often been surprised", to 7, "never been surprised", it could be argued that the bona fides and actions of competitive forces have often surprised global mining firms during the previous three years. The views of diversified and single-commodity firms were also compared and figure 6.11 indicates the mean scores for the one attribute in question 2.1.3 for the two groups.

Figure 6.11: Influence of competitive force' actions on global mining firms (n = 23)
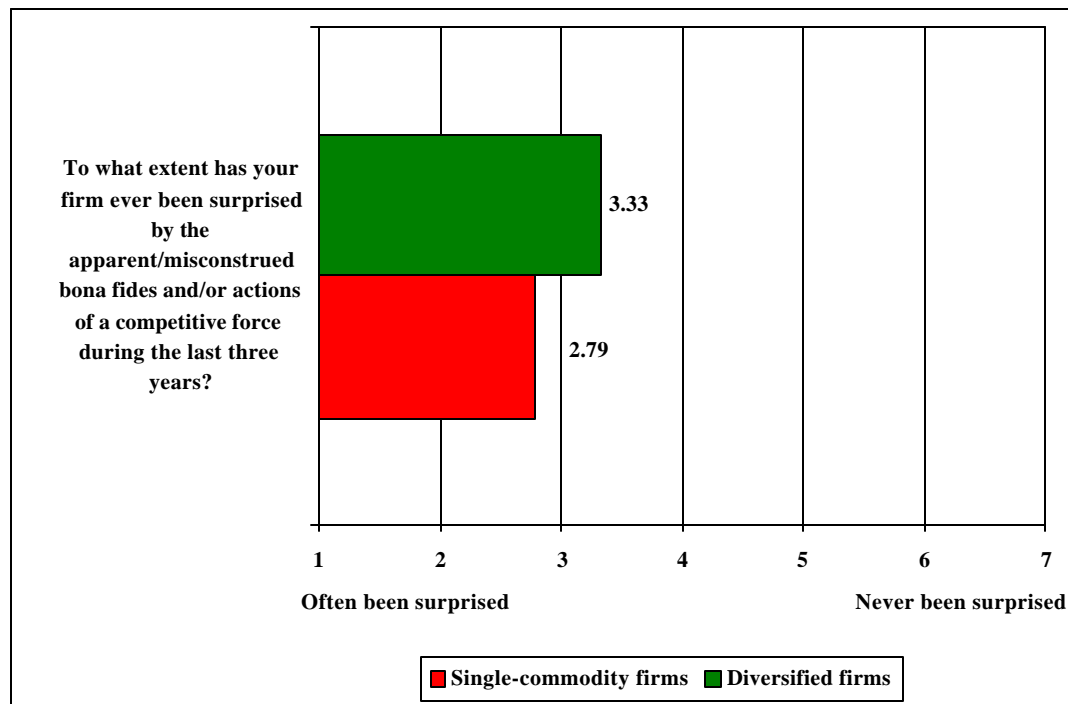
Source: Table 3, annexure 5; table 3, annexure 6

From figure 6.11 it is evident that the respondents from diversified and single-commodity firms generally have similar views on the influence of competitive force actions on them. This is supported by a t-test for independent means (table 3, annexure 6) where no significant difference was found ($p = 0.265$). This matter underpins the fact that global mining firms may be strongly focused upon internal tangible realities and to a degree may have a *laissez-faire* approach towards their competitive environment. An additional inference may be that the tangible realities of business are receiving the major part of management's attention, whilst human nature, which lies behind all business-related negotiations and initiatives, is in many instances negated. A kind of reluctance in global mining firms regarding the influences of the intentions of competitive force on the implementation of value-creating strategies thus seems evident. Another possible inference is that respondents may have a "see, but don't see" view of the competitive environment around them. In this regard, it is imperative that the influence of these competitive forces on global mining firms be managed with diligence. In order to limit unplanned surprises emanating from forces in the competitive environment, it becomes imperative that a strategic early warning capability supported by dynamic analysis of these actions, receive attention in global mining firms.

6.4.4 The way global mining firms are alerted to strategic surprises

The aim of question 2.1.4 was to determine the respondents' perception of how global mining firms are alerted to early signals of strategic surprises in the competitive environment. The mean scores of the nine attributes explicated in the question are depicted in figure 6.12.

Figure 6.12: The way global mining firms are alerted to strategic surprises in the competitive environment (n = 23)
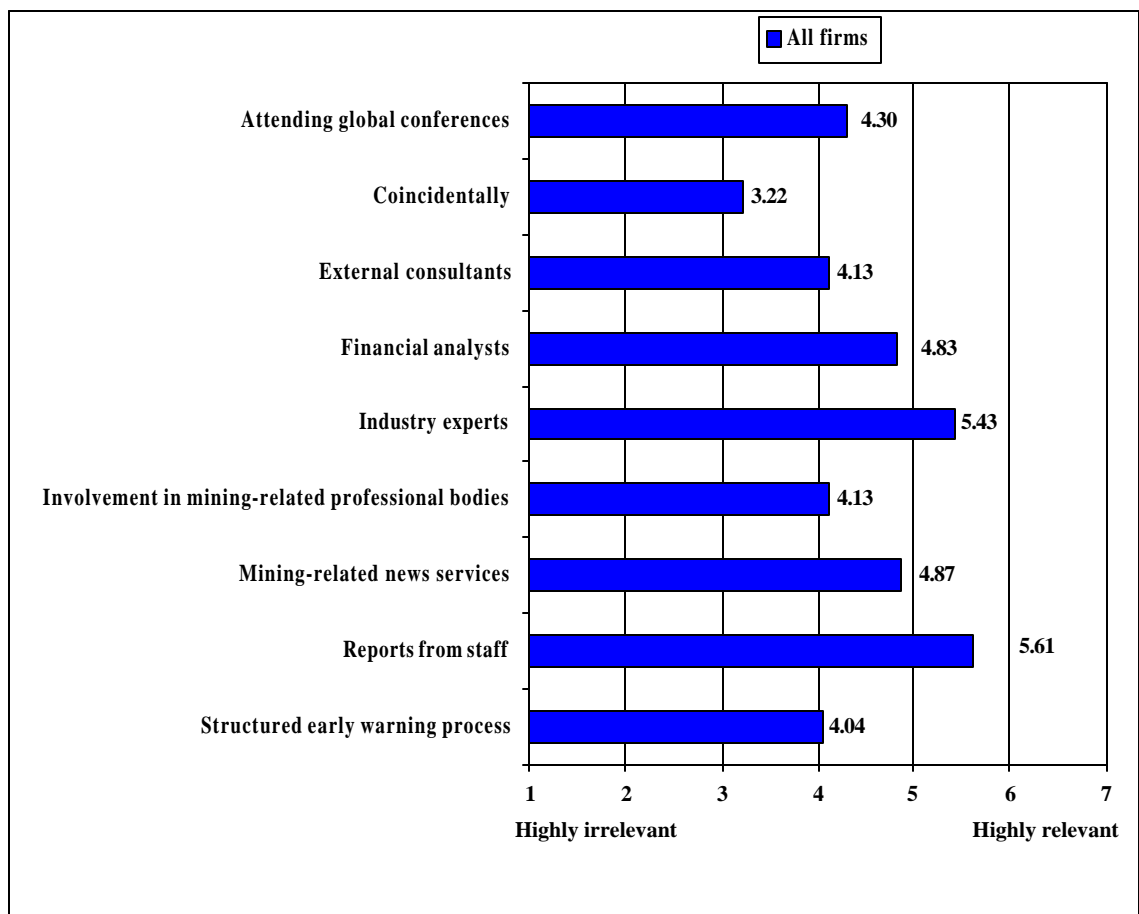
In general, the respondents' perceptions of question 2.1.4 again confirm a certain degree of a *laissez-faire* approach to the way they are alerted to strategic surprises emanating

from the competitive environment with only two attributes achieving fallout of higher than five. However, the respondents also indicated that internal staff and industry experts are the most efficient way to be alerted to early signs of strategic surprises (fallouts of 5.61 and 5.43 on the semantic differential, respectively). This response confirms an important competitive intelligence reality that a firm's own staff are the most important source of information about to events happening in the competitive environment. It is imperative, however that firms, and especially global firms, continuously train and sensitise employees in order to unlock this valuable "intelligence treasure chest". In addition, reliable industry experts should continuously be identified and developed in order to build an efficient intelligence network for early warning and collection purposes.

Of specific interest is the fact that mining-related news services achieved a relatively high fallout on the semantic differential of 4.87. An inference that could be made in this regard, is that in the modern age of the information explosion, where instant access to the Internet and other electronic sources, are at the order of the day, such information alone does not give a firm a competitive edge. In addition, the importance of the "human factor" in being alerted to early signals of strategic surprises is again confirmed. Financial analysts (4.83), external consultants (4.13), the attendance of global conferences (4.30) and involvement in mining-related professional bodies (4.13) are also perceived by respondents as having only some minimal relevance in being alerted to strategic surprises from the competitive environment. The latter two should, however, not be disregarded, because of the immense opportunity to develop networks with knowledgeable individuals.

In addition, a structured early warning system is perceived by global mining firms to be neutrally relevant and/or irrelevant as a means of being alerted to strategic surprises, with 4.04 fallout. This may give an indication that no structured early warning process exists in the latter firms, which adds to the contribution made by this study, and specifically the dynamic competitive analysis model (see chapter 7) makes. It therefore comes as no surprise why respondents might have been surprised by the actions and bona fides of forces in their competitive environment, indicated in figure 6.11.

Figure 6.13 reflects the mean scores for the nine attributes explicated in question 2.1.4 for diversified and single-commodity mining firms.

Figure 6.13: The way single-commodity and diversified global mining firms are alerted to early signals of strategic surprises (n = 23)
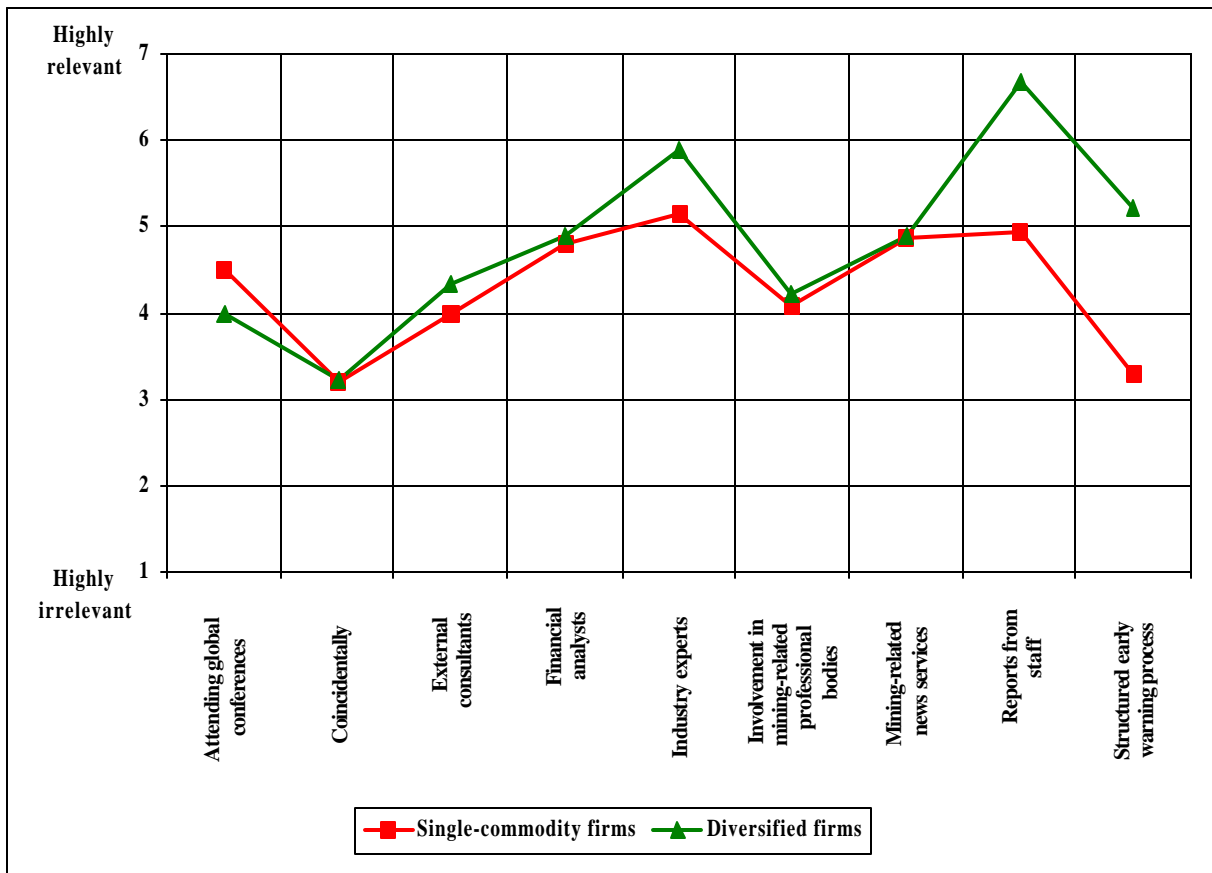
In addition to the information in figure 6.13, the effect size for the various attributes for diversified and single-commodity firms was also calculated. These results are shown in table 6.3.

Table 6.3: Comparison of diversified and single-commodity firms on being alerted to early signals of strategic surprises

Way of being alert	Diversified mean	Single mean	p-value	Effect size	Classification
Attending global mining conferences	4.00	4.50	0.365	-0.45	Medium/small
Coincidentally	3.22	3.21	0.988	0.01	Small
External consultants	4.33	4.00	0.546	0.29	Small
Financial analysis	4.89	4.79	0.840	0.09	Small
Industry experts	5.89	5.14	0.122	0.73	Large/medium
Mining-related professional bodies	4.22	4.07	0.815	0.12	Small
Mining-related news services	4.89	4.86	0.946	0.03	Small
Reports from staff	6.67	4.93	0.003	1.56	Very large
Structured early warning process	5.22	3.29	0.012	1.51	Very large

From figure 6.13 and table 6.3 it is evident that very large and statistically significant differences are observed between diversified and single-commodity firms in terms of reports from staff (p = 0.003) and structured early warning processes (p = 0.012) as a means of being alerted to early signals of strategic surprises. In both instances, diversified mining firms are more likely to view these factors as being more relevant in alerting them to signals of strategic surprises compared with their single-commodity counterparts.

In addition to the significant differences on the above-mentioned two attributes, a medium to large effect is also observed for industry experts (effect size = 0.73) as a method of being alerted to strategic surprises emanating from the competitive environment. In this regard, the findings suggest that because of their wider global and commodity exposure, diversified firms are more proactive as regards the use of a strategic early warning process, compared with single-commodity firms.

6.4.5   The way global mining firms would react to changes in the strategic plans of a competitive force

As a corollary to the previous question, the aim of question 2.1.5 was to determine how global mining firms would react to a potential change in the strategic plans of a competitive force that could influence the firm. The mean score for the one attribute indicated in the question was compared across data sets for single-commodity and diversified global mining firms, and is depicted in figure 6.14. In this regard, the respondents from single-commodity firms were somewhat neutral to slightly negative in the way they would react to such sudden changes (fallout of 3.93). In contrast, the answers of the respondents from diversified firms indicate a more formal and proactive approach to the actions of competitive forces (fallout of 4.89).

Figure 6.14: The way global mining firms react to the actions of competitive forces (n = 23)
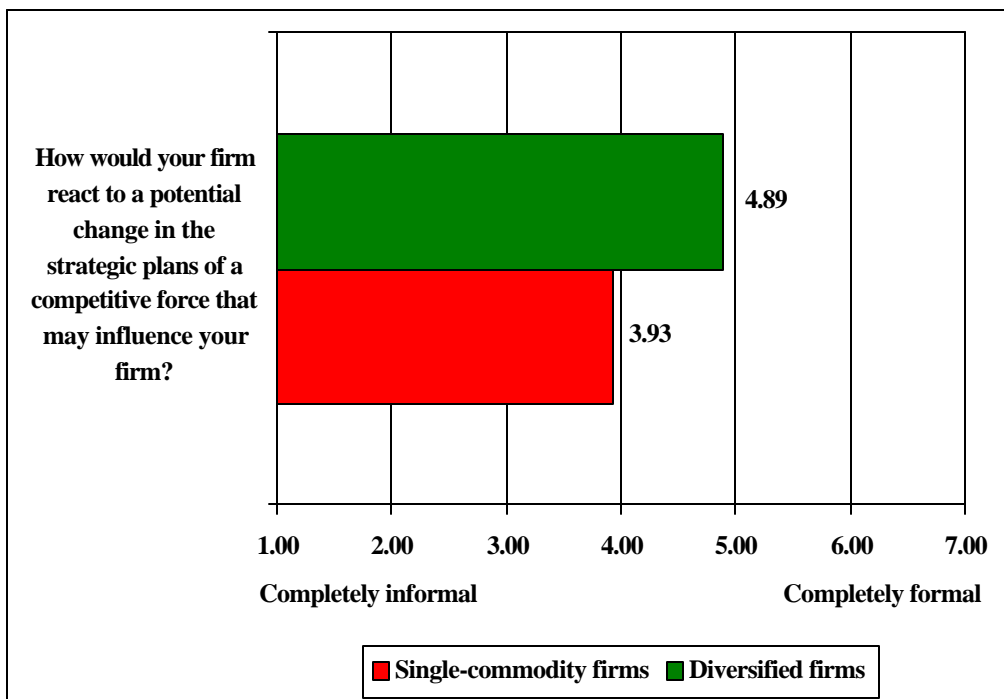
Source: Table 5, annexure 5; table 5, annexure 6

Table 6.4 below depicts the effect size calculations for the two groups of firms for the one attribute, which confirm a large difference in the way diversified and single-commodity firms react to competitive forces (p = 0.039). These fallouts largely confirm a limited formal way of reacting to the actions of competitive forces in single-commodity firms. In addition, there is substantial evidence in diversified firms of a more structured approach to the way they would react to the actions of competitive forces.

Table 6.4: Comparison of the way diversified and single-commodity mining firms react to competitive forces

	Diversified mean	Single mean	p-value	Effect size	Classification
Reaction to competitive forces	4.89	3.93	0.039	0.96	Large

Based upon these findings, and in the context of this study, however, there is much room for improvement in both single-commodity and diversified firms regarding their reaction to possible strategic surprises. An important additional general deduction emanating from figure 6.14 and table 6.4 relates to the fact that in order to implement value-creating strategies within the confines of the turbulence of the competitive environment, global mining firms will have to approach their reaction to the actions of competitive forces in a much more formal and proactive way. Because of the long-term nature and capital intensiveness of the global mining industry, where a mining project may have a lifespan of more than 30 years and cost vast sums of money, increased diligence is required. In many instances, a single mining investment that is negatively influenced by competitive force initiatives may have a major influence on the firm's ability to execute value-creating strategies, which has a negative impact on its competitive advantage and possibly even its future existence.

6.4.6   The extent to which global mining firms expect an increase in the level of business risk

Question 2.1.6 of the questionnaire was used to test the respondent's perception of whether the competitive environment will become more risky in the next three years. The mean score for the one attribute indicated in the question was statistically compared across data sets for single-commodity and diversified firms. The results are indicated in figures 6.15.

Figure 6.15: Global mining firms' view of their competitive environment over the next three years (n = 23)
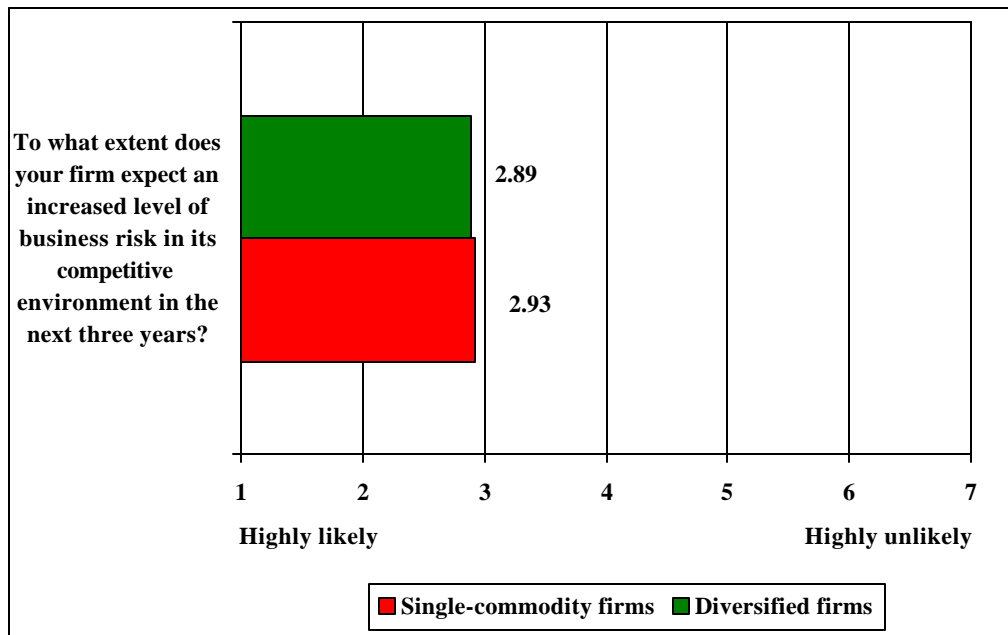
Source: Table 6, annexure 5; table 5, annexure 6

In addition to figure 6.15, table 6.5 below depicts the effect size calculations for the two groups of firms.

Table 6.5: Comparison of the view of diversified and single-commodity firms of their competitive environment over the next three years

	Diversified mean	Single mean	p-value	Effect size	Classification
To what extent does your firm expect an increased level of business risk in its competitive environment in the next three years?	2.89	2.93	0.875	-0.05	Small

As shown in figure 6.15 and table 6.5, there is no major assignable source of variation between the perceptions of respondents from single-commodity and diversified global mining firms regarding the expectancy of a definite increase in the level of business risk emanating from their competitive environment in the next three years (p = 0.875). In the context of this study, it is thus important to take cognisance of this particular finding. This view of all the respondents about an increase in business risk emanating from the competitive environment largely concurs with Gilad's (2004:4) research on the matter. This research, conducted on Fortune 500 firms indicates that 80% of respondents expect that business risk emanating from their competitive environment to show a definite increase over the medium term.

In the wider context of the influence of the competitive environment on a firm's ability to execute value-creating strategies, Gilad (2004:5) argues that surprise in business is just as damaging as in the military arena. In the military context, many surprises were not the result of cunning deceptions and lack of early signs. Instead, those surprises were successful because the "other side" was the captive of obsolete assumptions and beliefs that led, in the absence of counter-mechanisms, to ignoring the signs of risk. It is thus apparent that the failure to act early on impending surprises relates strongly to a lack of action and a structural process for managing these influences. This matter relates strongly to the primary objectives of this study, namely to create a dynamic competitive analysis model for a global mining firm, where a part of such a capability relates to a strategic early warning system, focused upon identifying early signs of strategic surprises.

6.5 THE KEY REQUIREMENTS FOR SUCCESSFUL COMPETITIVE ANALYSIS IN GLOBAL MINING FIRMS

6.5.1 Key requirements for competitive analysis

The aim of question 2.2.1 was to determine the respondents' perception of the key requirements for successful competitive analysis in global mining firms. From another perspective, the focus of this question was to determine whether there is any competitive intelligence capability supporting competitive analysis activities in global mining firms. The mean scores of the 12 attributes indicated in the question were compared. The respondents' answers to this question are provided in figure 6.16.

Figure 6.16: Key requirements for successful competitive analysis in global mining firms (n = 23)
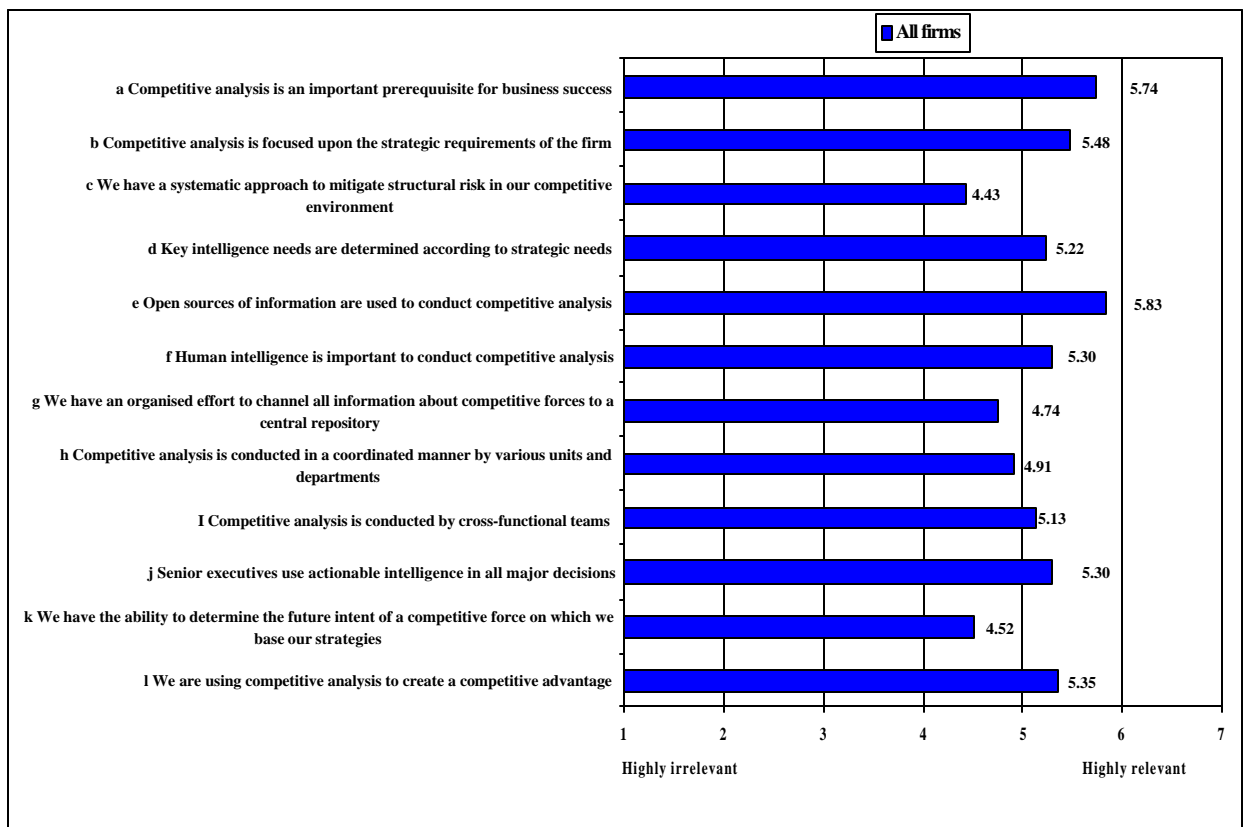
Source: Table 7, annexure 5

Twelve options focusing upon the various phases of the competitive intelligence cycle were included in question 2.2.1. Each of the options was intended to test a specific stage of the competitive intelligence cycle. Table 6.6 indicates the different attributes.

Table 6.6: Purpose of the options in question 2.2.1

Purpose of option	Option
Purpose of competitive analysis	a, b
Existence of a strategic early warning system	c
Determining key intelligence needs	d
Collection of information	e, f
Data - and information - capturing capability	g
Who conducts competitive analysis in the firm?	h, i
Influence of competitive analysis on decision making	j, k, l

These options will now be discussed.

- **Purpose of competitive analysis.** From the responses indicated in figure 6.16, it is evident that the competitive analysis activities in global mining firms are viewed as a relevant prerequisite for business success, with a response of 5.74 on the semantic differential (option a). In addition, such endeavours are reasonably well focused upon the strategic requirements of the respondents, with 5.48 fallout on the semantic differential (option b).

- **Existence of a competitive early warning system.** The respondents' answers to option c, however, reflect that they do not have an extremely basic (if at all) early warning system with 4.43 fallout on the semantic differential. This view is consistent with the respondents' view in figure 6.12 where a structured early warning system acquired 4.04 fallout on the semantic differential. This limited systematic approach to mitigate structural risk emanating from the competitive environment concurs with Gilad's view that many CEOs do not really know what is

happening in their competitive environment, and act largely on instinct when surprises do happen (Gilad 2004:5). This view also relates to figure 6.11 where the respondents indicated that their firms have in the past often been surprised by the actions of competitive forces.

- **Determining key intelligence needs.** However, despite the above-mentioned lack of a structured early warning system, key intelligence needs are reasonably relevant for global mining firms, with 5.22 fallout on the semantic differential (option d). A conclusion in this regard relates to the fact that global mining firms probably determine their key intelligence needs at their annual strategic sessions, or according to certain strategic projects on which they wish to embark. This relates strongly to General Electric's "old world" approach to competitive analysis with static competitive analysis and routine and reactive report generation (Prescott & Miller 2001:27). In a dynamic and turbulent competitive environment such an approach seems extremely "old world" related.

- **Collection of information.** From an information collection perspective, the respondents indicated that during the competitive analysis process, slight preference is given to open source or secondary information, compared with the use of human intelligence. In this regard, the respondents gave 5.83 and 5.30 fallouts for the use of information from open and human sources, respectively, according to the semantic differential (options e and f). This fallout largely concurs with the results indicated in figure 6.12.

- **Data and information capturing capability.** Most of the respondents confirmed the existence of a central repository for information about the various forces in the competitive environment (option g). However, this is hardly convincing with 4.74 fallout on the semantic differential.

- **Groups/departments conducting competitive analysis.** The respondents indicated that competitive analysis was conducted by various units and departments and, in many instances, by cross-functional teams, with respective fallouts of 4.91 and 5.13 on the semantic differential (options h and i). This response indicates that there is no single group in global mining firms that conducts competitive analysis.

- **Influence of competitive analysis on decision-making.** Lastly, the respondents indicated that competitive analysis does have an influence on strategic decision making in their firms. In this regard, their responses to the use of actionable intelligence in all major decisions and the use of this to create a competitive advantage, achieved 5.30 and 5.35 fallouts, respectively, on the semantic differential (options j and l). These results indicate that there seems to be some room for improvement. Of concern, however, is the fact that the respondents indicated that they have a limited ability to determine the future intent of a force in their competitive environment, with 4.52 fallout on the semantic differential (option k). Again this relates strongly to their ad hoc use of competitive analysis and the fact that the actions and/or bona fides of forces in their competitive environment have often surprised them (figure 6.11). In addition, when the latter result is compared with respondents' views on question 2.4.2 (figure 6.38), it is apparent that single-commodity firms have limited knowledge about the future intent of a competitive force, with 4.29 fallout. Some reliability in the empirical results is thus confirmed.

To determine if there are any significant differences in the approach to competitive analysis and competitive intelligence by single-commodity compared with diversified firms, figure 6.17 graphically illustrates the mean scores for the 12 options for diversified and single-commodity firms.

Figure 6.17: Key requirements for successful competitive analysis in single-commodity and diversified global mining firms (n = 23)
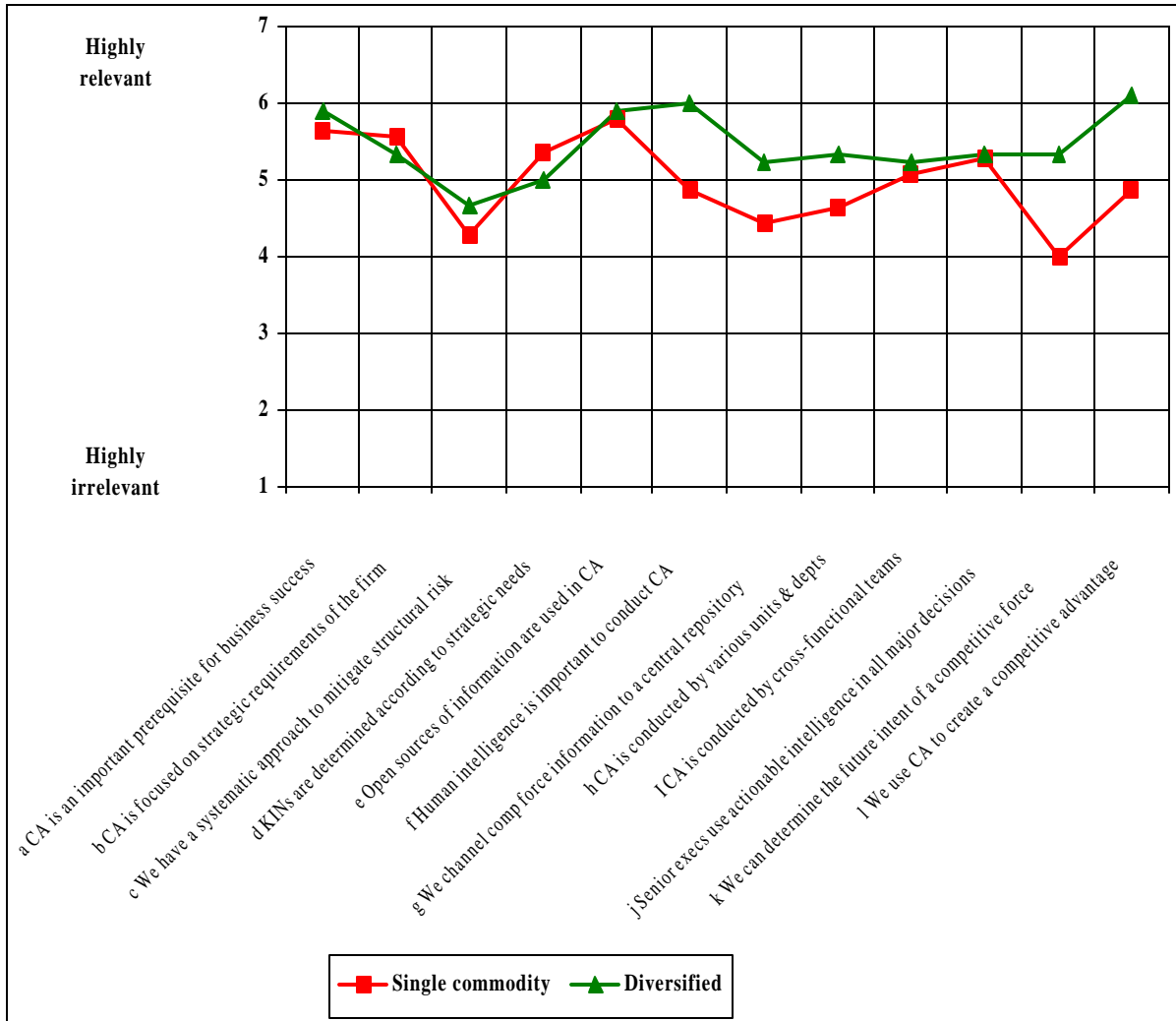
Source: Table 7, annexure 5; table 7, annexure 6

Table 6.7 below, furthermore, shows the effect size calculations of the two groups of firms on the 12 attributes explicated in question 2.2.1.

Table 6.7: Comparison of the key requirements for successful competitive analysis in single-commodity and diversified global mining firms

	Diversified	Single			
	mean	mean	p-value	Effect size	Classification
Competitive analysis is an important prerequisite for business success	5.89	5.64	0.542	0.26	Small
Competitive analysis is focused upon the strategic requirements of our firm	5.33	5.57	0.744	-0.19	Small
We have a systematic approach to mitigate structural risk in our competitive environment	4.67	4.29	0.587	0.30	Small
Key intelligence needs are determined according to our firm's strategic needs	5.00	5.36	0.557	-0.31	Small
Open source information is used to conduct competitive analysis	5.89	5.79	0.821	0.10	Small
Human intelligence is important to conduct competitive analysis	6.00	4.86	0.059	0.99	Large
We channel all competitive information to a central repository	5.22	4.43	0.237	0.64	Medium
Competitive analysis is conducted by various units and departments	5.33	4.64	0.293	0.56	Medium
Competitive analysis is conducted by cross-functional teams	5.22	5.07	0.815	0.12	Small
Senior executives use actionable intelligence in all major decisions	5.33	5.29	0.935	0.03	Small
We can determine the future intent of a competitive force	5.33	4.00	0.023	1.19	Very large
We use competitive analysis to create competitive advantage	6.11	4.86	0.020	1.16	Very large

As indicated in figure 6.17 and table 6.7, the mean scores for the 12 attributes were compared across data sets for single-commodity and diversified firms. This shows that

the respondents from both single-commodity and diversified firms generally have a similar view on the first five attributes of question 2.2.1. Regarding the collection of information, and specifically in terms of human intelligence (question f), a large difference is observed between diversified and single-commodity firms (effect size = 0.99). This could be indicative of the fact that diversified firms are more progressive regarding the value of human sources as a source of information for competitive analysis purposes, compared with their single-commodity counterparts.

Figure 6.17 and table 6.7, furthermore, confirm that significant differences occur between diversified and single-commodity firms in terms of determining the future intentions of a competitive force (p = 0.023) and the use of competitive analysis to create a competitive advantage (p = 0.020). This again confirms the progressive view of diversified firms regarding the value of competitive analysis.

Some respondents, however, argued that while competitive analysis is highly relevant, it should be conducted in a balanced way and not sidetrack other efforts to achieve the firm's key strategic goals through excessive analytical endeavours. The view expressed was that there are times when executives in global mining firms should have the conviction to act on impending actions of competitive forces based on analysis of the broader facts. Contrary to the previous argument, is the fact that competitive analysis should not be viewed as an impediment to executive actions, but rather as a strategic management tool to improve visibility in a dynamic, uncertain and turbulent competitive environment. In addition to the above-mentioned perceptions, certain respondents confirmed the fact that competitive intelligence is a management concept that was recently introduced in the global mining industry. Some respondents argued that although the need and importance of the latter concepts have been identified and are well understood by many senior executives in global mining firms, some additional change management is necessary to confirm its existence as an important management decision support tool.

6.6 THE COMPETITIVE ANALYSIS PROCESS SUPPORTING STRATEGIC DECISION MAKING IN GLOBAL MINING FIRMS

Section 3, part 2 of the questionnaire was developed to determine what analysis, and specifically, what competitive analysis is conducted within global mining firms. Additional objectives of this section were to determine who conducts competitive analysis, what sources of information are used, and of significance, how available and important the information is that flows from competitive analysis for strategic decision making purposes.

6.6.1 Analytical methods applied in the global mining industry

With sections 1 and 2 of part 2 of the questionnaire as a basis, the aim of question 2.3.1 was to determine the respondents' perception of the analytical methods that global mining firms apply in order to conduct their business. The mean scores of the 14 attributes explained in the question were compared and are indicated in figure 6.18.

According to the respondents' perceptions, a wide variety of analytical methods appear to be continuously applied in global mining firms. All the analytical methods that were stipulated in question 2.3.1, received a positive response from respondents, ranging between fallouts of 4.57 and 6.70 on the semantic differential (figure 6.18).

Figure 6.18: Analytical methods applied by global mining firms (n = 23)
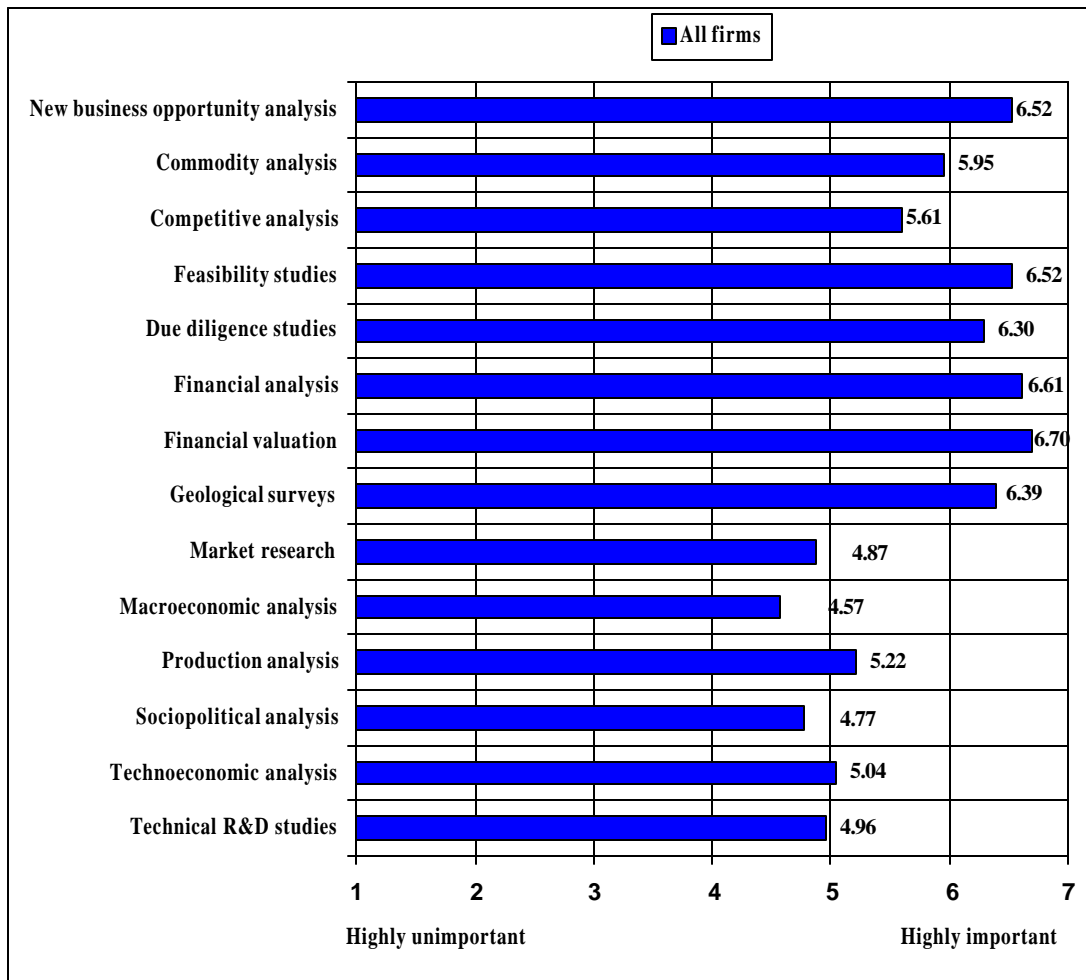
From figure 6.18, it is apparent that certain analytical methods are perceived by respondents as being highly important analytical methods to conduct business in the global mining industry. These methods are (mean scores in brackets) as follows:

- financial valuation (6.70)

- financial analysis (6.61)

- new business opportunity analysis (6.52)

- feasibility studies (6.52)

- geological surveys (6.39)

- due diligence studies (6.30)

These analytical methods emphasise the strong tangible and quantitative approach to analysis in global mining firms. In addition, the high fallout of the above-mentioned analytical methods may indicate that analysis may be largely project related and conducted internally. This relates to the findings in figure 6.7 on the key success factors in the global mining industry. In addition, it could be inferred that these types of analyses in global mining firms are focused primarily on the highly relevant tangible key success factors of such firms.

According to the respondents, commodity analysis and competitive analysis are important second-tier analytical methods for global mining firms (5.95 & 5.61 fallouts, respectively). Regarding competitive analysis, it could be possible that the respondents are unsure exactly what competitive analysis entails, and probably do not view it in the same comprehensive light as indicated in this study.

As a corollary to the above-mentioned analytical methods, certain analytical methods received low fallouts from the respondents. These include the following:

- technical research and development (4.96)

- market research (4.87)

- sociopolitical analysis (4.77)

- macro-economical analysis (4.57)

In the context of the latter findings, it is possible that global mining firms largely acquire details of such analysis from external sources.

A t-test for independent means was calculated to test whether the differences between the two groups, diversified and single-commodity firms, are statistically significant. In figure 6.19 below, the mean scores for 14 attributes were compared across data sets for single-commodity and diversified firms. It thus appears that, apart for one attribute, there is no major difference between the perceptions from the two data sets regarding which analytical methods are being applied by single-commodity and diversified global mining firms.

Figure 6.19: Analytical methods being applied by single-commodity and diversified global mining firms (n = 23)
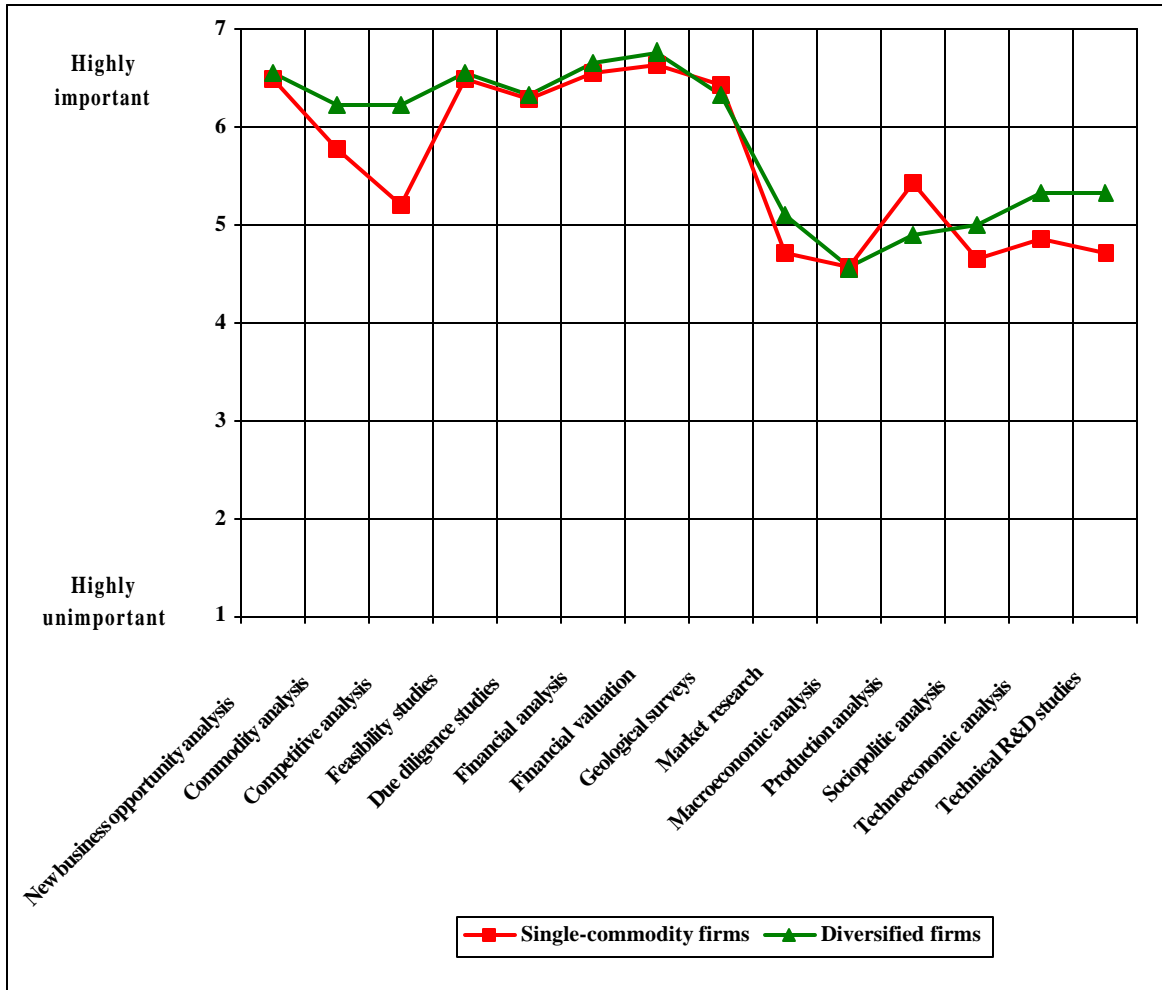
Source: Table 8, annexure 5; table 8, annexure 6

In addition to figure 6.19, the effect size was calculated on the different attributes for diversified and single-commodity firms. This matter is indicated in table 6.8.

Table 6.8: Comparison of analytical methods being applied by single-commodity and diversified global mining firms

	Diversified mean	Single mean	p-value	Effect size	Classification
New business opportunity analysis	6.56	6.50	0.882	0.06	Small
Commodity analysis	6.22	5.77	0.403	0.41	Small/medium
Competitive analysis	6.22	5.21	0.070	0.87	Large
Feasibility studies	6.56	6.5	0.863	0.07	Small
Due diligence studies	6.33	6.29	0.934	0.04	Small
Financial analysis	6.67	6.57	0.712	0.13	Small
Financial valuation	6.78	6.64	0.584	0.19	Small
Geological surveys	6.33	6.43	0.819	-0.10	Small
Market research	5.11	4.71	0.616	0.30	Small
Macroeconomic analysis	4.56	4.57	0.970	-0.01	Small
Production analysis	4.89	5.43	0.577	-0.43	Small/medium
Socio-political analysis	5.00	4.64	0.547	0.31	Small
Techno-economic analysis	5.33	4.86	0.415	0.41	Small/medium
Technical R&D studies	5.33	4.71	0.343	0.51	Medium

From table 6.8 it is evident that a large difference is apparent between diversified and single-commodity firms regarding the application of competitive analysis (effect size = 0.87). This difference testifies to a more progressive approach by diversified firms towards the application of competitive analysis and the possible influence of such analysis on determining the influences and intentions of the forces active in their competitive environment.

6.6.2   Competitive analysis methods applied in the global mining industry

As a corollary to the previous question, the aim of question 2.3.2 was to determine the analytical methods mostly used when conducting competitive analysis. The mean scores of the 19 attributes indicated in the question were compared and are indicated in figure 6.20.

Figure 6.20: Competitive analytical methods been used by global mining firms (n = 23)

Figure 6.20: Competitive analytical methods been used by global mining firms

Method	Value
Balanced scorecard	3.04
BCG growth share matrix	2.65
Competitor analysis	5.57
Marketing analysis	4.74
Financial ratio & statement analysis	4.57
Financial valuation	6.52
Functional capability & resource analysis	4.39
Management profiling	3.04
Network analysis	2.39
Patent analysis	2.30
Porter's five forces analysis	3.74
Porter's diamond analysis	2.43
Scenario analysis	5.48
Stakeholder analysis	4.26
Strategic funds programming	2.35
Strategic group analysis	2.52
Sustainable growth rate analysis	3.43
SWOT analysis	5.39
Value chain analysis	4.04

(Scale: 1 = Not used at all, 7 = Used continuously; legend: All firms)

Source: Table 9, annexure 5

According to figure 6.20, the respondents perceive financial valuation to be the most important competitive analysis method, with 6.52 fallout on the semantic differential. In the context of this study, this finding is of particular importance because it again emphasises a strong quantifiable and financial approach to competitive analysis in global mining firms. In addition, it may also relate to the information about a competitive force that is most easily available (see figure 6.28).

The following are some of the important second-tier competitive analysis methods being used by global mining firms:

- competitor analysis (5.57)

- scenario analysis (5.48)

- SWOT analysis (5.39)

A strong inference here relates to Fleisher and Bensoussan's (2003:22) views on the fact that the principal analytical methods most frequently used in the corporate environment are those that are most prominent in the curricula of business schools and other tertiary institutions around the world.

In contrast to the above-mentioned competitive analysis methods and techniques most frequently used in global mining firms, a vast number of analytical methods indicated in question 2.3.2 receive low fallouts (according to the semantic differential), with many methods hardly being used at all in global mining firms. These include the following (fallouts according to the semantic differential in brackets):

- patent analysis (2.30)

- strategic funds programming (2.35)

- network analysis (2.39)

- Porter's diamond analysis (2.43)

- strategic group analysis (2.52)

- BCG growth share matrix (2.65)

- Balanced scorecard (3.04)

- management profiling (3.04)

- sustainable growth rate analysis (3.43)

This emphasises the fact that global mining firms are probably unfamiliar with some of these competitive analytical methods. It also relates to the fact that various analytical methods are unpopular because they were developed in an era when external influences were more constant and not as turbulent as they are in the contemporary competitive environment (ie strategic group analysis, the BCG growth share matrix and strategic funds programming). In addition, certain analytical methods, especially those with a more resource-based view that primarily focus on the intangible issues of a competitive force, are unpopular or probably unknown in global mining firms (ie network analysis and management profiling).

In addition to the above, a t-test for independent means was calculated to test whether the differences between the two groups, diversified and single-commodity firms, were statistically significant. The results are graphically represented in figure 6.21.

Figure 6.21: Competitive analysis methods used by diversified and single-commodity mining firms (n = 23)
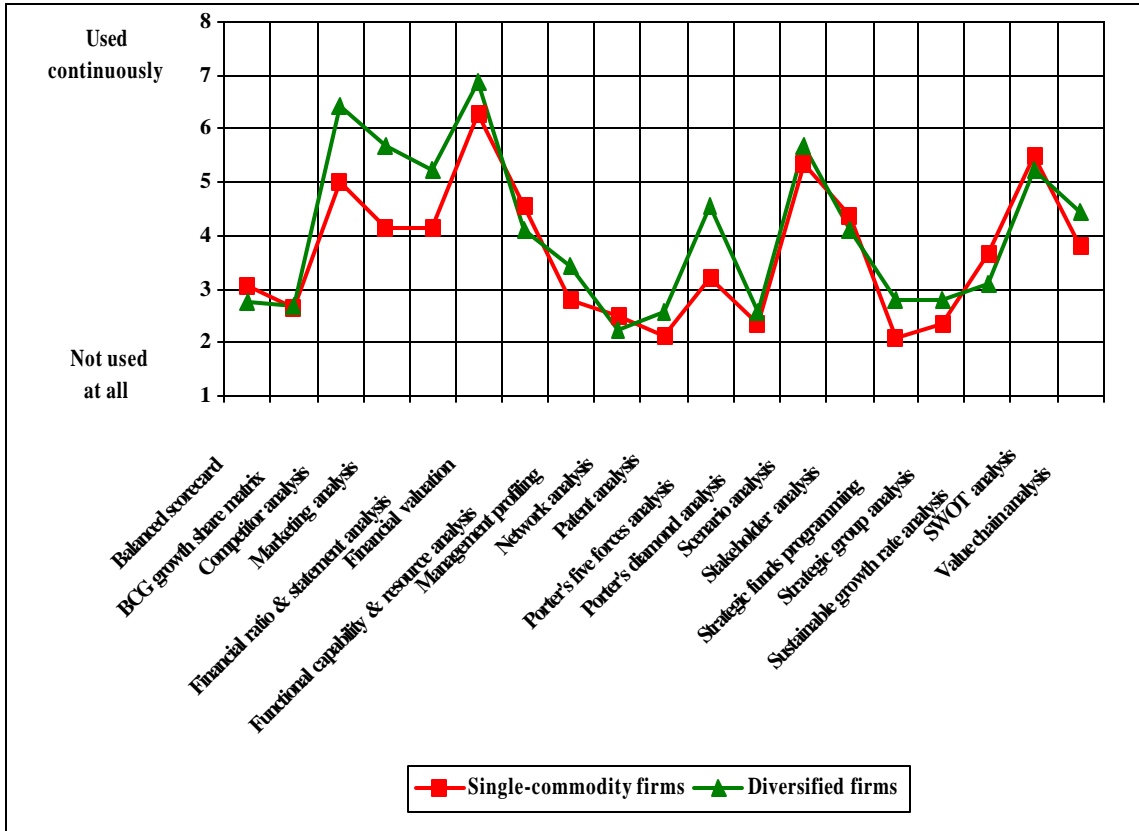
Source: Table 9, annexure 5; table 9, annexure 6

In addition to the t-test, the effect size was calculated. The results of the effect sizes on the different attributes in question 2.3.2 for the two groups of firms are indicated in table 6.9.

Table 6.9: Comparison of competitive analysis methods used by diversified and single-commodity mining firms

	Diversified	Single			
	mean	mean	p-value	Effect size	Classification
Balanced scorecard	2.75	3.07	0.665	-0.25	Small
BCG growth share matrix	2.67	2.64	0.972	0.02	Small
Competitor analysis	6.44	5.00	0.006	1.37	Very large
Marketing analysis	5.67	4.14	0.040	1.20	Very large
Financial ratio & statement analysis	5.22	4.14	0.121	0.87	Medium
Financial valuation	6.89	6.29	0.038	0.73	Medium/large
Functional capability & resource analysis	4.11	4.57	0.588	-0.33	Small
Management profiling	3.44	2.79	0.229	0.58	Medium
Network analysis	2.22	2.5	0.620	-0.25	Small
Patent analysis	2.56	2.14	0.502	0.35	Small
Porter's five forces analysis	4.56	3.21	0.066	1.02	Very large
Porter's diamond analysis	2.56	2.36	0.738	0.17	Small
Scenario analysis	5.67	5.36	0.647	0.25	Small
Stakeholder analysis	4.11	4.36	0.701	-0.21	Small
Strategic funds programming	2.78	2.07	0.391	0.56	Medium
Strategic group analysis	2.78	2.36	0.602	0.31	Small
Sustainable growth rate analysis	3.11	3.64	0.531	-0.38	Small
SWOT analysis	5.22	5.5	0.647	-0.24	Small
Value chain analysis	4.44	3.79	0.335	0.50	Medium

The t-test for independent means indicates that the two types of firms differ significantly on four attributes because the latter show p-values below the indicated benchmark of 0.05 or a very large effect size. These attributes include the following:

- competitor analysis (p = 0.006)

- marketing analysis (p = 0.040)

- financial valuation (p = 0.038)

- Porter's five forces analysis (effect size = 1.02)

From the above-mentioned findings, one could infer that diversified firms have a more progressive approach towards the application of a wider range of competitive analysis techniques, compared with single-commodity firms.

6.6.3   Understanding the future intentions of a competitive force

The aim of question 2.3.3 was to determine the respondents' perception of the analytical methods that are most appropriate for gauging the future intentions of a competitive force for a global mining industry. This question was largely used as a filter question for question 2.3.2 and the respondents' perceptions are reflected in figure 6.22.

It is evident in figure 6.22, that, according to the respondents, financial analysis and valuation and SWOT analysis are, on average, the most used competitive analytical methods in global mining firms for understanding the future intentions of a competitive force, with both methods achieving 27% average support. Scenario analysis (16%) and competitor analysis (9%), on average, appear to be used in global mining firms. This relates strongly to the respondents' perceptions as indicated in figure 6.20.

Figure 6.22: Competitive analysis methods used in the global mining industry
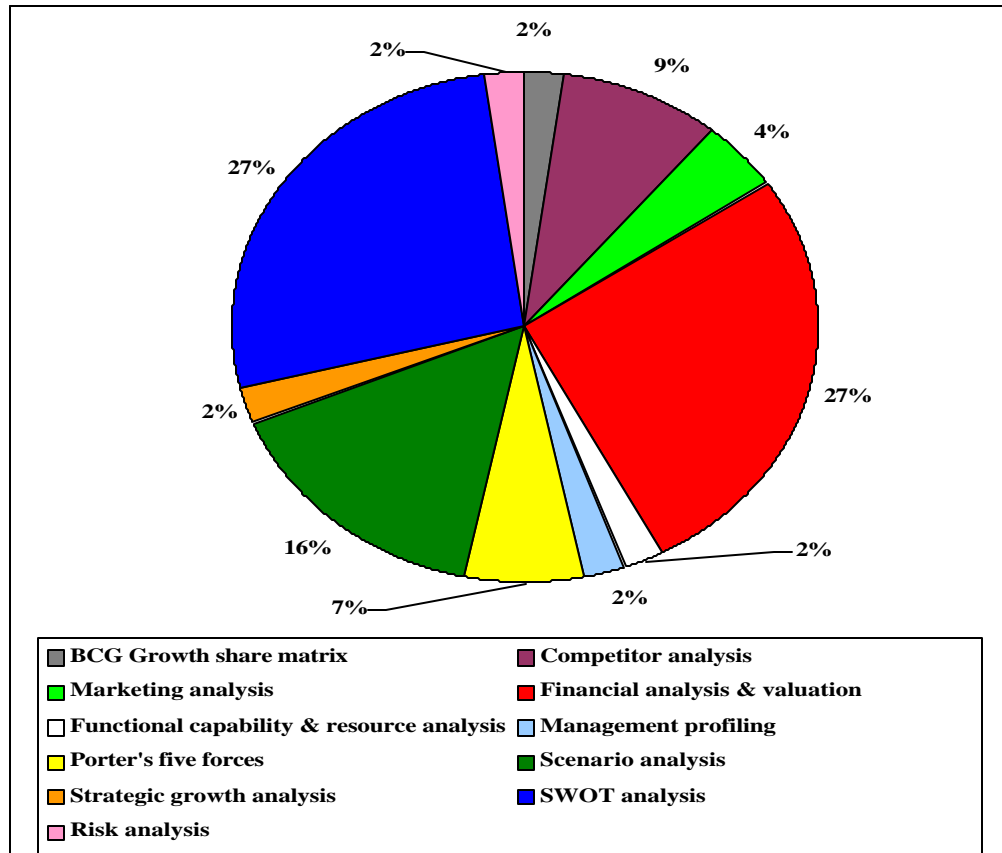
Although not perceived as a highly relevant competitive analysis method, it is important, however, to take cognisance of the opinion of one respondent who emphasised the fact that functional capability and resource analysis enable a firm to determine the most likely move by a competitive force. In contrast to the popularity of analytical methods, this view relates to the fact that there are other ways of determining the future intentions of a competitive force than merely focusing on the tangible issues of a competitive force when conducting competitive analysis.

6.6.4   Department/group conducting competitive analysis

Question 2.3.4 was used to gain the respondents' perception of the department and group in global mining firms that conduct competitive analysis. The mean scores of the 14 attributes indicated in the question were compared and are indicated in figure 6.23.

Figure 6.23: Department/group in global mining firms conducting competitive analysis (n = 23)
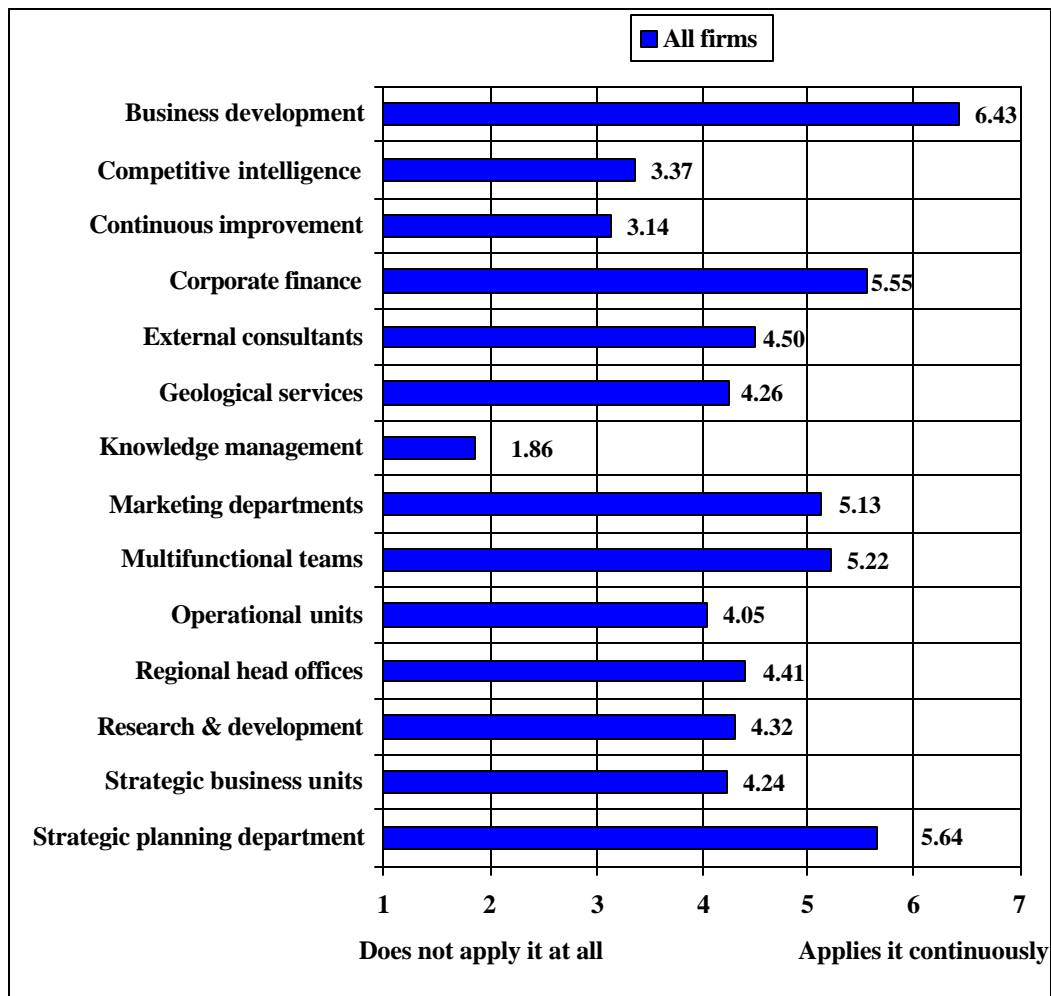
Source: Table 10, annexure 5

The department/group in global mining firm to achieve the highest fallout on the semantic differential with regard to the application of competitive analysis is the business development department, with 6.43. This is not unusual because the business development departments of global mining firms have a strong external focus. This correlates strongly with figure 6.7 where respondents' perceptions indicate that a full pipeline of future projects is the second most important key success factor for a mining firm in order to conduct business globally. Possible alliances and mergers and acquisition partners are continuously analysed because, they offer the most appropriate way for

global mining firms to achieve growth objectives (Raw Materials Group 2001:6). In addition, research by the Society of Competitive Intelligence Professionals (SCIP) confirmed the fact that competitive intelligence across industries is mostly found in the sales and marketing or business development departments (Miller 2000:26).

Apart from the business development department, two additional groups are also most frequent users of competitive analysis in global mining firms. According to figure 6.32, this includes the strategic planning department (5.64) and corporate finance department (5.55). The strategic planning department's positive fallout is of particular positive significance because it confirms the value-adding dimension of competitive analysis in the firm's future strategic initiatives.

The low fallout achieved by knowledge management (1.86) confirms that respondents largely perceive knowledge management as a cultural aspect and not as an independent department or group. Continuous improvement also received a low fallout with a score of 3.14. One can infer in this regard relates that continuous improvement is primarily focused upon internal issues in order to improve internal effectiveness, mostly at operational level.

Of specific interest in this study is the low fallout achieved by competitive intelligence with 3.37 fallout on the semantic differential. This relates to the response of one respondent who stated that competitive intelligence is still a relatively new concept in global mining firms, although the management fraternity has taken cognisance of the value it might add. This also concurs with research by SCIP that competitive intelligence is in most cases generally not an independent department but part of marketing, sales or business development (Miller 2000:26).

As a corollary to the above-mentioned inferences, a t-test for independent means was calculated to test whether the differences between diversified and single-commodity firms are statistically significant. The mean scores for the 14 attributes in question 2.3.4 are depicted graphically in figures 6.24.

Figure 6.24: Department/group in single-commodity and diversified global mining firms that conduct competitive analysis (n = 23)
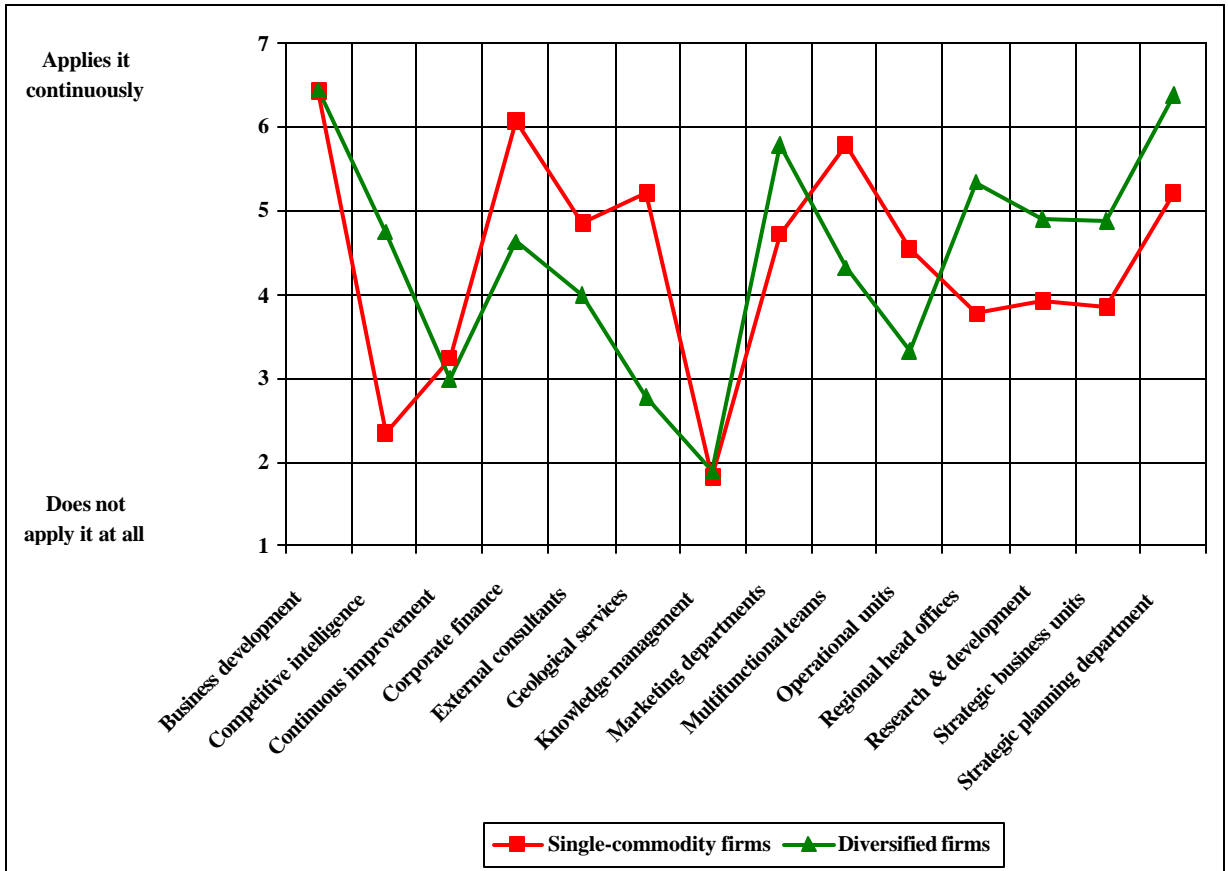
Source: Table 10, annexure 5; table 10, annexure 6

In addition to the t-test, the effect sizes of the above-mentioned 14 attributes were calculated and are indicated in the following table:

Table 6.10: Comparison of the departments/groups in diversified and single commodity firms that conduct competitive analysis

	Diversified mean	Single mean	p-value	Effect Size	Classification
Business development	6.44	6.43	0.976	0.01	Small
Competitive intelligence	4.75	2.36	0.06	1.63	Very large
Continuous improvement	3.00	3.23	0.822	-0.15	Small
Corporate finance	4.63	6.07	0.151	-1.21	Very large
External consultants	4.00	4.85	0.301	-0.63	Medium/large
Geological services	2.78	5.21	0.001	-1.96	Very large
Knowledge management	1.89	1.83	0.930	0.05	Small
Marketing departments	5.78	4.71	0.258	0.73	Large
Multifunctional teams	4.33	5.79	0.006	-1.38	Very large
Operational units	3.33	4.54	0.092	-0.97	Large
Regional headoffices	5.33	3.77	0.105	1.07	Very large
Research & development	4.89	3.92	0.227	0.73	Medium/large
Strategic business units	4.88	3.85	0.337	0.68	Medium/large
Strategic planning departments	6.38	5.21	0.189	0.87	Large

In broad terms, figure 6.24 and table 6.10 indicate that respondents from single-commodity and diversified global mining firms have fairly diverse views on the departments and groups in their firms that conduct competitive analysis.

Based upon figure 6.24 and table 6.10, it would seem that single-commodity firms are significantly more likely to conduct competitive analysis in the following departments/groups:

- corporate finance (effect size = -1.21)

- geological services (p = 0.001)

- multifunctional teams (p = 0.006)

- operational units (effect size = -0.97)

Diversified firms, however, perceive other departments/groups as being more likely to conduct competitive analysis in their firms, namely:

- competitive intelligence (effect size = 1.63)

- marketing departments (effect size = 0.73)

- regional head-offices (effect size = 1.07)

- strategic planning departments (effect size = 0.87)

To a certain extent, the above-mentioned findings show that single-commodity firms have a far more "traditional" production orientation towards the department or group that conducts competitive analysis. Regarding the question of who conducts competitive analysis, diversified firms, show a stronger orientation towards the marketing department, competitive intelligence, and the strategic planning departments in particular. Some progressiveness in diversified firms, compared to single-commodity firms, is again evident.

6.6.5   Department/group with the greatest impact on the future of a global mining firm

The aim of question 2.3.5 was to determine respondents' perception regarding which department/group that conducts competitive analysis in global mining firms has the greatest strategic impact on the firm's future. Again, this question was used as a filter question for question 2.3.4. The summary of these perceptions is provided in the following figure:

Figure 6.25: Department/group conducting competitive analysis with the greatest impact on the future of global mining firms
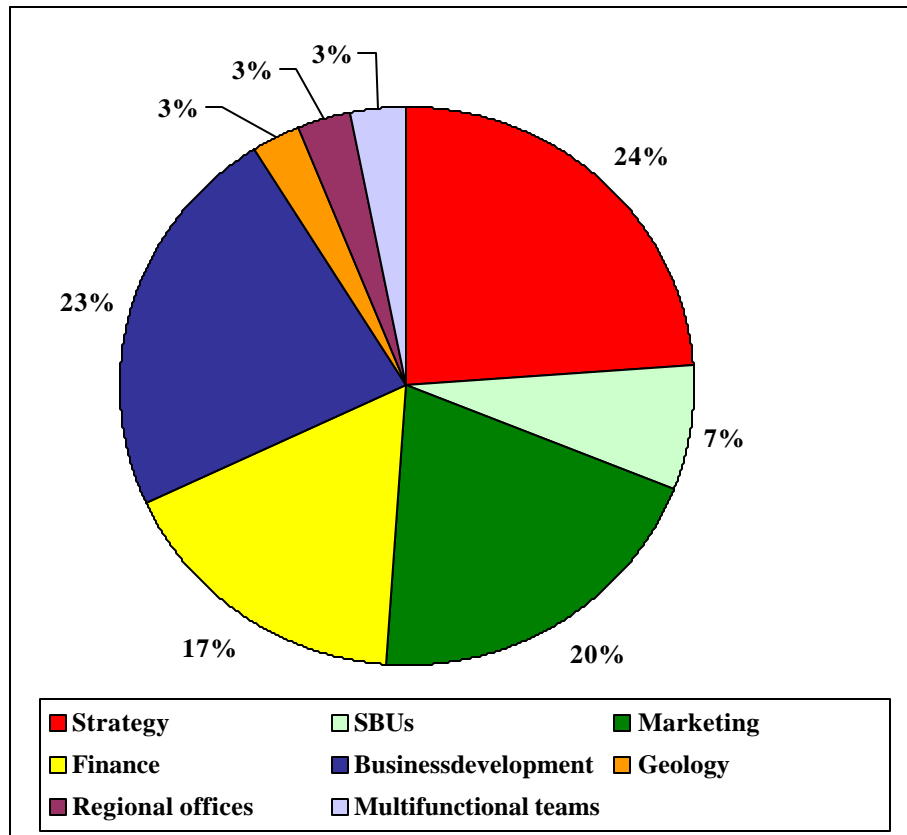
Figure 6.25 largely confirms the results of figure 6.32 that the business development (23%), corporate strategy (24%), finance (17%) and marketing departments (20%) are the users of competitive analysis with the greatest influence on the future of mining firms. The findings also concur with research conducted by SCIP (Miller 2000:26) that the above-mentioned departments normally house a competitive intelligence function.

6.6.6   Information sources for competitive analysis

The aim of question 2.3.6 was to determine the respondent's perceptions of the different type of information sources used by global mining firms to conduct competitive analysis. The mean scores of the 14 attributes indicated in the question were compared and are indicated in figure 6.26.

Figure 6.26: Information sources used by global mining firms when conducting competitive analysis (n = 23)

Bar chart titled "All firms" showing the following values on a scale from 1 (Used occasionally) to 7 (Used continuously):

Information source	All firms
Actual visits to operations	5.22
Annual reports & financial statements	6.22
Conference papers	4.22
Consultants reports	5.13
Market information	5.78
Financial analyst reports	6.04
Geological surveys	5.61
Human intelligence	5.30
Industry & country reports	5.00
Industry data bases	5.65
Information provided by competitive force	5.30
Internal reports	5.39
Press reports & articles	5.52
Technical reports	5.22

Source: Table 11, annexure 5

The respondents' answers to question 2.3.6 indicate that all the types of information included in the question received positive fallouts. However, the annual reports and financial statements of a competitive force that were analysed received the highest fallout, with 6.22 on the semantic differential. Although these publications could be perceived as valuable sources of information on a competitive force, the facts included in them could be dubious because they are primarily public relations documents and provide a historical view of the competitive force being analysed.

Closely related to this, is the 6.04 fallout for financial analyst reports. This correlates strongly with the inference about financial statements, since analyst reports are also viewed as a valuable source of information. However, such reports may be slightly dubious regarding their objectivity because of their specific public relations purpose. Market information, industry databases, geological surveys and press reports and articles (5.78, 5.65, 5.61 and 5.52, respectively, on the semantic differential) are also sources that are continuously used by global mining firms to conduct competitive analysis.

Of particular interest was the somewhat neutral fallout (4.22) of conference papers as a source of information, in determining the future intent of a competitive force. Although, firms use presentations at conferences largely as a marketing and public relations initiative, extremely valuable competitive insight can be obtained from this source, in the context of the future intent of such a competitive force. Technical presentations at conferences, furthermore, add another dimension of conference papers as a valuable source of competitive information because technically oriented firm representatives are likely to talk emphatically about their topics of concern. Hence much competitive information can be obtained from conference papers. In addition, conferences provide an exceptional networking opportunity for the astute competitive intelligence professional, enabling him or her to collect human intelligence.

The relatively important fallout achieved by human intelligence as a significant source of competitive information (5.30 on the semantic differential) is quite surprising, because, in the context of competitive intelligence, human sources are regarded as the most valuable source of acquiring insight into the future intent of a competitive force. A well-structured capability whereby such information is channelled to a central competitive intelligence repository is becoming increasingly essential, given the turbulence of the contemporary competitive environment. This result also places some emphasis on the fact that a well-structured competitive intelligence capability is lacking in most global mining firms. From a broader perspective, however, the use of a variety of sources by global mining firms to acquire competitive information renders a solid base from which global mining

firms can establish the world's best practice competitive intelligence and competitive analysis capabilities.

As a corollary to figure 6.26, figure 6.27 graphically illustrates the mean scores from the t-test on the 14 different attributes indicated in question 2.3.6 for the two different types of firms (ie diversified and single-commodity firms). This was done to determine statistically whether the two types of firms differ significantly in respect of information sources for competitive analysis purposes.

Figure 6.27: **Information sources used during competitive analysis in single commodity and diversified global mining firms (n = 23)**
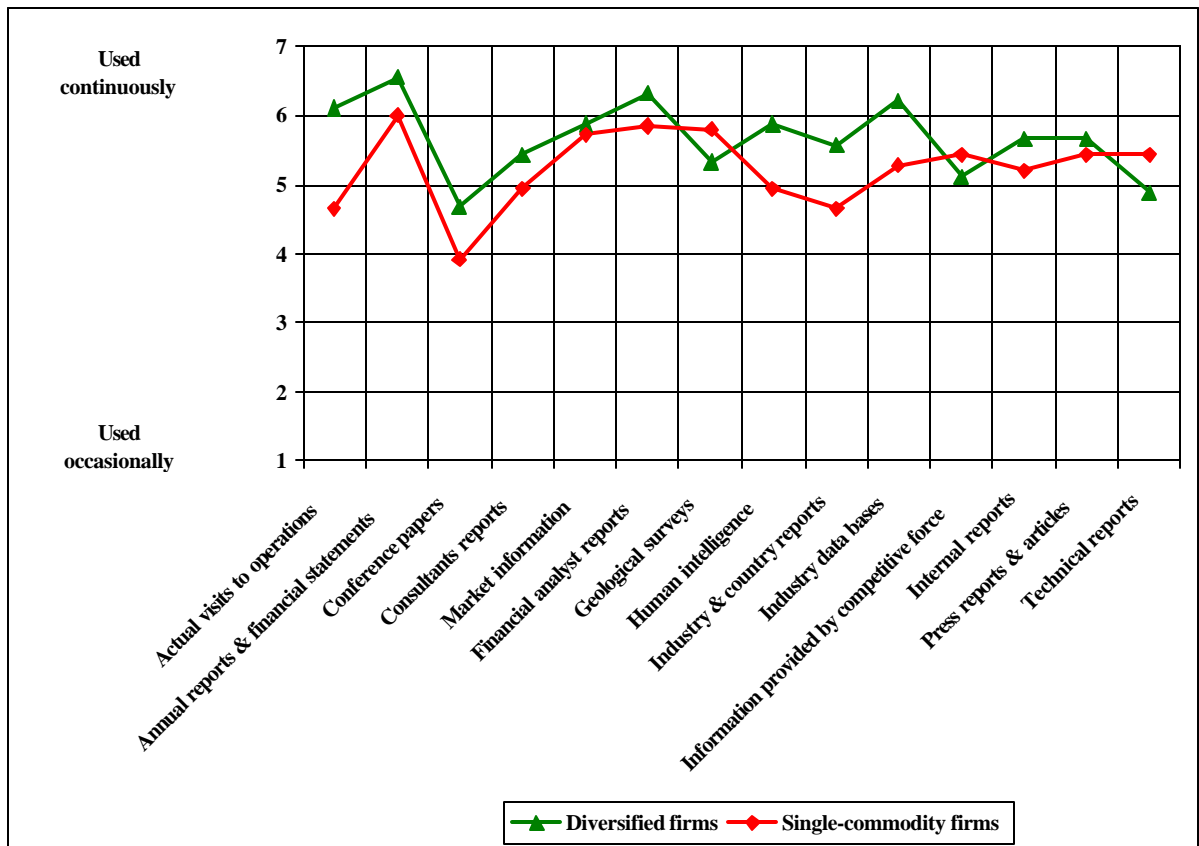
Source: Table 11, annexure 5; table 11, annexure 6

In addition to the above figure, table 6.11 depicts the effect size calculations for the two groups, on the relevant 14 attributes.

Table 6.11: Comparison of information sources used during competitive analysis in single-commodity and diversified global mining firms

	Diversified mean	Single mean	p-value	Effect size	Classification
Actual visits to operations	6.11	4.64	0.027	1.23	Very large
Annual reports & financial statements	6.56	6.00	0.154	0.60	Medium
Conference papers	4.67	3.93	0.314	0.57	Medium
Consultants reports	5.44	4.93	0.439	0.41	Small/medium
Market information	5.89	5.71	0.801	0.14	Small/medium
Financial analysts reports	6.33	5.86	0.238	0.49	Medium
Geological surveys	5.33	5.79	0.388	-0.42	Small/medium
Human intelligence	5.89	4.93	0.256	0.69	Medium/large
Industry & country reports	5.56	4.64	0.195	0.73	Medium/large
Industry data bases	6.22	5.29	0.164	0.76	Medium/large
Information provided by competitive force	5.11	5.43	0.435	-0.33	Small
Internal reports	5.67	5.21	0.355	0.44	Small/medium
Press reports & articles	5.67	5.43	0.653	0.22	Small
Technical reports	4.89	5.43	0.360	-0.47	Small/medium

The t-test for independent means indicates that the two types of mining firms differ significantly on one attribute. Diversified firms view actual visits to operations as a significantly more important source of information on a competitive force compared with single-commodity firms (p = 0.027). In addition, diversified firms also have a more progressive attitude towards certain other sources of information, where medium effects are observed. These include the following:

▪ human intelligence (effect size = 0.69)

▪ industry and country reports (effect size = 0.73)

■　　　industry data bases (effect size = 0.76)

6.6.7   Availability of information for competitive analysis

The aim of question 2.3.7 was to determine the respondents' perception of how available
information is on certain aspects of a competitive force during competitive analysis in
global mining firm. The mean scores of the 14 attributes indicated in the question were
compared as indicated in figure 6.28.

**Figure 6.28: Availability of information on a competitive force when conducting
competitive analysis (n = 23)**
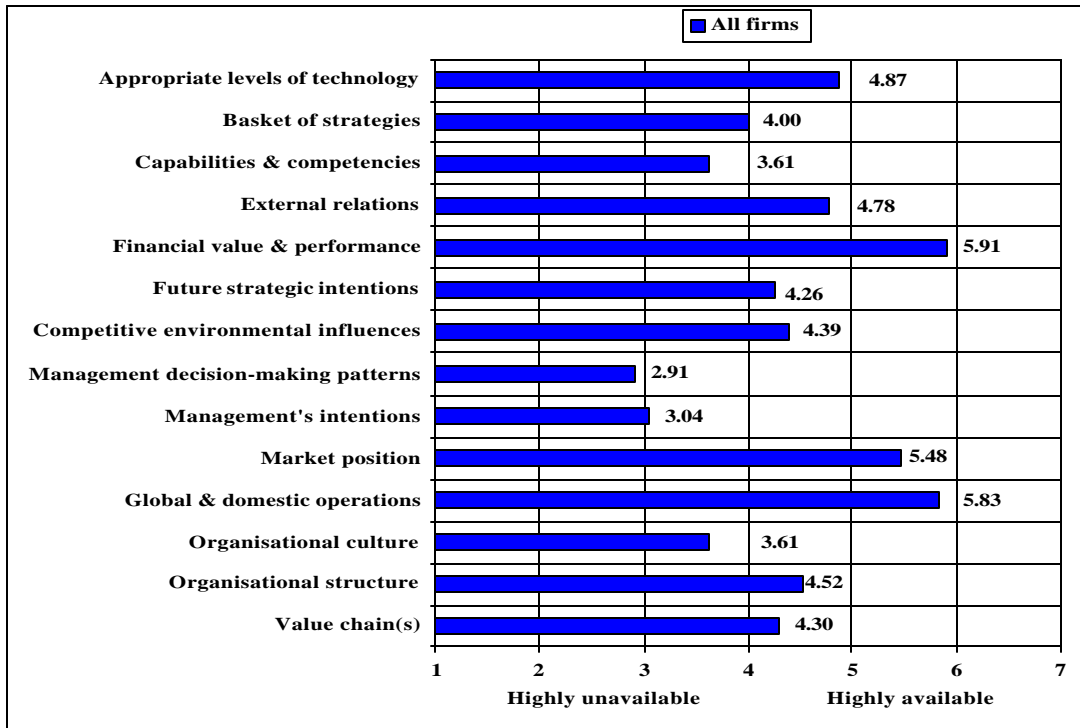
Source: Table 12, annexure 5

From figure 6.28 it is apparent that certain attributes receive fallouts above 5. These
information categories include the following:

- financial value and performance (5.91)

- global and domestic operations (5.83)

- market position (5.48)

These findings are primarily a logical consequence because most competitive forces in the global mining industry are public entities that have to publish annual documents dealing with their operations. Information on these attributes is thus reasonably easy to acquire.

In contrast to the high fallouts achieved regarding the availability of the quantitative information of a competitive force, certain attributes received low fallouts. These include:

- management decision-making patterns (2.91)

- management's intentions (3.04)

- capabilities and competencies (3.61)

- organisational culture (3.61)

This emphasises the fact that qualitative information on competitive forces is not readily available in global mining firms and needs to be developed.

Analogous to the previous figure, figure 6.29 provides insight into the results of a t-test for independent means on the differences between diversified and single-commodity firms regarding the attributes indicated in question 2.3.7.

Figure 6.29: Availability of information on a competitive force during competitive analysis in single-commodity and diversified global mining firms (n = 23)
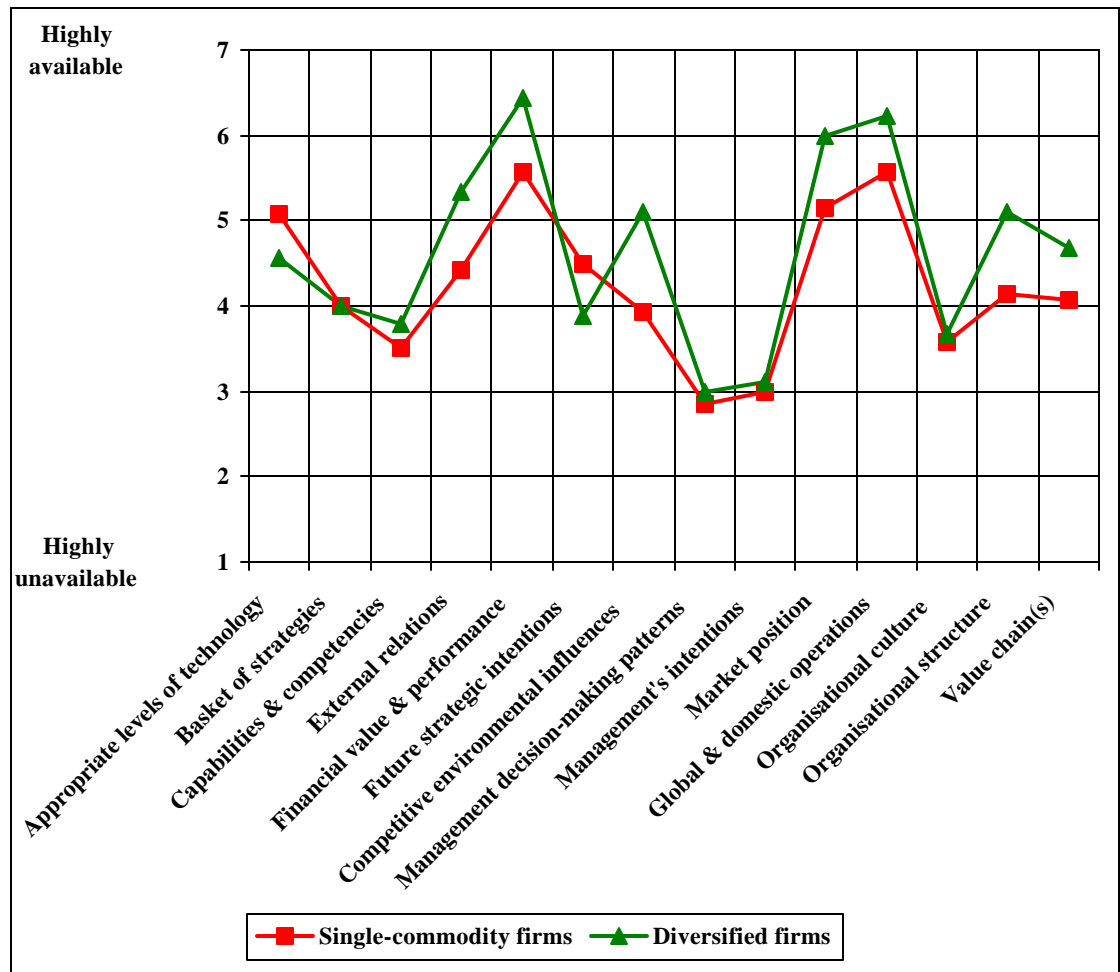
Source: Table 12, annexure 5; table 12, annexure 6

From the previous figure, it again appears that in conducting competitive analysis, diversified mining firms are generally more progressive when it comes to the availability of information on a competitive force compared with single-commodity firms.

However, owing to the small sample size, it was necessary to substantiate this finding. Hence in relation to the previous figure, table 6.12 depicts the results of the effect sizes on the above attributes for the two groups of firms.

Table 6.12: Comparison of the availability of information on a competitive force during competitive analysis in single-commodity and diversified global mining firms

	Diversified mean	Single mean	p-value	Effect size	Classification
Appropriate levels of technology	4.56	5.07	0.374	-0.44	Small/medium
Basket of strategies	4.00	4.00	1	-	Small
Capabilities & competencies	3.78	3.50	0.681	0.22	Small
External relations	5.33	4.43	0.137	0.77	Medium/large
Financial value & performance	6.44	5.57	0.019	0.97	Large
Future strategic intentions	3.89	4.50	0.347	-0.50	Medium
Competitive environmental influences	5.11	3.93	0.035	1.08	Very large
Management decision-making patterns	3.00	2.86	0.756	0.14	Small
Management's intentions	3.11	3.00	0.800	0.12	Small
Market position	6.00	5.14	0.159	0.73	Medium/large
Global & domestic operations	6.22	5.57	0.124	0.67	Medium/large
Organisational culture	3.67	3.57	0.827	0.10	Small
Organisational structure	5.11	4.14	0.118	0.83	Large
Value chain	4.67	4.07	0.43	0.46	Small/medium

Based on table 6.12, diversified firms appear to differ markedly from single-commodity firms regarding the use of the following information on a competitive force when conducting competitive analysis:

- financial value and performance (p = 0.019)

- competitive environmental influences (p = 0.035)

- organisational structure (effect size = 0.83)

Medium to large effects (differences) were also observed for the following attributes:

- external relations (effect size = 0.77)

- market position (effect size = 0.73)

- global and domestic operations (effect size = 0.67)

The findings also confirm a more progressive approach in diversified firms to sources of information during competitive analysis compared with their single-commodity counterparts.

6.6.8   Primary users of competitive analysis

The purpose of question 2.3.8 was to elicit the respondents' opinion on who the primary users of competitive analysis are in global mining firms. The results are indicated in figure 6.30.

Figure 6.30: Primary users of competitive analysis in global mining firms
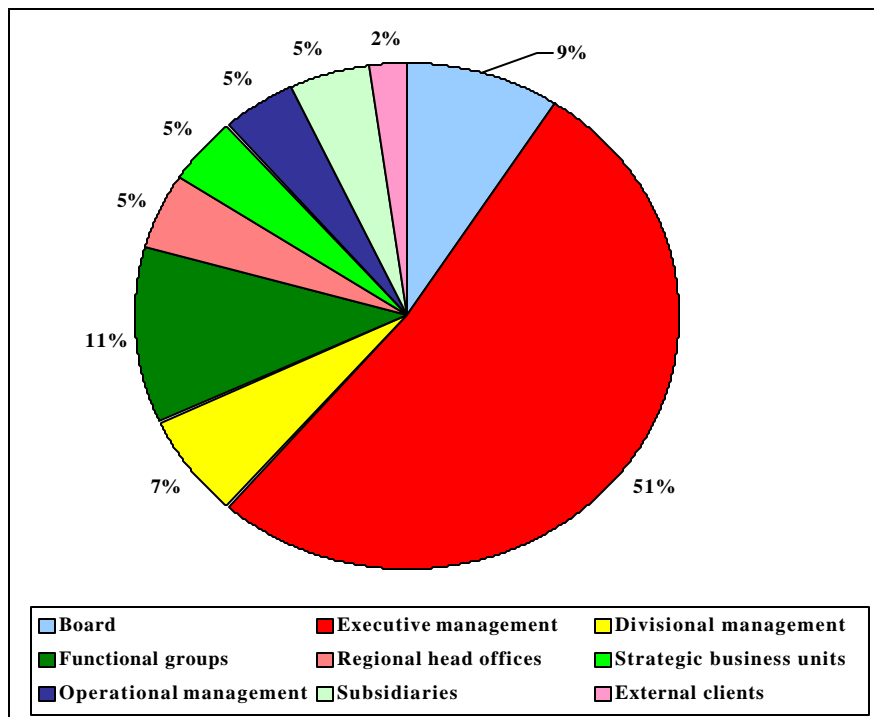
According to figure 6.30, the respondents indicated that, on average, 60% of all competitive analysis projects in global mining firms are conducted for members of responding firms' boards and executive management teams. An additional 7% of such projects are conducted for senior divisional management, whilst, on average, 21% is conducted for functional groups such as marketing, logistics and business development, regional head offices and strategic business units. On average, the remaining 12% of requests for competitive analysis in global mining firms are conducted for operational management, subsidiaries and external clients. This largely confirms the strategic focus of competitive analysis. It is thus imperative that such a capability should have direct access to senior executives, in the context of delivering actionable intelligence on well-identified key intelligence needs.

6.6.9   Importance of information for strategic decision making purposes

The aim of question 2.3.9 was to gauge the respondents' perception of what categories of information on a competitive force are most important for strategic decision-making purposes during the competitive analysis process in global mining firms. The mean scores of the 14 attributes indicated in the question were compared for all firms, and are indicated in figure 6.31.

Figure 6.31: Importance of different categories of information about a competitive force for strategic decision-making purposes (n = 23)

All firms

Category	Value
Appropriate levels of technology	4.43
Basket of strategies	4.65
Capabilities & competencies	4.65
External relations	4.57
Financial value & performance	6.22
Future strategic intentions	6.13
Competitive environmental influences	5.30
Management decision-making patterns	4.65
Management's intentions	5.61
Market position	5.22
Global & domestic operations	6.00
Organisational culture	3.39
Organisational structure	3.17
Value chain(s)	4.22

Highly unimportant   Highly important

Source: Table 13, annexure 5

From figure 6.31 it is clear that certain information categories receive fallouts higher than six according to the semantic differential. These include the following:

- financial value and performance (6.22)

- future strategic intentions (6.13)

- global and domestic operations (6.00)

The extent to which financial and operational information is perceived as highly important is a fairly logical consequence, because mining is par excellence a tangible oriented industry. It also relates strongly to the findings in figure 6.28 on the availability of such information (5.91). There is also a strong correlation with findings in figure 6.28 regarding the importance of financial valuation as a method of competitive analysis (6.52).

Of particular interest in the context of this study are the respondents' perceptions of the importance of acquiring insight into a competitive force's future strategic and management intentions (6.13 & 5.61, respectively) This, however, confirms the fact that not withstanding how tangible and quantitative an industry and firm may be, decisions about all tangible assets are taken by humans. Insight into a competitive force's future strategies, and importantly, the human demeanour that drives strategic intentions, adds a new dimension to competitive learning about a particular competitive force. This perception accords with Barndt's argument (1994:74) that the idiosyncrasies and predispositions of humans will have a greater bearing on the critical decisions they make than a calculated assessment of their resources and capabilities.

Against the backdrop of the foregoing, figure 6.32 and table 6.13 indicate the results of the t-test for differences and the effect size calculations for the 14 attributes in question 2.39, for diversified and single-commodity firms.

Figure 6.32: Importance of different categories of information during competitive analysis in single-commodity and diversified global mining firms (n = 23)
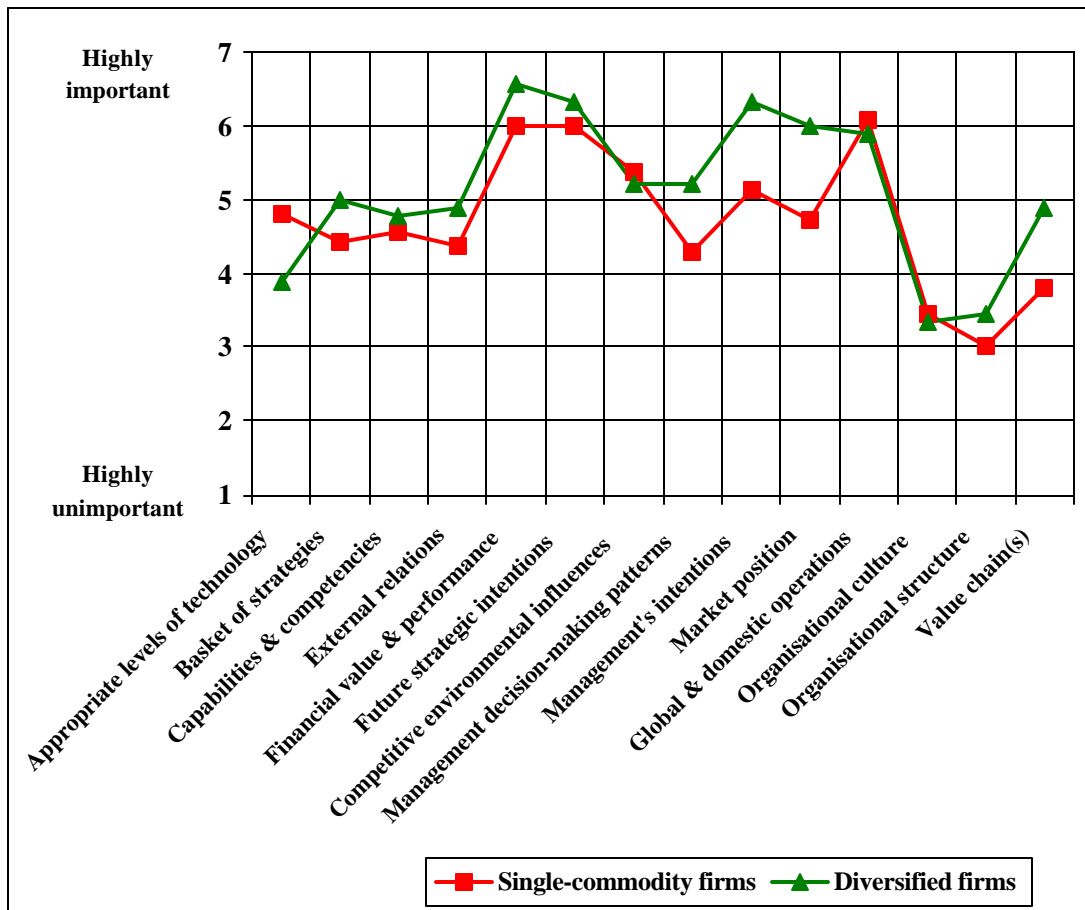
Table 13, annexure 5; table 13, annexure 6

From the above figure, it again appears that diversified firms are generally more progressive regarding the importance of the wide array of information categories about a competitive force when conducting competitive analysis, compared with single-commodity firms. However, when the effect size of the different attributes in question 2.3.9 was calculated for diversified and single-commodity firms, certain interesting additional results emerged. These latter results are indicated in table 6.13.

Table 6.13: Comparison of the importance of different categories of information during competitive analysis in single-commodity and diversified global mining firms

	Diversified mean	Single mean	p-value	Effect Size	Classification
Appropriate levels of technology	3.89	4.79	0.120	-0.79	Large
Basket of strategies	5.00	4.43	0.301	0.51	Medium
Capabilities & competencies	4.78	4.57	0.739	0.18	Small
External relations	4.89	4.36	0.366	0.46	Small/medium
Financial value & performance	6.56	6.00	0.076	0.68	Medium/large
Future strategic intentions	6.33	6.00	0.433	0.33	Small
Competitive environmental influences	5.22	5.36	0.754	-0.14	Small
Management decision-making patterns	5.22	4.29	0.129	0.80	Large
Management's intentions	6.33	5.14	0.024	1.13	Very large
Market position	6.00	4.71	0.038	1.12	Very large
Global & domestic operations	5.89	6.07	0.719	-0.18	Small
Organisational culture	3.33	3.43	0.865	-0.09	Small
Organisational structure	3.44	3.00	0.491	0.36	Small
Value chain	4.89	3.79	0.083	0.89	Large

Based upon table 6.13, it is apparent that diversified firms are significantly more progressive regarding the importance of particular categories of information when conducting competitive analysis on a competitive force. The categories of information that are statistically more significant for diversified firms for competitive analysis purposes than for single-commodity firms include the following:

- financial value and performance (effect size = 0.68)

- management decision-making patterns (effect size = 0.80)

- management's intentions (p = 0.024)

- market position (p = 0.038)

- value chain (effect size = 0.89)

The importance of the above-mentioned categories of information relating to a competitive force for competitive analysis purposes again confirms a stronger marketing and competitive environmental orientation for diversified firms, compared with single-commodity firms. In addition to the stated categories of information, it is also apparent from figure 6.43, that single-commodity firms view information about the levels of technology of a competitive force as being more important than diversified firms when conducting competitive analysis on such a force (p = 0.120). The reason for this could be due to their stronger production orientation, and the fact that they conduct business along a single-product value chain, compared with diversified firms.

6.6.10   Correlation of the availability and importance of information

If the availability and importance of the various categories of information represented in figures 6.29 and 6.32 on data sets for single-commodity and diversified firms were rated on the same level, one would expect to observe a linear relationship between them. In this regard, figures 6.33 and 6.34 depict a comparison (confirmed by means of Pearson correlation) of the availability and importance of the various categories of information for single commodity and diversified firms, respectively. Implicit in this argument is the fact that in both graphs 6.33 and 6.34, the scale for availability ranged from 1, highly unavailable, to 7, highly available. The scale in the two above graphs for importance, furthermore, ranged from 1, highly unimportant, to 7, highly important. Supplementary information is provided in Annexure 7 (Pearson correlation).

Figure 6.33: Correlation of the availability and importance of information during the competitive analysis process in single-commodity firms (n = 14)
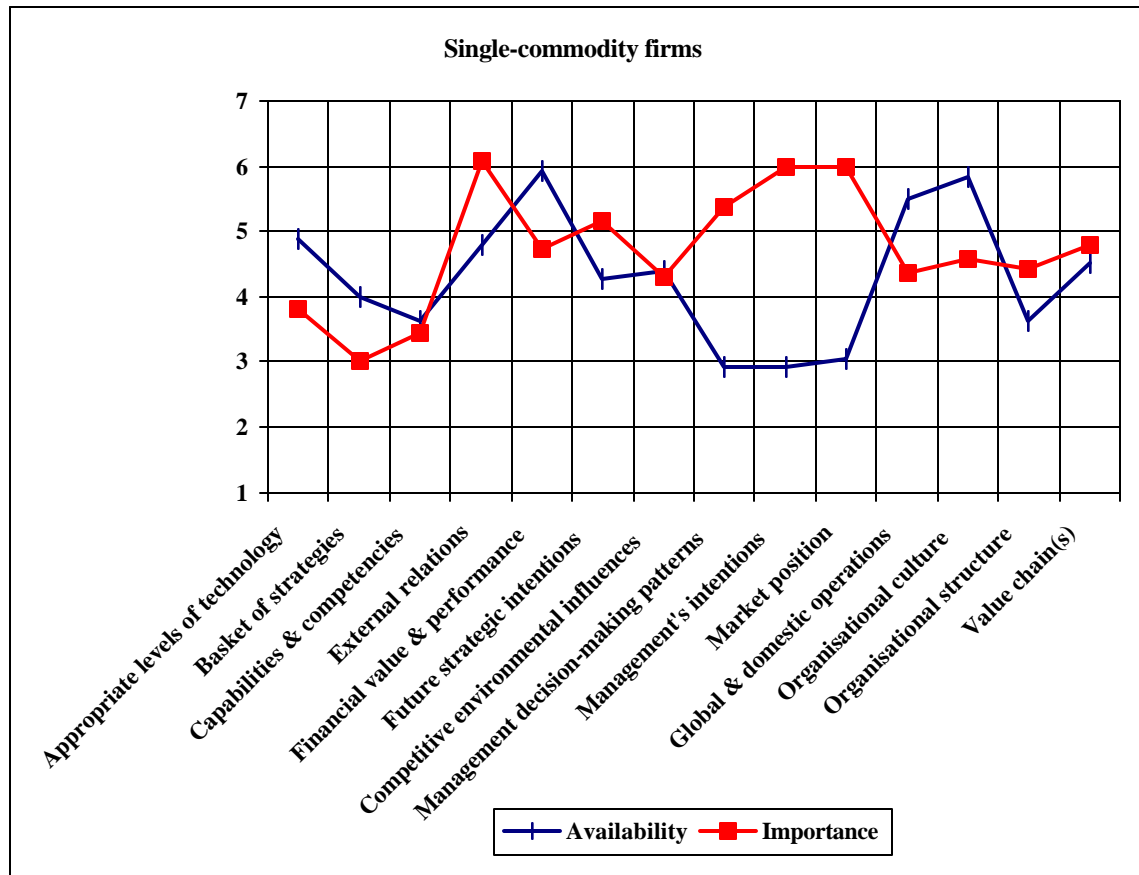
From figure 6.33, it is evident that respondents in single-commodity firms contend that when conducting competitive analysis on a competitive force, in certain information categories they have suitable information available, compared with the information category's particular importance. These information categories include the following:

- level of technological development

- basket of current strategies

- capabilities and competencies

- financial valuation and performance

- global and domestic operations

- organisational culture

A linear relationship is thus evident. It is apparent, however, that some of these information categories relate strongly to the fact that this is mostly tangible-oriented information, which is normally available from secondary sources such as published annual reports, financial analyst reports and mining-related news services. In addition, the categories of information in which respondents were of the opinion that they have suitable information, also relate to a certain extent to the analytical methods most frequently applied in single-commodity global mining firms – financial valuation and analysis (figure 6.21).

However, the most obvious inference that one can make from figure 6.33 relates to the low correlation between the availability and importance of information regarding the following attributes of a competitive force being analysed. These categories include the following:

- external relations ($p = 0.007$)

- future strategic intentions ($p = 0.248$)

- management decision making patterns ($p = 0.595$)

- managements' intentions ($p = 0.241$)

- market position ($p = 0.863$)

It is evident that the above information categories are mostly intelligence-related and not readily available from secondary sources. The relationship between the availability and importance of information on the above-mentioned attributes is thus nonlinear. Given this nonlinear relationship, it is evident that the ratings between the availability and importance of information differ substantially. If these particular categories of information were perceived to be so important, one would expect that single-commodity global mining firms to pay substantial attention to these information categories to ensure that executives have in-depth insight into them. Unfortunately this does not seem to be the case in single-commodity firms.

Against the backdrop of the foregoing, it is noteworthy that a similar pattern emerges from diversified global mining firms regarding the availability and importance of the different categories of information on the competitive force being analysed. This information is provided in figure 6.34.

Figure 6.34: Correlation of the availability and importance of information during the competitive analysis process in diversified mining firms (n = 9)
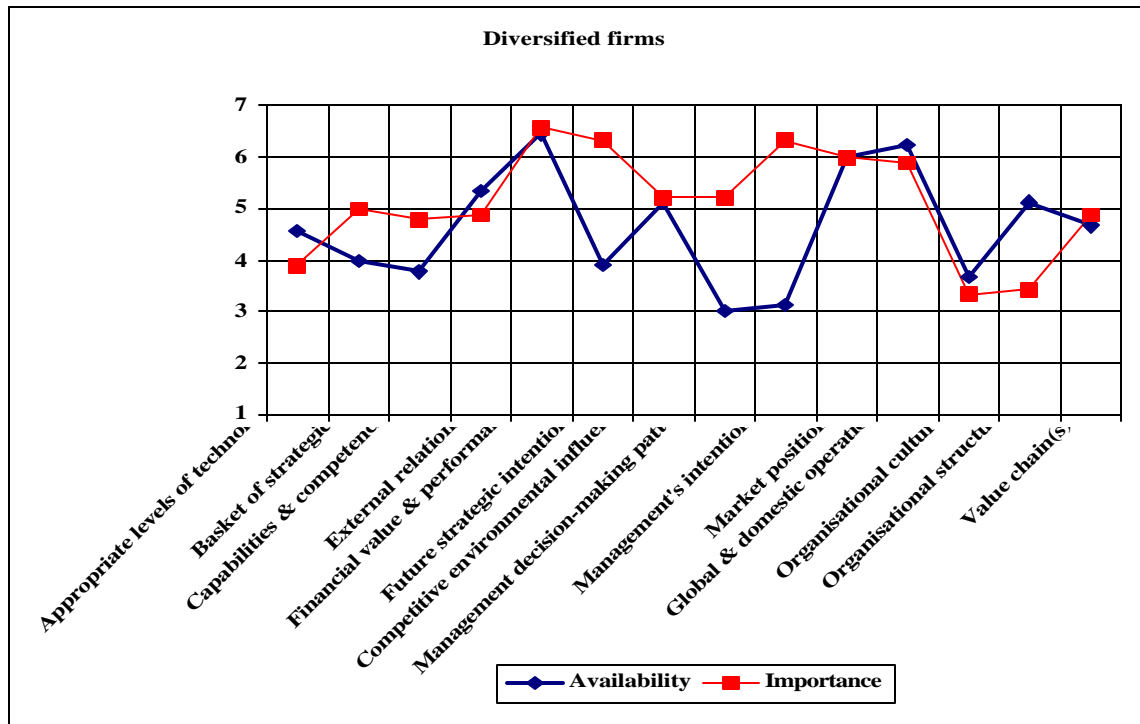
Source: Annexure 7

From figure 6.34 it is clear that regarding a competitive force's levels of technological development, external relationships, financial value and performance, competitive environmental influences, market position, global, domestic operations and s organisational culture and structure, the respondents from diversified global mining firms indicated that they have suitable information available, compared with the information category's particular importance.

By contrast, respondents from diversified firms indicated that no correlations exist between the importance and availability of information regarding the following attributes:

- basket of strategies (p = 1.000)

- capabilities and competencies (p = 0.393)

- future strategic intentions (p = 0.942)

- management decision making patterns (p = 0.010)

- managements' intentions (correlation coefficient of 0.008)

It is again evident that there is a nonlinear relationship between the availability and importance of the aforementioned categories of information. This is especially the case in the last two attributes (management decision making patterns and management's intentions). Against the backdrop of this finding, one would expect diversified global mining firms to focus specific attention to these information categories and ensure that executives have a more in-depth knowledge of them. As in single-commodity firms, this also does not seem to be the case in diversified firms.

A general inference regarding figures 6.33 and 6.34 relates to the occurrence in global mining firms that the availability of information from secondary sources largely determines the competitive analytical method being used. As a corollary to this, it would seem that the more information needs are developed into intelligence, the less available such information becomes. This happens despite the importance of such information in strategic decision making. In the wider context of this thesis, it thus seems essential that global mining firms place greater emphasis on acquiring intelligence-related information, because senior executives have a definite need for it in the context of competitive learning about the future intentions of a competitive force.

6.6.11   Important aspects of the competitive analysis process

The final question in section 3 of phase 2 of the questionnaire, question 2.3.10, relates to the respondents' views on certain aspects of the competitive analysis process as conducted in global mining firms. The mean scores of the five attributes indicated in the

question were compared, across a data set of all the respondents. The results are indicated in figure 6.35.

Figure 6.35: Important aspects of competitive analysis (n = 23)
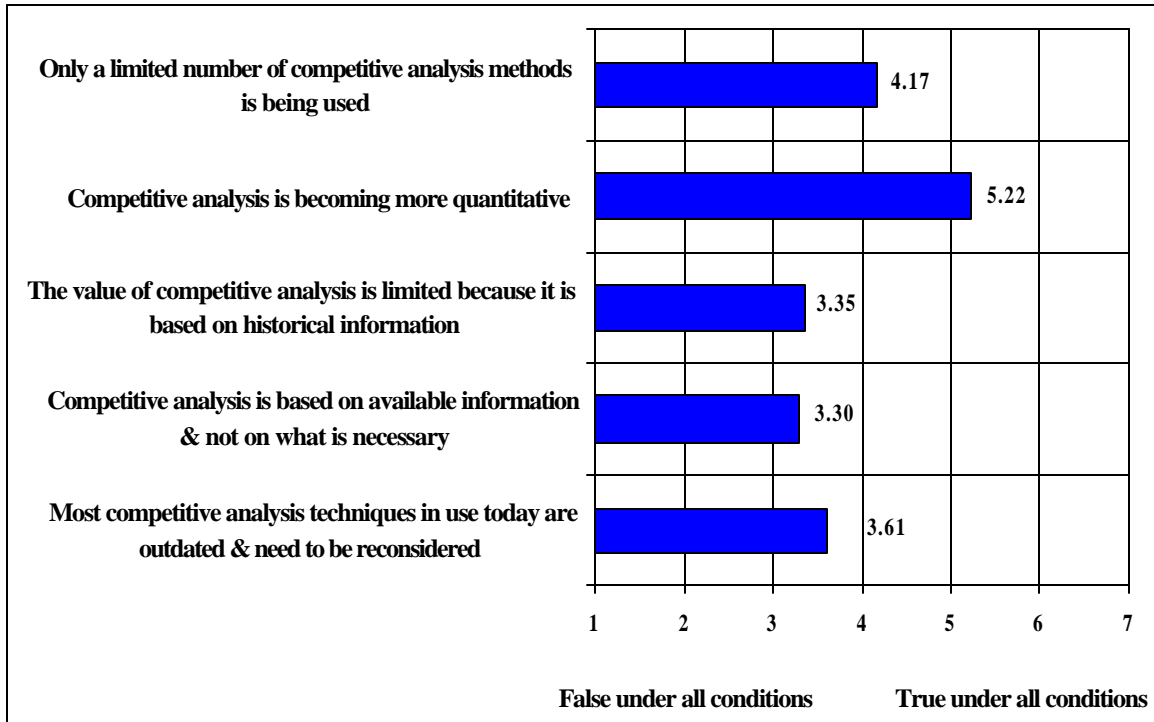
It is evident from figure 6.35 that this question of the questionnaire tested the respondents' perceptions of five different attributes of competitive analysis, as conducted in global mining firms. On the first attribute – that only a limited number of competitive analysis methods are being used in global mining firms – the respondents expressed a somewhat neutral view, with 4.17 fallout on the semantic differential. This perception is fairly indicative of the fact that the respondents were either uncertain or did not know whether the statement was true or false. An inference in this regard relates to the fact that respondents use those analytical techniques which they have been taught at tertiary educational institutions and probably do not have an in-depth knowledge of the multitude of other techniques available.

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On the attribute that competitive analysis is becoming more quantitative, the respondents' perceptions reflected 5.22 fallout on the semantic differential, which confirms the fact that competitive analysis is indeed becoming more quantitative. This also ties in with the findings in figures 6.33 and 6.34 where single-commodity and diversified firms confirmed that suitable quantitative information is available for competitive analytical purposes with regarding to the importance of such quantitative information.

The respondents' perceptions of the next statement – the value of competitive analysis is limited because it is based on historical information – achieved negative fallout (3.35) on the semantic differential. The respondents' perceptions thus indicate that competitive analysis in global mining firms is based on historical and future-oriented information. The negative fallout, however, is not overly convincing about suitable future-oriented information being used to conduct competitive analysis.

The next attribute – competitive analysis is based on available information and not what is necessary – is closely related to the previous statement and also achieves a negative reaction from respondents, with 3.30 fallout on the semantic differential. This response relates to the fact that people conducting competitive analysis in global mining firms will make an effort to acquire information on a competitive force. However, this finding may be dubious, because it does not clarify exactly what people know about intelligence they do not have.

The last attribute – most competitive analytical techniques in use today are outdated and need to be reconsidered – receives a slightly negative to neutral reaction from respondents. This view may be indicative of the fact that the respondents had not thought about the possible limitations and restraints of competitive analytical techniques that are currently available or being applied. Hence it could be that they are too involved in corporate activities to enter into a thought process dealing with the very foundation of competitive analysis methods and techniques.

In conclusion, it is apparent that the respondents' reactions to question 2.3.10 largely support the *raison d'être* of this study. It also confirms the fact that global mining firms have not yet reached a comprehensive level of competitive learning regarding their competitive analysis applications in order to develop a thorough understanding of the future intentions of a particular competitive force. This study could thus add substantive value in this regard.

6.7 THE INFLUENCE OF COMPETITIVE ANALYSIS ON STRATEGIC DECISION MAKING IN GLOBAL MINING FIRMS

The fourth and last section of part 2 of the questionnaire was developed from the perspective that all competitive analysis conducted in global mining firms should add a dimension of competitive learning and thus provide insight into the competitive landscape against which global mining firms have to make strategic decisions. Based upon this perspective, part 2, section 4 of the questionnaire focused on the influence of competitive analysis on strategic decision making in a global mining firm. Hence questions were developed to determine the purpose of competitive analysis in global mining firms, if these firms have any extensive knowledge about the future intentions of the forces in their competitive environments, and lastly, what the influence of competitive analysis is on strategic decision making in global mining firms. Each of these questions will now be discussed in turn.

6.7.1 Purpose of competitive analysis

The aim of question 2.4.1 was to test the respondents' opinions of the purpose of competitive analysis in global mining firms. The mean scores of the 11 attributes in the question were compared. The results are shown in figure 6.36.

Figure 6.36: Purpose of competitive analysis in global mining firms (n = 23)
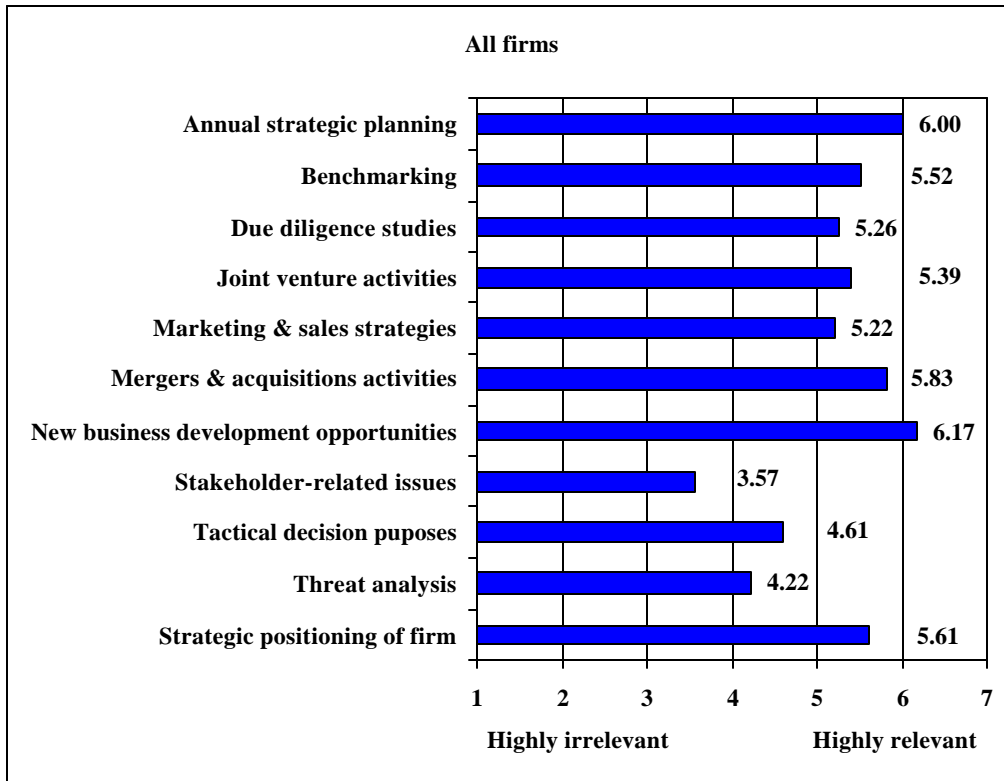
Source: Table 15, annexure 5

A somewhat logical fallout regarding the application of competitive analysis in global mining firms is evident from figure 6.36. In this regard, it is apparent that with the exception of stakeholder-related issues, the application of competitive analysis in global mining firms is, primarily focused upon strategy-related purposes. In this regard, the application of competitive analysis during new business development-related projects achieves the highest fallout from the purposes listed in the questionnaire, with 6.17 on the semantic differential. This correlates with the respondents' views on merger and acquisition activities (5.83) and due diligence studies (5.26), which are all new business-oriented. This also cross-correlates with the respondents' view in figures 6.32 and 6.35, which indicate that business development is one of the groups in global mining firms conducting most of the competitive analysis.

Figure 6.36 also indicates that the annual strategic planning process (6.00), and the strategic positioning of the firm (5.61) are additional highly relevant reasons for conducting competitive analysis. This view correlates with the findings in figure 6.23 and 6.25 regarding the departments that conduct competitive analysis in global mining firms. Benchmarking (5.52), joint venture activities (5.39) and the formation of marketing and sales strategies (5.22) are additional relevant applications of competitive analysis in global mining firms.

A somewhat alarming element in global mining firms is the respondents' perceptions that stakeholder-related issues (3.57) and threat analysis (4.22) are fairly irrelevant and neutral in the application of competitive analysis. In the context of figure 6.8, which indicates that sound relations with stakeholders are a key success factor in the contemporary global mining industry, the limited application of competitive analysis on stakeholders, should be a matter of concern for global mining firms. An additional vexing matter relates to the fact that, according to the respondents' perceptions, competitive analysis is not used that much in threat analysis. However, this supports the findings in figures 6.11 and 6.14, where the respondents indicated that their firms had often been surprised by the action of competitive forces application, and that greater uncertainty and more surprises emanating from the competitive environment could be expected over the next three years. Hence it can be argued that there seems to be a lack of foresight about the competitive environment in global mining firms. This matter again emphasises the need in the global mining fraternity for a structured early warning and competitive analysis capability.

Analogous to the previous figure, a t-test for independent means was calculated to test whether the differences between diversified and single-commodity firms in respect of the different attributes in question 2.4.1, are statistically significant. The mean scores for the 11 attributes for diversified and single-commodity firms in question 2.4.1 are indicated in figure 6.37 below.

Figure 6.37: The purpose of competitive analysis in single-commodity and diversified global mining firms (n = 23)
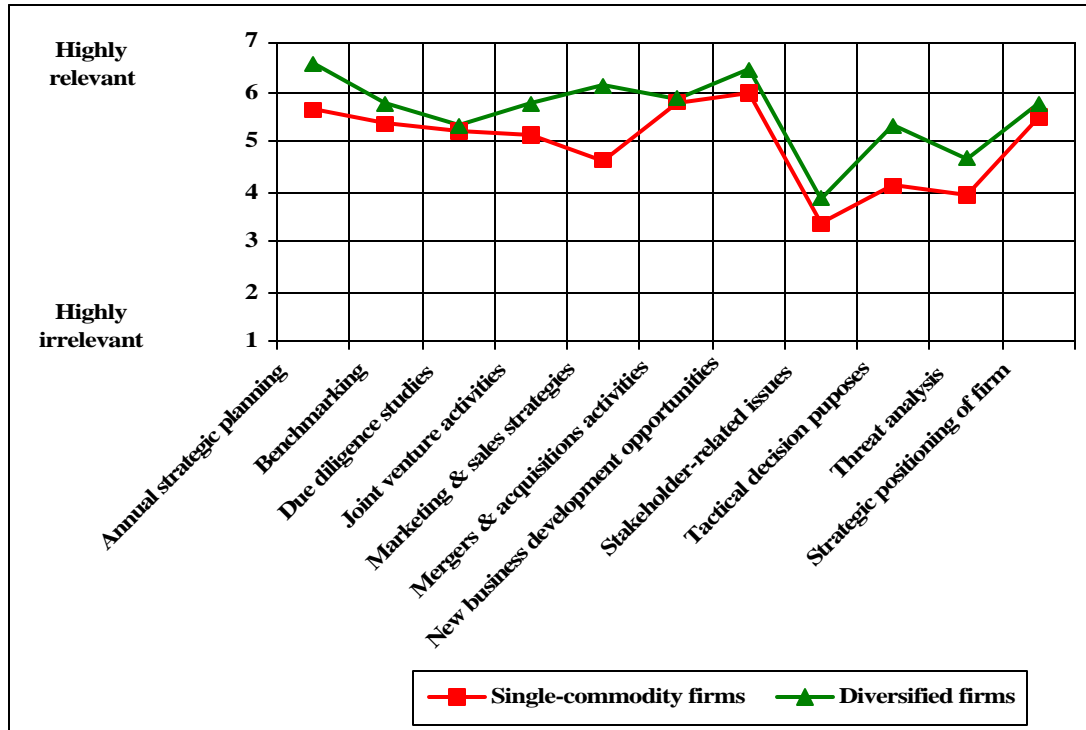
Source: Table 15, annexure 5; table 15, annexure 6

In addition to the above figure, the effect size on the 11 attributes was also calculated. This information is provided in table 6.14.

Table 6.14: Comparison of the purpose of competitive analysis in single-commodity and diversified global mining firms

	Diversified	Single			
	mean	mean	p-value	Effect size	Classification
Annual strategic planning purposes	6.56	5.64	0.125	0.82	Large
Benchmarking	5.78	5.36	0.477	0.36	Small
Due diligence studies	5.33	5.21	0.880	0.09	Small
Joint venture activities	5.78	5.14	0.352	0.51	Medium
Marketing & sales strategies	6.11	4.64	0.097	1.05	Very large
Merger & acquisition activities	5.89	5.79	0.876	0.08	Small
New business development opportunities	6.44	6.00	0.380	0.41	Small/medium
Stakeholder related issues	3.89	3.36	0.340	0.47	Small/medium
Tactical decision purposes	5.33	4.14	0.108	0.93	Large
Threat analysis	4.67	3.93	0.322	0.57	Medium
Strategic positioning of firm	5.78	5.5	0.630	0.24	Small

The effect size calculations indicate that diversified and single-commodity firms differ significantly on the following three attributes:

- annual strategic planning purposes (effect size = 0.82)

- marketing and sales strategies (effect size = 1.05)

- tactical decision purposes (effect size = 0.93)

One can again infer from these findings that diversified firms are more progressive in the application of competitive analysis, compared with single-commodity firms.

6.7.2   Knowledge of the strategic intent of competitive forces

The aim of question 2.4.2 was to determine the respondents' perception of the level of knowledge global mining firms have about the strategic intentions of the relevant competitive forces active in their competitive environment. The mean scores for the one attribute explicated in the question were compared across data sets for single-commodity and diversified firms. This was done to test whether the difference between the two groups regarded the one attribute in the question was statistically significant. The findings are indicated in figure 6.38.

Figure 6.38: Knowledge of global mining firms about the future intent of relevant competitive forces in their competitive environment (n = 23)
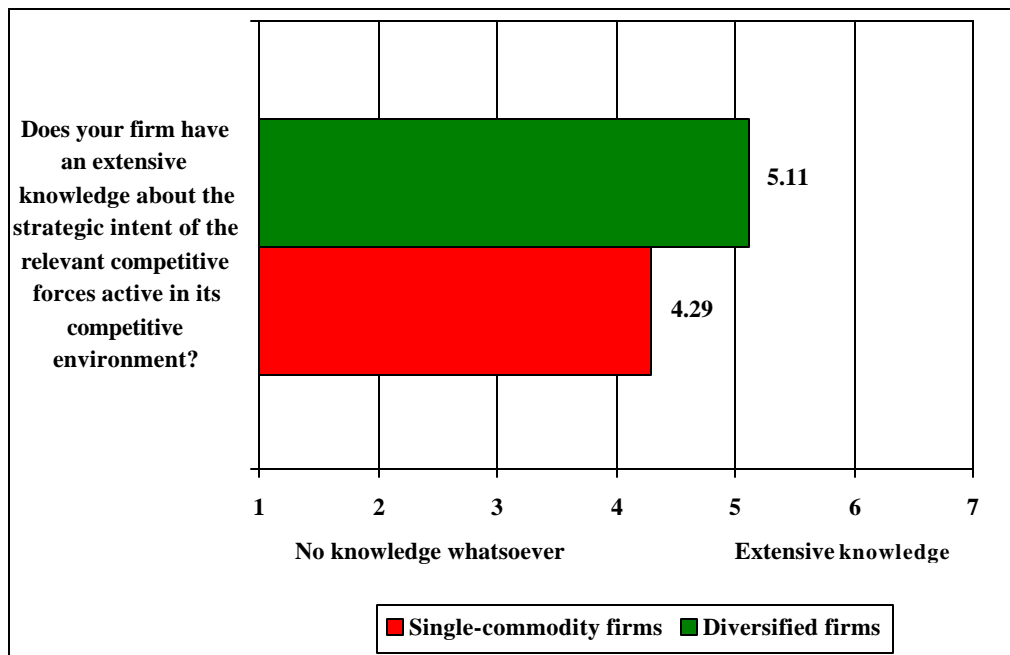
Source: Table 16, annexure 5; table 16, annexure 6

In addition to the t-test, the effect size was also calculated. The results of the t-test and effect size on the attribute in question 2.4.2 are indicated in table 6.15.

Table 6.15: Comparison of the knowledge of global mining firms about the future intent of relevant competitive forces in their competitive environment

	Diversified	Single			
	mean	mean	p-value	Effect size	Classification
Does your firm have an extensive knowledge about the strategic intent of the relevant competitive forces in its competitive environment?	5.11	4.29	0.084	0.80	Large

Figure 6.38 and table 6.15 show that there is a large difference between the two groups of firms regarding their knowledge about the strategic intent of their relevant competitive forces (effect size = 0.80). Here, as in various previous questions, it is apparent that diversified firms are considerably more progressive and knowledgeable about the strategic intent of the relevant forces in their competitive environment. The results in figure 6.38 also substantiate the results for question 2.2.1.k (figure 6.17). This again confirms the reliability of the empirical information in this study.

6.7.3 Influence of competitive analysis on strategic decision making

The aim of question 2.4.3 was to gauge the respondents' views on the influence of competitive analysis on the strategic decision-making process in global mining firms. A t-test for independent means was calculated to test whether the differences between diversified and single-commodity firms regarding the three attributes in the question are statistically significant. The mean scores on the three attributes in question 2.4.3 for diversified and single-commodity firms are represented graphically in figure 6.39.

Figure 6.39: Influence of competitive analysis on strategic decision making in global mining firms (n = 23)
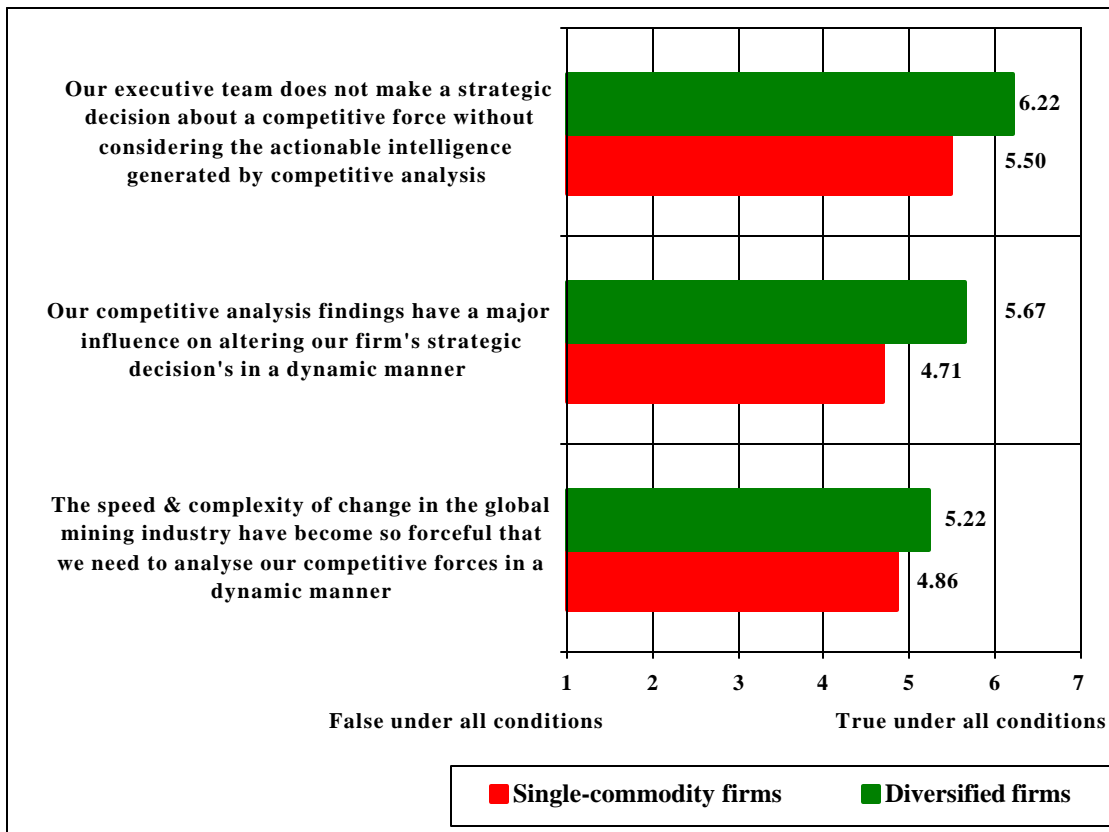
In addition, table 6.16 depicts the effect size calculations for the two groups of firms on the three attributes in question 2.4.3.

Table 6.16: Comparison of the influence of competitive analysis on strategic decision making in global mining firms

	Diversified	Single			
	mean	**mean**	**p-value**	**Effect size**	**Classification**
Our executive team does not make a strategic decision about a competitive force without considering the actionable intelligence generated by competitive analysis	6.22	5.50	0.179	0.67	Medium/large
Our competitive analysis findings have a major influence on altering our firm's strategic decisions in a dynamic manner	5.67	4.71	0.142	0.79	Large
The speed and complexity of change in the global mining industry have become so forceful that we need to analyse our competitive force in a dynamic manner	5.22	4.86	0.597	0.29	Small

The effect sizes indicate that the two types of firms differ on the following two attributes:

- Our executive team does not make a strategic decision about a competitive force without considering the actionable intelligence generated by competitive analysis (effect size = 0.67).

- Our competitive analysis findings have a major influence on altering our firm's strategic decision's in a dynamic manner (effect size = 0.79)

Regarding the last attribute dealing with the fact that the speed and complexity of the competitive environment have become so forceful that global mining firms need to analyse their competitive environment dynamically, diversified and single-commodity firms seem to have similar views that this is indeed so in the contemporary global mining

industry. Hence it could be argued that some kind of change management regarding the advantages of competitive analysis for global mining firms is necessary.

6.8   SUMMARY AND KEY FINDINGS

This chapter summarised the empirical research results. Several important issues were identified, which global mining firms need to consider regarding the role of competitive analysis in their quest to create and implement value-creating strategies, against the backdrop of a dynamic and turbulent competitive environment. These issues will now be summarised according to the different sections of the questionnaire.

6.8.1   Need for early warning

The empirical results of this study underpin the fact that global mining firms may be strongly focused upon internal tangible realities, and to a degree may have a *laissez-faire* approach towards the dynamics and turbulence prevalent in their competitive environment. The empirical results show that they seem to be fairly reluctant to do anything about the possible influences of the intentions of competitive forces on their implementation of value-creating strategies. However, this attitude was more evident with single-commodity than diversified firms.

The findings also suggest that, in the past, competitive forces have often surprised global mining firms, whilst there is limited evidence of a competitive early warning capability in these firms. The empirical results again confirm that single-commodity firms are less advanced in this regard than diversified firms. It would appear that global mining firms are highly likely to expect an increased level of business risk in their competitive environment in the coming years.

Based upon these findings, it is imperative that the influence of the wide array of forces in the competitive environment should be managed with diligence. Accordingly, a well-structured and functioning competitive early warning capability should receive attention

in global mining firms, in order to limit such unwarranted surprises emanating in the competitive environment.

6.8.2 The key requirements for competitive analysis

Although the empirical results confirm that competitive analysis activities are perceived in global mining firms as a definite prerequisite for business success, there was limited evidence of an effective and well-structured competitive intelligence and competitive analysis capability. The empirical results also suggest that, although diversified firms are more progressive than their single-commodity counterparts, competitive intelligence was and probably is conducted in an ad hoc and unstructured manner within most global mining firms. This relates strongly to the so-called "old-world approach" to competitive analysis as shown in the General Electric study (Prescott & Miller 2001:27).

However, the existence of competitive intelligence as an independent management discipline in these firms is a fairly recent phenomenon. In view of the increased turbulence expected by global mining firms stemming from the competitive environment, it is imperative that some additional change management initiatives be implemented to establish competitive intelligence and competitive analysis as important management decision support tools.

6.8.3 Competitive analysis process

The findings of the empirical study suggest that a wide variety of analytical methods, ranging from new business opportunity to commodity, competitive, financial, geological, technoeconomic and macroeconomic analysis are being applied on an ongoing basis in global mining firms. This emphasises the strong tangible and quantitative approach to analysis in global mining firms, which is primarily focused on certain highly relevant key success factors for global mining firms.

As a natural consequence of the foregoing, financial valuation is the primary means of competitive analysis for a global mining firm to develop an understanding of the future intentions of a competitive force. Although empirical results confirm a much more

progressive approach in diversified than with single-commodity firms, the strong quantifiable approach to competitive analysis in global mining firms was reconfirmed. This also ties in with the information most easily available. Important second-tier competitive analysis methods used by global mining firms include competitor analysis, scenario analysis, and SWOT analysis. The inference here relates strongly to the fact that the analytical methods most frequently used in the corporate environment are those that are most prominent in the curricula of business schools and other tertiary institutions around the world.

Apart from unpopularity of certain analytical methods because they are hardly applicable to contemporary analytical needs, it would seem that certain analytical methods are probably unknown or information is simply not available for the application of such analytical methods in global mining firms (ie network analysis and management profiling). It also appears that the business development, corporate finance and strategic planning departments are the principal users of competitive analysis, whilst financial statements and financial analyst reports are the primary sources of information on conducting competitive analysis. Although these publications could be perceived as valuable sources of information, the facts included in them might be dubious because they are generally public relations documents and give a predominantly historical view of the competitive force being analysed. Of concern from a competitive intelligence perspective, is the miner importance of human intelligence as a source of competitive information.

Of particular significance in the context of this thesis, is the discrepancy between the availability and importance of information on the future strategic intentions, management decision-making patterns and management's intentions in the competitive analysis process. If these particular categories of information are perceived to be so vital one would expect global mining firms to pay considerable attention to these information categories to ensure that executives have in-depth insight into them. Sadly this does not seem to be the case. This finding relates to both single-commodity and diversified global mining firms.

A general inference on the empirical results relates to the availability of information in global mining firms, and not so much the importance thereof, largely determines the competitive analytical method being used, as well as its influence on strategic decision making. As a corollary to this, it is apparent that the more information needs to be developed into intelligence, the less available such information becomes. This happens despite the significance of such information in regard to strategic decision making. In the wider context of this thesis, it thus seems essential that global mining firms place more emphasis on acquiring intelligence-related information, because senior executives have a definite need for it in the context of competitive learning about the future intentions of a competitive force.

According to the empirical results, approximately 67% of all competitive analysis requests in global mining firms are conducted for the boards of directors, executive management teams and senior divisional management. This largely confirms the strategic focus of competitive analysis in global mining firms. Lastly, the empirical results confirm the fact that competitive analysis in global mining firms is becoming more quantitative. In light of the discrepancy between the availability and importance of more qualitative information (future strategic intentions, management decision-making patterns and management's intentions) for decision making purposes, there is thus much room for improvement in global mining firms.

6.8.4   The influence of competitive analysis on strategic decision making

From the empirical results it is apparent that the application of competitive analysis in global mining firms is generally conducted with a clear focus upon strategy-related activities. The need for a more progressive approach on the part of diversified firms was again confirmed. Having said this, it is rather alarming to note that stakeholder-related issues and threat analysis are regarded as being somewhat irrelevant and neutral in respect of the application of competitive analysis.

Hence it could be argued that there seems to be some lack of foresight in global mining firms, about the influences stemming from all the diverse corners of the competitive

environment. This again emphasises the need in global mining firms for a structured early warning and competitive analysis capability. In addition, it also appears that global mining firms generally have limited knowledge about the real future intentions of the forces active in their competitive environment. This may be indicative of the fact that they tend to approach their competitive environment too narrowly and too reactively, considering its turbulence and dynamics.

As a catalytic to the foregoing, it is apparent that the turbulence and complexity of the competitive environment have increased to such an extent that global mining firms need to approach their competitive environment more dynamically and creatively. This argument reconfirms the need in these firms for a dynamic early warning and competitive analysis capability, which is ultimately the primary objective of this thesis. From the empirical research it thus appears that although competitive analysis in global mining firms is focused upon strategic issues, it has a strong internal and project-driven tangible undercurrent. This is so despite the fact that there is a definite need for additional insight into the real future intentions of the various forces active in the competitive environment.

This empirical research confirms that global mining firms have not yet reached a comprehensive level of competitive learning in the context of applying competitive knowledge in their own strategic processes, based upon a thorough understanding of the future intent of the various forces active in their competitive environment. Global mining firms should thus consider the creation of comprehensive competitive learning by way of a dynamic approach to competitive analysis. Competitive analysis, and for that matter, competitive intelligence, should become part of such a firm's strategic decision-making processes. In conclusion, in order to adhere to the study's primary objective, namely the development of a dynamic competitive analysis model for a global mining firm, all information obtained from the empirical research will be reviewed and applied from that perspective.

CHAPTER 7

A DYNAMIC COMPETITIVE ANALYSIS MODEL
FOR A
GLOBAL MINING FIRM

7.1 INTRODUCTION

Having surveyed the literature on the global mining industry and competitive analysis, and having evaluated the empirical research conducted as part of this thesis, the weakness of the current approach to competitive analysis adopted by global mining firms is re-affirmed and ever more apparent. This chapter is thus the culmination of all the stages of the research process in order to achieve the primary objective of this study, which was elucidated in chapter 1 as follows:

> *To develop a dynamic competitive analysis model for a global mining firm in order to enhance its strategic decision-making, given the dynamic actions of the various forces active in its competitive environment.*

Chapter 7 will thus propose a dynamic approach to competitive analysis for use by a global mining firm to enable it to monitor and analyse the actions and intentions of the various forces active in its competitive environment for competitive learning and strategic decision-making purposes. A hypothesised conceptual analytical framework will then be developed, proposed, illustrated and explained. The chapter will conclude with a number of vital considerations, which are necessary in the context of competitive learning, and the important role competitive analysis could fulfil in the formulation and implementation of value-creating strategies by a global mining firm.

7.1.1   Grounded theory

As indicated in chapter 5, the latter conceptual analytical model will be developed from an inductive perspective, according to the principles of grounded theory (Strauss & Corbin 1998; Glaser & Strauss 1967). In such an inductive approach, the researcher starts with detailed observations of the world and moves towards more abstract generalisations and ideas. Grounded theory is part of an inductive approach whereby a researcher builds ideas and theoretical generalisations based on closely examining and creatively thinking about the data (Neuman 2003:51–52). In this regard, **grounded theory** was deemed

suitable because it provides a framework for the development of a new theory (model) from existing sources. The development of this analytical model began with an understanding, description and evaluation of the global mining industry and competitive analysis. Conceptual ordering followed, and during this stage, answers were sought in the existing literature and the empirical survey (see chapters 2, 3, 4 and 6).

The grounded theory approach to the development of the analytical model, the latter model will also broadly be based upon Beer's **holistic view of the organisation** (Beer, 1972 & 1979), and Procter & Gamble's **dynamic competitive response modelling** (Prescott & Miller 2001:27).

7.1.2   Holistic view of the firm as a viable system

Over the years, various authors have, supported a systems view of the organisation (Beer 1972; 1979; Senge 1990; Ackoff 1999; Haines 2000; Stacey 2003). The work of Beer (1972 & 1979) in particular, provides an insightful view into this matter. According to Beer (1972:75 & 77), a firm is something organic, which endeavours to survive with a whole complex of activity going on inside, explicating an anastomic reticulum.

The diagrams in figure 7.1 highlight Beer's basic premise, when he suggests that any organisation or firm should be viewed as a **viable system**, similar to the human body, which is perhaps the richest and most flexible viable system of all (Beer 1972:75). The following two figures graphically depict the resemblance between the human body and an organisation:

Figure 7.1: Resemblance of the human body's neuropsychological system and the management system of the organisation
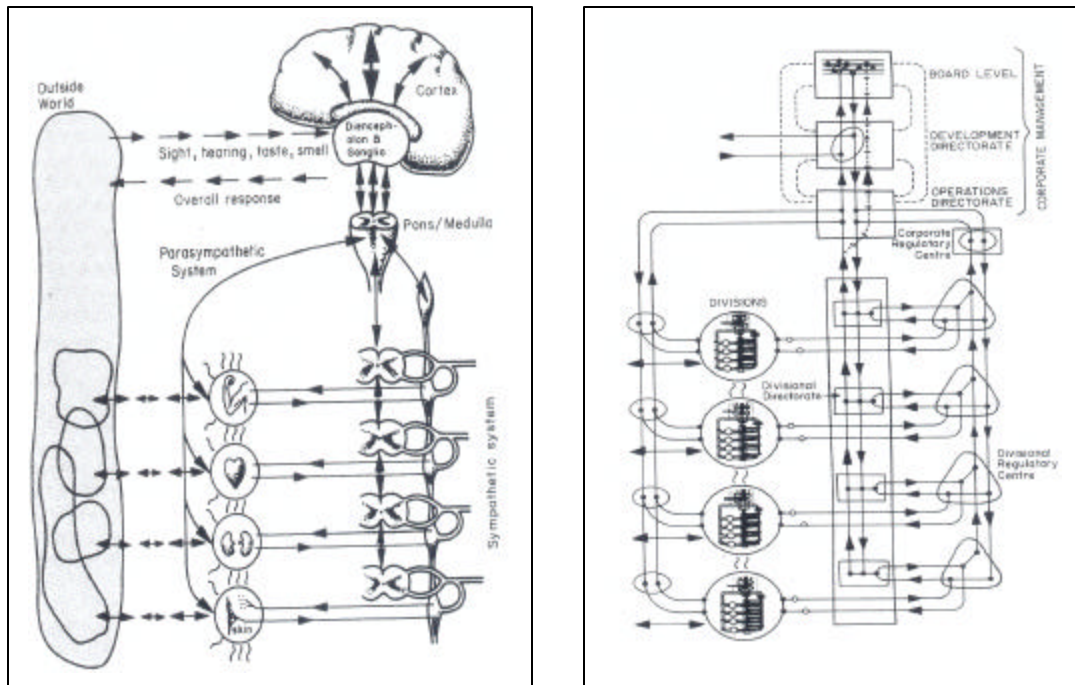
Source: Beer (1972:131)   Beer (1972:157)

According to Beer (1972:77), the firm, which is the entity controlled by management, acts in and reacts to the external (competitive) environment through the application of men, materials, machinery and money. A firm is thus similar to the human body, in its actions and reactions towards events in the external environment. Central to all actions by the human body stands the nervous system and brain, and importantly, the flow of information between the different subsystems, through which the body reacts to external events and influences (Beer 1972:89–102). The analogy between the human body and the firm thus seems logical.

Based upon the above-mentioned brief explanation of Beer's systems approach to a firm, it could be argued that if an organisation can be viewed as a system, comprising various subsystems, which adapts dynamically to its external environment, the same argument should apply to competitive analysis about such an organisation or competitive force. In this context, a blood pressure test, although important, does not give a comprehensive

medical overview of the body's current state of health and, of significance, how it would react in future (future intent). Hence a more comprehensive futureoriented approach to competitive analysis seems necessary. This more holistic view of competitive analysis forms a key point of departure for achieving the primary objective of this thesis, which entails a dynamic competitive analysis model for a global mining firm.

Analogous to the foregoing, such a dynamic and more holistic approach to competitive analysis, strongly relates to consumer group, Procter and Gamble's, application of dynamic competitive response modelling (Prescott & Miller 2001:27).

7.1.3 Dynamic competitive response modelling

According to Pepper (Prescott & Miller 2001:29–30), many firms around the world have an extremely reactive approach to competitive analysis. In this regard, competitive analysis is strongly linked to routine report generation and too many non-actionable requests. Such an approach to competitive analysis tends to be too reactive, and too far removed from the core strategy and key planning activities of a firm. As a natural consequence of the latter approach, Procter and Gamble refocused their competitive analysis activities from a static model towards one focused upon action, which includes dynamic competitive response modelling using multifunctional teams and scenario learning. Hence such a dynamic approach to competitive analysis will allow a firm to prepare for competitive responses in its endeavours to achieve strategic competitiveness by formulating and implementing value-creating strategies.

7.2 COMPETITIVE REALITIES IN THE GLOBAL MINING INDUSTRY

From chapter 2 it is apparent that global mining firms face significant uncertainty, ambiguity and an increasing number of strategic discontinuities emanating from the contemporary global competitive landscape. One can thus expect this turbulent environment to produce almost perpetual disequilibria (Hitt et al 1998:25). Implicit in this principle stands the fact that global mining firms can no longer expect to remain

stable and to last forever. This fact was reconfirmed during the empirical part of this study.

Competitiveness in the minerals and metals industries in such circumstances, therefore hinges on many factors. Apart from adhering to Govindarajan and Gupta's (2001:8) constructs of globality (2001, p. 8), relating to global supply, global marketing and developing a global capital base, a mining firm has to take cognisance of the dynamic realities of the competitive environment and develop a global corporate mindset if it is to achieve strategic competitiveness through the development and implementation of value-creating strategies. In this context, Klinger (2002) contends that in the past mining firms have not been clever at reading these competitive trends and forces affecting the industry.

Against the backdrop of these competitive realities, various authors (Skirrow et al 2001; Gilbertson, cited in Richardson 2001; Clifford 2001:4; Kirkby 2002:2) argue that a new breed of "dominant global firms" is emerging in a world of shrinking opportunity, where only few very large firms will determine the future outcome of the industry. This new global competitive environment dictates that firms have to compete against a small number of other global firms (Porter 1998:291). In addition, they have to take cognisance of the influences of the diverse range of other forces active in the global competitive environment. In such circumstances, the matters of risk and uncertainty become even more crucial to all decisions and initiatives. This also relates to the typical long-term nature of most strategic decisions being undertaken in the global mining industry.

The effect of globalisation and competition on the mining industry is thus clear, with the major firms dramatically increasing their global operational and marketing involvement. In such a world of shrinking opportunity, where mining firms have a global level of operational and market participation, they have to develop additional competitive initiatives from their intangible resources in order to keep abreast of any initiative by any force in the competitive environment.

In this regard, knowledge-related activities are now deemed as critical key success factors in this "old world industry". Hamel and Prahalad (1993:84) concur with this view when

they argue that business risk recedes as a firm's knowledge about its competitive environment grows, and as knowledge grows, so does the firm's capacity to advance. A catalyst to this view is the fact that a significant global monitoring and analytic capability regarding the actions and intentions emanating from the forces in the competitive environment is essential (adopted from Yip 1995:59).

The theorem proposed in this thesis that a global mining firm should consider establishing a dynamic capability to monitor and analyse the actions and intentions of the various competitive forces in the competitive environment, seems realistic. This specific contribution of the study relates strongly to Lasserre's (2003:434) statement that globalisation is progressing, and truly global firms will be the only real victors of that progress through a more innovative approach to the changes effected by the competitive environment.

7.3   COMPETITIVE ANALYSIS METHODS AND TECHNIQUES

On the strength of the afore-mentioned arguments, the findings in the literature study explicated in chapters 3 and 4, will now be focused on the proposed conceptual dynamic competitive analysis framework, which forms the primary objective of this study.

7.3.1   Competitive learning

From section 7.2 it is evident that in order to create a sustainable competitive advantage, global mining firms have to take cognisance of the diverse forces active in their competitive environment. The ability of organisations (including global mining firms) to develop such a sustainable competitive advantage is, however, increasingly rare. A competitive advantage laboriously achieved can be quickly lost (Duncan 1994).

Implicit in this principle is the fact that the development of such a competitive advantage is, unavoidably dependent and predicted on the basis of learning. Fahey and Randall (1998:156) concur that the single greatest liability of management teams in many

organisations is that they confront complex dynamic realities with an approach designed for simple static problems. Accordingly, organisations should constantly learn, amongst other issues, about the competitive environment, and initiate competitive action based on the insight they acquire.

This latter type of learning could be defined as competitive learning and should eventually develop into self-learning. The fundamental concept underlying competitive and self-learning relates to the initiative in which the home firm compares itself with important aspects of the various forces in its competitive environment. Based on the competitive insight, a firm should thus be able to challenge and critique its own strategies in the competitive environment - it's most pervasive operating norms, its most deeply held knowledge, and of significance, its blindspots.

7.3.2 Competitive analysis

Competitive analysis, as part of a comprehensive competitive intelligence capability, could play a major role in extending the competitive learning process in a firm as far as the competitive environment is concerned. Competitive analysis in this regard is a multifaceted, multidisciplinary combination of scientific and nonscientific processes whereby individuals interpret the data or information in order to provide meaningful insights, intelligence findings and recommendations for action (Fleisher & Bensoussan 2003:12). In addition, competitive analysis should be conducted with a conscious view of the impact of the human reasoning, perceptions and judgmental processes, and specifically the way in which judgments are made and conclusions reached in the context of competitive learning.

After developing a thorough understanding of the particular key intelligence topic, the driving force in any competitive analysis endeavour should first and foremost be to develop knowledge about the competitive force under scrutiny, and consequently, to derive implications for the home firm's current and future decisions. Such open-ended competitive learning should be driven by certain learning and decision-based questions. According to Fahey (1999:56) and Grant (1998:96), these questions are as follows:

- Who are the current and future forces in the home firm's competitive environment?

- What are the major alternatives, plausible futures or scenarios around the strategic and operational direction of individual (and multiple) forces active in the competitive environment, over different time periods?

- What are the implications of these alternative futures for the competitive context and the home firm itself?

- How can a competitive force's behaviour be influenced in order to create a more favourable business environment for the home firm?

In an effort to find answers to these telling questions which, in many instances, have a major influence on an organisation's future existence and prosperity, more than a hundred analytical models, methods and techniques have been used in competitive analysis endeavours. Many of these analytical techniques and models have been adaptations of business, industry, strategy, marketing, financial and technology analysis techniques since few pure competitive intelligence analytical techniques and models have been developed (Fleisher & Bensoussan 2003:xviii & 122; Herring 1998:14; Sawka 2002:46). As a corollary to this fact, Herring (1998:14) perceives competitive analysis to be more a process than the actual application of a specific type of technique – often requiring the appropriate combination of analytical techniques and intelligence collection to generate appropriate action.

It is, however, apparent that in the context of competitive learning, knowledge about the future intent of a competitive force is the critical dimension on which decision makers should base their decisions. In this context, the most critical aspect of competitive analysis is not so much which analytical technique is being used, but the delivery of actionable intelligence that sheds light on the future intent of such a competitive force.

7.3.3 The DACSOMEF analytical framework

In the light of the foregoing discussion, the determination of the future intent of a competitive force should be the all-encompassing, overall focus of competitive analysis. This theorem forms the very basis of this thesis. Hence certain characteristics are viewed as being critical for understanding such a competitive force's real intention for the future. The following key aspects, according to the DACSOMEF analytical framework, require comprehensive answers in order to acquire competitive insight into the future intent of a competitive force:

- **Dynamics in the competitive environment (D).** Ascertain which external influences have a major influence on the competitive force being analysed and, importantly, how dynamically, proactively and rigorously it reacts to these influences that impacts on its stability and competitive advantage.

- **Assets (A).** Determine the tangible assets of the competitive force, and how it applies such assets in the context of the dynamic competitive environment in which it exists.

- **Capabilities and competencies (C).** Ascertain what capabilities and competencies the competitive force has and how it applies it in the context of its dynamic competitive environment.

- **Strategy (S).** Determine what the future strategy of a competitive force entails and how it will implement this strategy in relation to the dynamics and turbulence of the competitive environment.

- **Organisational infrastructure and culture (O).** Acquire knowledge about a competitive force's organisational infrastructure and culture to determine why it is pursuing its current and future strategies.

- **Management of the mindset (M).** Acquire knowledge about the human behaviour that drives a competitive force, and in particular, that of its management cadre, as well as the group dynamics of such a management team.

- **Environmental relationships (E).** Identify a competitive force's interfirm linkages and long-term relationships with other independent organisations (eg strategic alliances, joint ventures), as well as less formal semi-enduring relationships with key suppliers, key service providers and key customers.

- **Future scenarios (F).** Determine what a competitive force might do in future, why it would do so, and what the possible future implications for the home firm.

7.3.4   Evaluation of various analytical methods according to the DACSOMEF evaluation and rating scale

Through the myriad of competitive analysis models, techniques and frameworks being used by firms around the world, of which 13 of the most prominent methods have been analysed in this thesis, it is evident why the competitive analysis phase in the competitive intelligence cycle is perceived to be the real value-creating part of it. It is also apparent why competitive analysis defines the very demeanour of competitive learning. In this regard, the analytical processes, strengths and weaknesses and an evaluation according to the DACSOMEF analytic framework, as explained above, were conducted on the 13 analytical methods. In terms of grounded theory, this could be described as the discovery stage.

According to the DACSOMEF evaluation and rating scale, the scores of the various competitive analysis methods out of 100 as explained in chapter 4, are depicted in the figure below. The latter figure also depicts the value of the various competitive analysis methods according to the different DACSOMEF information categories (in different colours of green, where dark green implies a percentage point above 90, medium green a percentage point between 80 and 90%, and light green a percentage point between 70 and 80%).

Table 7.1: Rating of 13 analytical methods according to the DACSOMEF rating scale

Analytical technique vis-à-vis DACSOMEF	Dynamic competitive environment (10)	Assets (15)	Competencies & capabilities (12.50)	Strategy (15)	Organisational structure & culture (10)	Management mindset (12.50)	Environmental networks (10)	Future Intent (15)	Overall score out of 100
Porter's five forces	8.00	9.00	2.50	10.50	2.00	1.25	6.00	7.50	**46.75**
Strategic group analysis	8.00	10.50	5.00	12.00	2.00	1.25	6.00	9.00	**53.75**
Functional capability & resource analysis	8.00	13.50	10.00	13.50	7.00	7.50	8.00	12.00	**79.50**
Financial ratio & statement analysis	3.00	12.00	1.25	6.00	1.00	3.75	3.00	4.50	**34.50**
Strategic funds programming	0.00	7.50	0.00	12.00	0.00	3.75	1.00	7.50	**31.75**
Sustainable growth rate analysis	1.00	6.00	0.00	7.50	0.00	3.75	2.00	7.50	**27.75**
BCG's growth share portfolio matrix	2.00	4.50	0.00	6.00	0.00	3.75	2.00	4.50	**22.75**
SWOT analysis	4.00	6.00	5.00	6.00	3.00	2.50	3.00	3.00	**32.50**
Value chain analysis	5.00	9.00	7.50	7.50	4.00	3.75	5.00	7.50	**49.25**
Competitive behaviour profiling	0.00	3.00	3.75	7.50	2.00	12.50	2.00	7.50	**38.25**
Competitor analysis	7.00	13.50	11.25	13.50	8.00	8.75	7.00	13.50	**82.50**
Stakeholder analysis	4.00	3.00	2.50	6.00	1.00	5.00	1.00	6.00	**28.50**
Scenario analysis	9.00	7.50	6.25	12.00	5.00	6.25	7.50	15.00	**68.50**

According to the above-mentioned evaluation of the 13 competitive analysis methods analysed in this thesis, it is apparent that certain analytical methods could add substantial value during the development of the envisaged DACSOMEF analytical model. This matter is also evident in table 7.2 which depicts the most principal analytical method per information category of the DACSOMEF analytical model. Strauss and Corbin (1998:113), refer to this part of the grounded theory process as "axial coding", where related categories (or parts of analytical methods) are grouped together.

Table 7.2: Most important analytical methods per category, according to the DACSOMEF analytical model

DACSOMEF category	Achieved 90%>	Achieved between 80 & 90% according to DACSOMEF-evaluation	Achieved between 70 & 80%
Dynamic competitive environment	▪ Scenario analysis	▪ Five forces ▪ Strategic group analysis ▪ Functional capability & resource analysis	
Assets	▪ Functional capability & resource analysis	▪ Financial ratio analysis ▪ Competitor analysis	
Capabilities and competencies	▪ Competitor analysis	▪ Functional capability & resource analysis	
Strategy	▪ Functional capability & resource analysis ▪ Competitor analysis	▪ Strategic funds programming ▪ Scenario analysis	
Organisational structure and culture		▪ Competitor analysis	▪ Functional capability & resource analysis

Management mindset	▪ Competitive behaviour profiling		▪ Competitor analysis
Environmental relationships			▪ Competitor analysis
Future intent	▪ Scenario analysis ▪ Competitor analysis	▪ Functional capability & resource analysis	

From table 7.2, it is apparent that in six of the eight information categories of the DACSOMEF analytical model, considerable use could be made of the analytical methods and techniques, evaluated in chapter 4.

7.3.5   A system's approach to competitive analysis

As is evident throughout this thesis, competitive intelligence, and for that matter the ultimate the objective of competitive analysis is to capture the learning coefficient from the future actions and intentions of the various forces in the competitive environment on the home firm, creating insight and incorporating such wisdom into the firm's competitive strategies. In a competitive environment fraught with uncertainty, the latter task becomes extremely difficult, even at the best of times (Courtney et al 1997:3). The acceleration and complexity of change in the business environment place a heightened premium on the timely and rigorous understanding of developing threats and opportunities (Corporate Strategy Board 2000:2). Hoyt (2002:11) argues that the greatest challenge facing firms today comes from outside. These challenges exist not only outside the firm, but in many instances, outside the industry. From a systems perspective in scanning and monitoring the competitive environment, a chain with interrelated actions comes to mind, of which an example is depicted in figure 4.7.

Certain interrelated actions, albeit each focusing upon competitive learning in the context of creating a competitive advantage, are evident in the above-mentioned figure. These interrelated actions include the following:

▪   early warning

- competitive and strategic analysis

- scenario development

- strategic planning and implementation

Such a proposal is closely linked to Procter and Gamble's dynamic response modelling capability (Prescott & Miller 2001:29–30), and gives additional impetus to the primary objective of this study.

7.3.6 Competitive early warning

As indicated above, a vital subsystem of a firm's approach towards its competitive environment, relates to a competitive early warning capability. The overriding objective of such an early warning system touches upon the fact that the home firm should not be surprised. In this vein, an early warning system should be able to scan the competitive environment in order to detect at an early stage, any changes that may impact on the firm. According to Gilad (2004:60) and Fahey (1999:79), scanning the competitive environment needs to be conducted in a structured and meticulous manner in order to move continuously towards an improved view of events happening as signs of early risk and opportunities appear. Such an early warning system is represented graphically in figure 7.2.

Figure 7.2: The competitive early warning triangle

Competitive environment

Focused collection

Determine KIT

Feedback

Risk identification

Gathering competitive data

Detecting competitive indicators

Monitoring intelligence signals

Management decisions & action

Assess competitive implications

Interpret competitive indicators
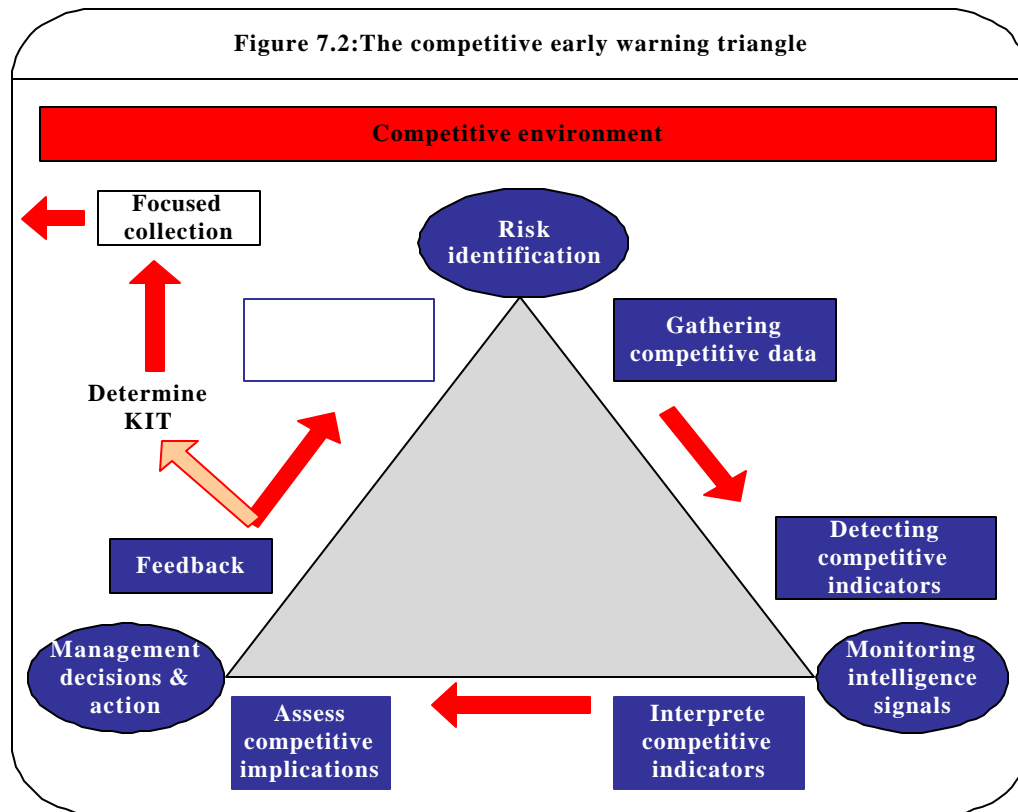
Source: Adapted from Gilad (2004:60); Fahey (1999:79)

It is clear that figure 7.2 concurs largely with figure 4.8. However there is one important difference because the competitive early warning system in figure 7.2 forms a subsystem of a comprehensive competitive intelligence capability, which should be linked to competitive analysis, as well as the firm's strategic processes.

As far as early warning is concerned, Gilad (2004:59) argues that an early warning framework begins with the identification of broad areas of strategic risks (and opportunities), proceeds to monitoring for early signs or anomalies, and ends up inducing management action. Hoyt (2002:10) emphasises the fact that the above early signs of change or anomalies, in many instances, go easily unnoticed, since the contemporary business complexities demand concentration by management on other crucial issues. Additionally, critical and significant information is often purposely concealed or disguised.

7.3.7 Competitive analysis and the firm's strategic decision making process

Assuming that a firm has established an early warning and dynamic competitive analysis capability, it is of critical importance that the intelligence acquired in this way is applied in the firm's strategic decision making. The Corporate Strategy Board (2000:1) argues that when a firm strengthens the link between strategy and competitive intelligence, it allows for nimbler and more responsive strategy creation.

Fahey (1999:65–85) emphasises that competitive analysis, as practised in many firms, unfortunately focuses far too much on the current strategies of the different competitive forces and neglects their likely future strategic alternatives. Competitive analysis all too often concentrates on documenting and understanding a competitive force's current and past strategies and actions. By contrast, what a competitive force's real future intentions are, why they are so, and the possible implications, receive comparatively little attention. Consequently, strategy formulation that pays little, or worse, no attention to the future intentions of the various competitive forces in the home firm's competitive environment is extremely risky or downright imprudent.

In a similar vein, Beinhocker and Kaplan (2002:49) argue that these processes should be redesigned to support real-time strategy making and to encourage "creative accidents". In addition, it is apparent that when firms do conduct these corporate competitive environmental scanning and analytical processes, this is frequently done from the home firm's own perspective and pays scant attention to the real future intention of the various forces in the competitive environment. Competitive analysis, properly focused upon the future intentions of a competitive force, could play a major role in improving a firm's strategic decisions and thus its long-term competitive advantage. This matter, however, provides much scope for future research.

7.4   CRITICAL ELEMENTS THAT EMERGED FROM THE EMPIRICAL RESULTS

7.4.1   Need for early warning

According to the empirical results of this study, the respondents' answers underpin the fact that global mining firms may be strongly focused upon internal tangible realities, and to a degree may have a *laissez-faire* approach towards the turbulence and dynamics in from their competitive environment. A kind of reluctance in these firms about the possible dynamic influences of the intentions of competitive forces on the implementation of value-creating strategies is thus apparent from the empirical results.

It is furthermore clear that the apparent/misconstrued actions and/or bona fides of competitive forces have in the past often surprised global mining firms (figures 6.9, 6.10 and 6.11). In addition, these firms have a limited formal way of reacting to a potential change in the strategic plans of a competitive force that may influence them (figure 6.17). This is particularly evident in single-commodity firms. In addition, respondents' perceptions indicate that a minimal formal competitive early warning capability is evident in diversified global mining firms, whilst it is largely absent in the single-commodity firms that responded (figure 6.14). The empirical results, also confirm that the respondents are to expect an increased level of business risk in their competitive environment over the next three years (figure 6.15). To this end, it is important to take cognisance of the fact that a single mining investment that is negatively influenced by competitive force initiatives may have a major influence on the home firm's ability to execute value-creating strategies. This will have a negative impact on its competitive advantage and even future existence.

Based upon these findings, it is imperative that the influence of these competitive forces on global mining firms should be managed with diligence. Accordingly a well-structured and properly functioning competitive early warning capability should receive, attention in global mining firms in order not to be surprised by the actions and intentions of the variety of forces in the competitive environment.

Such a competitive early warning capability should be supported by the collection of information from a wide array of sources, including the firm's own staff, industry experts, external consultants, analysts, mining-related news services, attendance of global conferences and involvement in mining-related professional bodies. This emphasises the need for such collection activities to be focused upon a particular key intelligence topic and not conducted in an ad hoc manner.

7.4.2 Key requirements for competitive analysis

Although the respondents viewed competitive analysis activities as a relevant prerequisite for business success (figure 6.16), their responses provided little evidence of an effective and well-structured competitive intelligence and competitive analysis capability. Responses in the empirical survey (see the summary below), confirm the fact that competitive intelligence is a management concept that was recently introduced in the global mining industry. As a corollary to this, certain respondents argued that the need and importance of the latter concepts have been identified and are well understood by many senior executives in global mining firms.

7.4.2.1 *Summary of respondents' perceptions*

- **Existence of a competitive early warning system.** The respondents' answers indicate that they have an extremely basic (or no) early warning system. Their responses also relate to figure 6.11, which indicates that their firms have in the past often been surprised by the actions of competitive forces.

- **Determining key intelligence needs.** Despite the above-mentioned lack of a structured early warning system, the determination of key intelligence needs is reasonably relevant for global mining firms. The conclusion that can be drawn here relates to the fact that global mining firms probably determine their key intelligence needs at their annual strategic sessions, or according to certain strategic project on which they wish to embark. In a dynamic and turbulent competitive environment, such an approach seems extremely "old world"-oriented.

- **Collection of information.** From an information collection perspective, the respondents indicated that during the competitive analysis process, slight preference is given to open source or secondary information, when compared to the use of human intelligence.

- **Data and information capturing capability.** Most of the respondents confirmed the existence of a central repository for information about the various forces in the competitive environment.

- **Groups/departments conducting competitive analysis.** The respondents indicated that competitive analysis is conducted by various units and departments and, in many instances, cross-functional teams.

- **Influence of competitive analysis on decision-making.** Lastly, the respondents indicated that competitive analysis does influence the strategic decision making in their firms. Of concern, however, is the fact that respondents indicated that they have a limited ability to determine the future intent of a force in their competitive environment. Again this relates strongly to their ad hoc use of competitive analysis and the fact that the actions and/or bona fides of forces in their competitive environment have often surprised them (figure 6.9).

In light of the fact that competitive intelligence and competitive analysis are still fairly new management concepts in the global mining industry, additional change management initiatives are necessary to confirm its existence as a vital management decision-support tool.

7.4.3   Competitive analysis process

7.4.3.1   Summary of respondents' perceptions

- **Analytical methods used in global mining firms.** According to the respondents' perceptions, it is apparent that a wide variety of analytical methods, ranging from new business opportunity to commodity, competitive, financial, geological, technoeconomic and macroeconomic analysis are continuously applied in global mining firms. These findings again emphasise the strong tangible and quantitative approach to analysis in such firms. In addition, that most of the analytical methods applied in global mining firms are strongly focused upon the highly relevant key success factors (figures 6.18 & 6.19).

- **Competitive analysis methods used.** Tying in with the above, the respondents perceived financial valuation to be the most important means of competitive analysis for a global mining firm in order to develop an understanding of the future intentions of a competitive force (figures 6.20, 6.21 & 6.22). The strong quantifiable approach to competitive analysis in global mining firms is thus reconfirmed. It also relates to the information about a competitive force that is most easily available (see figure 6.28). Important second-tier competitive analysis methods being used by global mining firms include competitor analysis, scenario analysis and SWOT analysis. An inference that relates strongly to Fleisher and Bensoussan's (2003:22) concerns the fact that the analytical methods most frequently used in the corporate environment are those that are most prominent in the curricula of business schools and other tertiary institutions around the world.

  In contrast to the competitive analysis methods and techniques most frequently used, the respondents' perceptions indicate that a vast number of analytical methods are hardly used at all in global mining firms. This includes patent analysis, strategic funds programming, network analysis, Porter's diamond analysis, strategic group analysis, the BCG growth share matrix, the Balanced scorecard, management

profiling, and sustainable growth rate analysis. Apart from the fact that certain analytical methods are unpopular because of the fact that they are hardly applicable to contemporary analytical needs, it is apparent that certain analytical methods are probably unknown or information is simply not available to apply such analytical methods in global mining firms (ie network analysis and management profiling).

- **Departments/groups conducting competitive analysis.** In a question put to respondents regarding which departments/groups conduct competitive analysis most frequently, their responses indicated that the business development, corporate finance and the strategic planning departments fall in that category (figures 6.32, 6.33 & 6.35).

- **Information sources used when conducting competitive analysis.** From the empirical results, global mining firms seem to use a wide range of information sources when conducting competitive analysis (figures 6.26 & 6.27). However, financial statements and financial analyst's reports are perceived to be the primary source of information when conducting competitive analysis on a competitive force. Although these publications could be perceived as valuable sources of information on a competitive force, the facts included therein could be dubious because they are usually public relations documents and invariably provide a historical view of the competitive force being analysed. Of concern from a competitive intelligence perspective, is the minor importance of human intelligence as a source of competitive information.

- **Availability and importance of information.** From the empirical results (figures 6.33 and 6.34) it is evident that in the case of certain categories of information on a competitive force being analysed such as its level of technological development, current strategies, financial valuation and performance, global and domestic operations, organisational structure and its value chain, the respondents held the opinion that they have suitable information available, compared with the information category's particular importance. This also relates to a certain extent to

the analytical methods, namely financial valuation and analysis, most frequently applied in global mining firms.

Of particular significance in the context of this thesis, is the discrepancy, according to respondents' perceptions, between the availability and importance of information on the future strategic intentions, management decision-making patterns and managements' intentions regarding a competitive force being analysed. If these particular categories of information are perceived to be so crucial one would expect global mining firms to pay a great deal of attention to these information categories to ensure that executives have in-depth insight into them. Unfortunately, this does not seem to be the case. This matter relates to both single-commodity and diversified global mining firms.

A general inference with regarding to figures 6.33 and 6.34 concerns to the occurrence in global mining firms the availability of information, and not so much its importance, largely determines the competitive analytical method being used, as well as its influence on strategic decision making. As a corollary to this, it is apparent that the more information needs to be developed into intelligence, the less available such information becomes. This happens despite the importance of such information for strategic decision making. In the wider context of this thesis, it thus seems essential that global mining firms place more emphasis on acquiring intelligence-related information, because senior executives have a definite need for it in the context of competitive learning about the future intentions of a competitive force.

- **Primary users of competitive analysis.** According to respondents' perceptions, approximately 67% of all competitive analysis requests are conducted for members of responding firms' boards, executive management teams and senior divisional management. This largely confirms the strategic focus of competitive analysis in global mining firms.

- **View of global mining firms regarding certain aspects of competitive analysis.** The perceptions of the respondents indicate that only a limited number of competitive analysis methods are being used in global mining firms, whilst competitive analysis is indeed becoming more quantitative. These perceptions also indicate that competitive analysis in global mining firms is based on historical as well as future-oriented information, whilst some effort is made in order to acquire information on a competitive force that is not readily available (figure 6.35).

In conclusion, it is apparent that the respondents' perceptions largely support the *raison d'être* of this study. This also confirms the fact that global mining firms have not yet reached a comprehensive level of competitive learning in to their competitive analysis applications, in order to develop a thorough understanding of the future intentions of the forces active in their competitive environment. This study could thus add considerable value in this regard.

7.4.4 The influence of competitive analysis on strategic decision making

From the respondents' perceptions it would seem that the application of competitive analysis in global mining firms is primarily focused on strategy-related matters, with new business development opportunities and the annual strategic planning session being the most important. In this regard, a more progressive approach towards the influence of competitive analysis on strategic decision making is evident in diversified firms, compared with single-commodity firms.

A somewhat alarming finding, however, relates to the fact that stakeholder-related issues and threat analysis are rather irrelevant and neutral in the application of competitive analysis in single-commodity and diversified global mining firms. Hence, it could be argued that there seems to be some lack of foresight in global mining firms about the influences prevalent in the competitive environment. This again emphasises the need in global mining firms for a structured early warning and competitive analysis capability.

Respondents from diversified firms indicated that they have some knowledge of the future intentions of the competitive forces active in their competitive environment. In comparison, a significant difference regarding this matter is noticeable in single-commodity firms where neutral fallout occurs. This neutral fallout in single-commodity firms may be indicative of the fact that such firms approach their competitive environment too narrowly and too reactively. Hence the latter firms may not focus competitive analytical attention on the future intentions of relevant forces active in the competitive environment. In the context of competitive learning (see section 7.3.2), it is evident that global mining firms have yet to acquire more insight into this matter. In relation to the foregoing, competitive analysis, however, is recognised by respondents as a prerequisite to achieve a sustainable competitive advantage. It is, however apparent that competitive analysis is not well integrated into the strategic decision-making processes of the firms that responded.

In conclusion, it is evident from the respondents' opinions, that global mining firms do conduct competitive analysis, although such analysis is strongly focused upon the tangible realities of a competitive force, and importantly, on the availability of information. A more comprehensive approach to the matter, based upon actionable intelligence seems necessary. Also, it is apparent that the turbulence and complexity of the competitive environment have increased to such an extent that global mining firms need to approach their competitive environment more dynamically and creatively. This argument reconfirms the need in global mining firms for a dynamic early warning and competitive analysis capability, which is the primary objective of this thesis.

7.5   A CONCEPTUAL DYNAMIC COMPETITIVE ANALYSIS MODEL

7.5.1   Holistic view of the DACSOMEF competitive analysis model

Through a process of so-called "selective coding" (Strauss & Corbin 1998:143), the findings of the literature and empirical research of this study were incorporated into the envisaged analytical framework, which developed into a dynamic competitive analysis

model comprising six parts with 14 interrelated and sequential steps. This conceptual analytical model is depicted in figure 7.3 below:

External impact

Firm's strategic intent

INTERNAL ASSETS & CAPABILITIES

COMPETITIVE ENVIRONMENT

14

Change/ not change

13

Dynamic response

12

Recom- mendation & decision

Competitive theatre

10

Intelligence findings

11

9

What competitive issues to track?

1

2

Early warning radar

risk identification & signals monitoring

3

Yes

No

4

Determine KIT

These are the reasons

External impact

DACSOMEF

Analysis

DACSOMEF

Robot

8

7

Collection of infor- mation

5

6

Disregard threat/ oppor- tunity

External impact

External impact

Dynamic competitive data base

507

7.5.2   Functioning of the DACSOMEF analytical model

It is evident from the above-mentioned figure, that the different parts of the conceptual dynamic competitive analysis model (indicated in different colours) each focus upon a specific activity, and include the following:

- early warning

- determination of key intelligence topics

- collection of competitive information

- DACSOMEF analysis

- competitive theatre

- strategic decision making.

Such an approach to competitive analysis emphasises a strong systems approach to the matter, whilst it also relates closely to Procter and Gamble's dynamic competitive response model (Prescott & Miller 2001:29–30). The functioning of the conceptual dynamic competitive analysis model will now be elucidated in more detail.

7.5.3   Competitive early warning

The findings in sections 7.3.5 and 7.3.6 suggest that an early warning capability is a vital component of a competitive intelligence and competitive analysis system. Fahey (1999:78) concurs with this notion when he argues that perceiving, interpreting and assessing signals emanating from the competitive environment are perhaps the central concept in competitive learning.

From the empirical results of this study, as summarised in section 7.4.1, it is evident that global mining firms have a certain *laissez-faire* approach to the turbulence and dynamics

stemming from their competitive environment. In addition, the empirical results confirm that the actions and bona fides of forces in their competitive environment have often surprised global mining firms. This matter clearly suggests the existence of a minimal or no early warning capability in most global mining firms.

Based upon the above-mentioned findings, and as a corollary to figures 7.2 and 7.3, an early warning radar is perceived to be a vital component of the DACSOMEF competitive analysis model, and should be able to do the following:

- Identify risk.

    ✓ Gather competitive data on a continuous basis.

    ✓ Detect possible competitive indicators.

- Monitor intelligence signals.

    ✓ Interpret competitive indicators.

    ✓ Assess competitive implications.

- Compel management decisions and action.

    ✓ Give feedback and determine key intelligence topics, if necessary.

    ✓ Initiate focused collection activities related to a specific key intelligence topic.

    ✓ Continue monitoring of competitive environment.

According to the above-mentioned steps, a continued and structured monitoring process in the competitive environment is thus possible. In such an event, if certain competitive

indicators move beyond a certain threshold level, a key intelligence topic should be determined after which a focused collection process should evolve. This would ultimately lead to a DACSOMEF analysis of the particular key intelligence topic. However, if the competitive indicator does not appear to have any major future influence on the home firm, such risk or opportunity could be disregarded and all relevant data saved in the central competitive data repository.

7.5.4 Analysis according to the DACSOMEF process

From the literature study of this thesis it is evident that there is no single contemporary competitive analytical method, framework or model that could confidently been applied to all categories of the DACSOMEF analytical framework, in the context of competitive learning relating to the real future intent of a competitive force. A wider analytical approach thus seems essential. However, from the literature study in chapter 4 (summarised in tables 7.1 & 7.2), competitor analysis appears to be the analytical framework, which covers most of the DACSOMEF categories. It also concurs with Fleisher and Bensoussan's (2003:160) argument that if competitor analysis is correctly applied, it is one of the most pervasive analytical tools in contributing to the achievement of competitive advantage, by means of competitive learning. Implicit in this principle, competitor analysis could form the very basis of the wider concept of competitive analysis whereby competitors, customers, shareholders, joint venture partners, in fact most of the forces active in the competitive environment, could be analysed.

This approach, in the context of grounded theory, also relates to the empirical results in this study in terms of which financial valuation, competitor analysis and scenario analysis were perceived by the respondents to be the principal competitive analysis techniques for a global mining firm. In addition, the respondents' answers indicated a substantial need for a deeper knowledge of the strategic intentions of the management cadre of the competitive force being analysed. Based upon the competitor analysis model as evaluated in the literature study in chapter 4 (section 4.5.13), and supplementing it with certain parts of other analytical models, the proposed conceptual DACSOMEF analytical segment is depicted in figure 7.3, whilst annexure 8 provides a more detailed explanation.

Table 7.3: The DACSOMEF competitive analysis segment

Step	What	How
		Dynamic competitive environment
Step D1	Map the competitive force's remote competitive environment	▪ Conduct a global and domestic PESTE-analysis from the perspective of the competitive force being analysed ▪ Determine the potential impact of changes in the competitive force's PESTE environment on its future strategic intent
Step D2	Map the competitive force's industry environment	▪ Conduct a five forces' analysis from the perspective of the competitive force being analysed ▪ Determine the potential impact of changes in the competitive force's industry environment on its future strategic intent
Step D3	Analyse the competitive force on the macro level	▪ Determine the critical success factors of the competitive force, which have an overriding influence on its current and future strategies ▪ Determine the potential impact of changes in the competitive force's critical success factors on its future strategic intent
		Assets
Step A1	Analyse the competitive force on the micro level with regard to its marketplace initiatives	▪ Determine the competitive force's marketplace initiatives ▪ Determine the influence of the competitive force's market intentions and changes in its market intentions on its current and future competitive strategy

Step	What	How
Step A2	Analyse the competitive force on the micro level with regard to its assets and operational initiatives	▪ Describe a competitive force's tangible assets ▪ Determine the importance of a competitive force's assets in context of its total production, profitability and marketplace scope ▪ Identify any asset changes that may occur ▪ Determine the influence of the competitive force's assets and its asset changes on its current and future competitive strategy
Step A3	Analyse the competitive force on the micro level with regard to its financial status	▪ Conduct a Du Pont financial analysis ▪ Determine certain financial ratios of the competitive force ▪ Determine the potential impact of its financial state on its future strategic intent
	Competencies and capabilities	
Step C1	Analyse the competitive force on the micro level with regard to its capabilities and competencies	▪ Determine the sources of a competitive force's capabilities and competencies ▪ Determine the competitive force's most critical capabilities and competencies ▪ Monitor and project any changes in capabilities and competencies ▪ Determine how existing and projected capabilities and competencies affect future strategy
Step C2	Analyse the competitive force on the micro level with regard to its approach to technology	▪ Determine a competitive force's technology strategy, assets and capabilities and competencies ▪ Identify a competitive force's application of technology along its activity/value chain ▪ Determine the influence of the competitive force's view and its application of technology on future strategies ▪ Determine any technology changes that may occur along the competitive force's value chain and the potential impact on its future strategies

Step	What	How
Strategy		
Step S1	Determine how the competitive force is competing within the competitive environment?	- Determine the competitive force's long-term objectives - Identify the competitive force's current strategies - Determine the strategic shifts the competitive force is likely to make with regard to the future? - Determine where the competitive force is vulnerable - Determine how the competitive force is likely to react to a proposed strategy change by the home firm
Step S2	Analyse the competitive force on the micro level with regard to its marketplace strategy	Based upon the answers to the questions in step A1, determine the competitive force's current and future marketplace strategy
Step S3	Conduct an analysis of the application of strategic funds with regard to the competitive force's growth projects	- Based upon the Du Pont analysis in step A3, separate the competitive force's strategic funds from its operational maintenance - Determine its strategic opportunities - Determine the optimal strategic proposals for the competitive force - Monitor its behaviour towards the application of strategic funds
Step	**What**	**How**
Organisational structure and culture		
Step O1	Evaluate the competitive force's organisational infrastructure	- Understand the competitive force's organisational infrastructure - Monitor, identify and assess infrastructure changes - Determine the influence of infrastructure changes on the competitive force's future strategic intent

Step	What	How
Step O2	Evaluate the competitive force's organisational culture	▪ Determine the behaviours, norms, beliefs and values of a competitive force ▪ Monitor, identify and assess changes in the above ▪ Determine the influence of cultural changes on the competitive force's future strategy
Step O3	Evaluate the competitive force's organisational assumptions	▪ Determine the competitive force's assumptions about its competitive environment and its own organisation ▪ Monitor, identify and assess changes in organisational assumptions ▪ Determine the influence of changes in assumptions on the competitive force's future marketplace strategy
Management mindset		
Step M1	Assess the competitive force's corporate mindset	▪ Determine the degree of globality evident in the competitive force's corporate mindset ▪ Determine the influence of the competitive force's corporate mindset on its future strategic intent
Step M2	Conduct competitive behavioural profiling on the competitive force's key decision makers	▪ Identify key individuals in a competitive force ▪ Determine what every key individuals may decide to do in a particular set of circumstances ▪ Determine the influence of such decisions on the future strategic intent of the competitive force
Step M3	Determine the group dynamics of the key decision makers of the competitive force	▪ Determine how information (selected and interpreted) is processed in group context in the competitive force ▪ Determine how decisions (formal and informal) are made in group context in the competitive force ▪ Determine the likely decision process for the particular decision by the competitive force ▪ Determine the influence of such decisions on the future strategic intent of the competitive force

Step	What	How
	Environmental relationships	
Step E1	Evaluate the competitive force's stakeholders	▪ Identify the relevant stakeholders at corporate level and around all the competitive force's global operations ▪ Determine the influence of changes in the activities and attitude of the competitive force's stakeholders on its future strategic intentions
Step E2	Evaluate the competitive force's activity/value chain	▪ Identify the relevant units in the competitive force's activity/value chain ▪ Monitor, identify and assess changes in the competitive force's activity/value chain ▪ Determine the influence of changes in the activity/value chain on the competitive force's future strategic intent
Step E3	Evaluate the competitive force's alliances and special relationships	▪ Identify and evaluate the competitive force's alliances (formal economic relationships) and special relationships (informal) ▪ Monitor, identify and assess changes in alliances and special relationships with regard to the competitive force ▪ Determine the influence of changes in the alliances and special relationships on the competitive force's future strategic intent
Step E4	Evaluate the competitive force's formal and informal networks	▪ Identify and evaluate the different types of networks that the competitive force has (vertical, technology, development, marketing, operational, ownership and political) ▪ Monitor, identify and assess changes in the competitive force's formal and informal networks ▪ Determine the influence of changes in its networks on the competitive force's future strategic intentions

Step	What	How
Future intent		
Step F1	Determine the competitive force's future intent regarding the different DACSOMEF analytical categories	▪ Dynamic competitive environment ▪ Assets ▪ Competencies and capabilities ▪ Strategy ▪ Organisational structure and culture ▪ Management mindset ▪ Environmental relationships ▪ Future (combination of the previous seven categories)
Step F2	Draw conclusions about the findings in step F1 and the particular key intelligence topic	▪ From the DACSOMEF analytical categories, indicate what might be expected from the competitive force with regard to its future strategic intent and the influence it may have on the home firm

In its wider context, the DACSOMEF analytical framework has an extremely far-reaching analytical arc, and encompasses parts of various analytical methods. It is, however, important to take cognisance of Herring's argument (1998:14) that competitive analysis is more a process than an application of a specific technique – often requiring the appropriate combination of analytical techniques and intelligence collection to generate appropriate action. In this context, the DACSOMEF analytical framework should rather be perceived as a forensic endeavour to search for clues that may shed light on what the home firm may expect in future from the competitive force being analysed. Implicit in this principle is the fact that competitive analysis should first and foremost be based on a specific key intelligence topic stemming from a structured early warning process. In addition, it should culminate in the highest level of competitive learning - self-learning. This could be accommodated through competitive theatering.

Based upon the preliminary steps of the analysis model of early warning, determination of a particular key intelligence topic and focused collection activities, it is necessary to determine exactly what the depth of analysis during the analytical process of the model should be. This should be agreed upon by the decision maker and analysis team before

starting the analysis. In this regard, figure 7.4 shows varying depths of analysis during the analytical stage of the DACSOMEF analytical model. The analytical process of the model resembles a traffic light with a set of automatically operated coloured lights (green, yellow and red), which indicate the depth of analysis in each analytical category of the DACSOMEF framework. Implicit in this principle, green represents a very basic level of analysis, yellow an intermediate level and red an extremely thorough level of forensic analysis. .

Figure 7.4: Varying levels of analysis in the different categories of the DACSOMEF-analytical framework
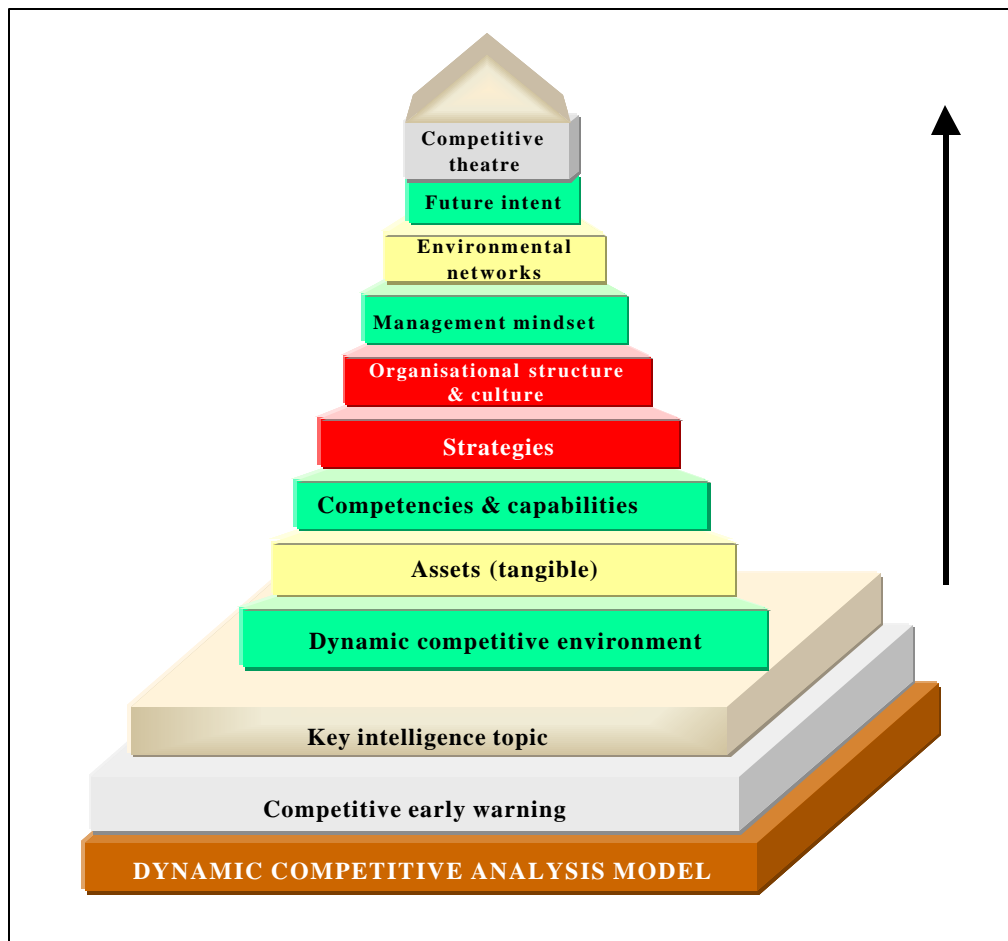
7.5.5   Competitive theatre

Once the home firm has acquired the necessary intelligence by way of the DACSOMEF analytical process, it is necessary for such intelligence findings on a particular competitive force to be aligned to the home firm's future strategic intent. Since many managers in businesses around the world confront complex realities with simplistic approaches (Fahey & Randall 1998:156), such intelligence findings need to be optimally utilised. Fahey (1999:487) argues that, in many organisations, there is a fundamental "disconnection" between competitive analysis and decisions. A central aim of any systematic and sustained effort to build and sustain competitive learning should be to eliminate this "disconnection" In support to this matter, Reibstein and Chussil (1997:2), concur that managers, in many instances, have only one chance to make or alter a strategic decision. In general, such managers may have a sense how competitive forces may react to their strategies, but often have not worked out the complex "chess game" of competitive interactions. Many managers usually think only one move in advance. However, it is the combination of a whole series of moves and countermoves that determines the outcome of the "game" at hand.

Fahey (1999:501) holds the opinion that if competitive analysis is to be integral to decision making, it must be connected to the systems and processes intended to support and facilitate knowledge generation of key decisions. In this regard, Reibstein and Chussil (1997:2) argue:

> *Military strategists have long used simulation to plan campaigns and airlines have long used simulation to polish pilot skills. Now managers are using simulation to understand and anticipate the dynamics of their competitive strategies.*

Hence various competitive exercises could, consequently, by way of a "competitive theatre", be applied to the intelligence findings of the DACSOMEF analytical process. These exercises could also help to overcome the possible disconnection between

competitive analysis and competitive strategy. The following exercises are thus included in the DACSOMEF analytical model's competitive theatre:

7.5.5.1 *Scenario learning*

Scenario learning is the process in which a firm draws up descriptive narratives of plausible alternative projections of a specific part of the future, in the present. Such a learning exercise consists of a continuous and dedicated process, and includes the following steps:

- Define the scope of analysis (scenario field).

- Assimilate information available from the DACSOMEF analysis according to the scenario learning procedure.

- Project and develop possible learning scenarios.

- Conduct scenario interpretation.

- Determine the consequences for the competitive force.

- Determine the possible implications of the various scenarios for the focal firm.

- Conduct scenario transfer towards strategic decision making.

The ultimate objective of scenario learning is to inform decision makers in an effect to influence and enhance decision making about the future involvement of the home firm and the competitive force being analysed.

7.5.5.2 *War-gaming*

A war game is a uniquely structured battle of minds between teams representing particular forces in the competitive environment. It thus is an analytical battle between

teams, similar to a chess game. Briefly, a war game exercise will consist of the following steps (Chussil 2004:9, Underwood 1998:51):

- Assimilate information available from the DACSOMEF analysis relating to the competitive force and the home firm into a war-game exercise.

- Conduct turbulence studies of the particular competitive issue.

- Conduct a strategic diagnosis of the firm.

- Establish a war-game issue management system.

- Divide the management team into teams vying for the competitive force under scrutiny and the home firm.

- Role-play the particular competitive force and the home firm.

According to Underwood (1998:52), war-gaming from a systems thinking perspective, is a process through which a firm can learn, solidify strategies and manage change in the competitive scenario. In addition, he argues that, while war-gaming is potentially flawed with internal paradigm vision problems, it remains a most effective nonlinear management planning tool.

7.5.5.3   *Strategy simulation*

Chussil (2004:10) and Reibstein and Chussil (1997:6), agree that strategy simulation is a facsimile of reality, intended to display what would transpire if the assumed conditions were to occur in reality. Simulation exercises can be conducted on a human level (war-games) or electronically. In the latter context, the following steps are apparent when conducting electronic simulations of a particular competitive aspect:

- Assimilate information available from the DACSOMEF analysis relating to the competitive force and the home firm into a strategic simulation.

- Based upon available software programs, conduct a strategic simulation of what might happen to the particular key intelligence topic in the future.

7.6 IMPORTANT ASPECTS OF THE APPLICATION OF A DYNAMIC COMPETITIVE ANALYSIS MODEL BY GLOBAL MINING FIRMS

According to Cronje and Neuland (2002:1), business managers have increasingly come to realise that strategy implementation is the key to superior business performance. This is no exception in the global mining industry. It is thus imperative that the intelligence gained through the application of the conceptual dynamic competitive analysis model and the competitive theatre be effectively used during the formulation and implementation parts of the firm's strategic processes. The multitude of tasks indicated in the analytical model and strategic process should be leveraged so that individuals across the firm work together towards a common goal. Thus, procedures must be established that bring decision makers, analysts and others together to obtain the required output and action. Fahey (1999:509-510) contends that such coherence between competitive analysis and strategic decision-making is mainly influenced and shaped by a firm's culture. The way individuals or groups generate and use knowledge cannot be separated from a firm's values, beliefs, norms and behaviours. The enthusiasm and commitment individuals bring to key competitive learning tasks, is a function of the values and beliefs associated with knowledge and learning, and the norms and behaviours pertaining to how things are done in the home firm. In the absence of a supportive learning culture, competitive analysis and its influence on the firm's strategic decision making processes will be difficult to initiate, foster and sustain.

Hence, some change management initiatives in competitive learning in the home firm are essential. Such endeavours are necessary to solidify a competitive learning culture in

which a dynamic competitive analysis capability can prosper and contribute to the formulation and implementation of value-creating strategies, against the backdrop of a turbulent and dynamic competitive environment. A central theme in such a quest is the intimate involvement of key decision makers in the competitive analysis process (Fahey 1999:513). Without such involvement, competitive analysis will invariably remain a static "old world" capability with limited influence on the focal firm's quest for a competitive advantage. Alternatively, it could catapult the home firm to new levels of competitiveness, given the dynamics and turbulence of the competitive environment.

7.7   SUMMARY AND KEY FINDINGS

Against the backdrop of a broad framework of the grounded theory principles, a systems approach to the firm and Procter and Gamble's dynamic competitive response model, the aim of this chapter was to develop a conceptual dynamic competitive analysis model for a global mining firm.

In an increasingly complex, turbulent and dynamic contemporary global competitive landscape, fraught with shrinking opportunities, global mining firms face significant uncertainty, ambiguity and an increasing number of strategic discontinuities. They should, accordingly, constantly learn, among other things, about the competitive environment, and initiate competitive actions based on the acquired insight. Competitive analysis, as part of a comprehensive competitive intelligence capability, could thus play a major role in such competitive learning endeavours.

The findings of the literature and empirical research of this study were consequently incorporated into the envisaged analytical model comprising of six sequential parts, which include early warning, determination of key intelligence topics, and collection of competitive information, the DACSOMEF analysis process, competitive theatre and strategic decision making.

As a natural consequence of the aforementioned, the conceptual DACSOMEF analytical process of the model consists of eight sequential analytical focus areas, which cover in particular the dynamic competitive environment, assets, competencies and capabilities, strategies, organisational structure and culture, management mindset, environmental relationships, and the future intent of the competitive force being analysed. To this end, the depth of analysis in the different analytical segments could be determined by way of a traffic light imitation.

Competitive analysis, according to the DACSOMEF analytical model, should first and foremost, be based on a specific key intelligence topic and additionally, and should culminate into the highest level of competitive learning - self-learning. This could be accommodated by way of competitive theatering of the analysis results regarding the competitive force being analysed. Such competitive theatering could include scenario learning, war-gaming and strategic simulation. In this vein, the latter exercises can help to overcome the possible disconnection between competitive analysis and competitive strategy.

In view of the conceptual dynamic competitive analysis model explicated in this chapter, it is imperative that the multitude of tasks indicated in the model be founded upon a supportive learning culture and the intimate involvement of key decision makers during the competitive analysis process. Without such cultural support and management involvement, the DACSOMEF competitive analysis model will generally remain a static "old world" process with limited influence on the focal firm's endeavours to gain insight into the future intent of the various competitive forces, in its overall quest for a competitive advantage. Alternatively, it could catapult the home firm to new levels of competitiveness, given the dynamics and turbulence of the competitive environment.

CHAPTER 8

SUMMARY AND RECOMMENDATIONS

8.1   SUMMARY AND RECOMMENDATIONS

The impetus for this study arose from preliminary research of the literature on an important phase of competitive intelligence, namely competitive analysis. This preliminary research revealed that competitive analysis as conducted by mining firms is deficient and, in many instances, caught up in "old world" approaches, comprising ad hoc report generation, based upon certain "popular" analytical techniques. Such analyses tend to be too reactive for the dynamic and turbulent environment in which contemporary global mining firms exist. Based on the preliminary research, the primary or main objective of this study was formulated as follows:

- To develop a dynamic competitive analysis model for a global mining firm in order to enhance its strategic decision making, given the dynamic actions of the various forces active in its competitive environment

The secondary objectives of the study involved the following:

- To acquire insight into the business characteristics and dynamics of the contemporary global mining industry

- To perform an in-depth study of competitive analysis, and determine the global trends in competitive analysis

- To acquire an understanding of how competitive analysis is being applied in 50 large mining firms in the world

- To determine the influence of competitive analysis on global mining firms' competitive learning and strategic decision-making.

In accordance with the aforementioned objectives, a literature study was conducted of the general business context and dynamics of the global mining industry, and additionally, of

competitive analysis as part of a comprehensive competitive intelligence system. From the literature study it became evident that global mining firms face significant uncertainty, ambiguity and an increasing number of strategic discontinuities inherent in the contemporary global competitive landscape. One could thus expect such turbulent circumstances to continue to create almost perpetual disequilibria in this industry in the future. Implicit in this principle is the fact that global mining firms can no longer rely on their tangible assets alone to remain stable, profitable and long-lived.

8.1.1 **Recommendation 1**

In coherence with the acquisition, development and operation of world-class tangible assets, it is recommended that global mining firms place greater emphasis on the development and application of their intangible assets in their endeavour to develop and implement value-creating strategies.

It was apparent in the literature study that competitiveness in the contemporary global mining industry hinges on many factors. To this end, mining firms have to realise that globalisation has become an integral part of the competitive environment. These firms should thus develop a strong global approach to their operations, marketing, capital base, and importantly, corporate mindset. Regarding the latter and amidst various other global issues, these firms need to take cognisance of the dynamic realities of the competitive environment in order to develop and implement value-creating strategies. The study has shown that in the past, mining firms have not been clever at reading these competitive trends and forces affecting the industry.

8.1.2 **Recommendation 2**

It is recommended that global mining firms develop global competencies in their operations, marketing initiatives, capital requirements, and importantly, their corporate mindset, because truly global firms will be the only victors through a more innovative approach to the changes effected by the global competitive environment.

Against these realities in the competitive environment, the study identified the fact that a new breed of "dominant global firms" is busy emerging in a world of shrinking opportunity. It is to be expected that only a few very large firms will determine the future outcome of the industry as a whole. However, the investigation revealed that the ability of global mining firms to develop a sustainable competitive advantage is indeed rare. A competitive advantage laboriously achieved can be quickly lost. This is largely because of the influences of the competitive environment and the mining firm's abilities to adapt their strategies dynamically. Implicit in this principle stands the fact that the development of a competitive advantage is, however, unavoidably dependent on learning. Organisations thus need to constantly learn, among other things, about the competitive environment through competitive learning. Such learning should be used to initiate competitive actions based on the insight gained.

8.1.3   Recommendation 3

It is recommended that global mining firms should purposely develop a vigorous and continuous competitive learning capability, whereby decisions about their intentions and actions in the competitive environment should be based on the gained insight.

The literature study clearly demonstrated that competitive learning in a global mining firm should be an open-ended learning process. Competitive analysis, as part of a comprehensive competitive intelligence system, could fulfil a leading role here. Competitive analysis, however, is more a process than the application of a specific analytical technique – frequently requiring the appropriate combination of analytical techniques and intelligence collection to generate appropriate action.

8.1.4   Recommendation 4

It is recommended that in the context of competitive learning, determining the future intent of a competitive force should form the all-encompassing, overall focus of competitive analysis in global mining firms.

Against the backdrop of the foregoing, certain key characteristics were identified in this thesis as being significant in the context of competitive analysis, in the determination of the future intent of a competitive force. These key characteristics are known as the **DACSOMEF** key information areas and formed the basis of the proposed dynamic competitive analysis model, as indicated in the primary objective of this study. The key information areas include the following:

- **D**ynamics in the competitive environment

- **A**ssets

- **C**apabilities and competencies

- **S**trategy

- **O**rganisational infrastructure

- **M**indset of the management

- **E**nvironmental relationships

- **F**uture intent

Through the myriad of competitive analysis models, techniques and frameworks being used by firms around the world, of which 13 of the most prominent methods were analysed and evaluated according to the DACSOMEF key information areas in this thesis. It became evident that most analytical techniques do not comprehensively cover all the DACSOMEF information categories. These include Porter's five forces model, financial ratio and statement analysis, the Boston Consulting Group's growth share matrix, SWOT analysis and value chain analysis, to name but a few.

Competitor analysis, functional capability and resource analysis and scenario analysis were found to be the most comprehensive analytical methods, according to the aforementioned information categories. However, in the context of competitive learning, the study revealed that there is a need for a more comprehensive approach to competitive analysis than the mere application of the popular analytical methods currently in use.

8.1.5   Recommendation 5

It is recommended that global mining firms reconsider their current narrow tangible approach to competitive analysis.

It was evident in the study that the links between strategy and competitive intelligence, and for that matter, competitive analysis, should purposefully be strengthened as much as possible. This would allow mining firms to respond in a nimbler, more responsive and dynamic manner in their strategy creation and implementation to the turbulence in the competitive environment.

8.1.6   Recommendation 6

It is recommended that competitive analysis should purposefully become part of a dynamic and structured approach to the strategic development and implementation processes in global mining firms.

In accordance with the primary objective of the thesis, an empirical study was conducted into the global mining industry. To this end, it was decided that the empirical research would be confined to a nonprobability purposive sample, comprising 50 of the largest global mining firms. Information was primarily obtained by way of an electronic mail interview, whilst a limited number of personal interviews were held with those respondents in close proximity, who preferred to be interviewed personally.

During the empirical stage of this study, several important issues were identified, which global mining firms should consider regarding the role of competitive analysis in their quest to create and implement value-creating strategies in a turbulent and dynamic

competitive environment. These issues will be discussed below according to the different sections of the questionnaire (Annexure 1).

Need for early warning

The empirical results of this study underpinned the fact that global mining firms might be strongly focused upon internal tangible realities, and to a degree, may have a *laissez-faire* approach towards the turbulence and dynamics in their competitive environment. A certain degree of reluctance in these firms about the possible influences of the intentions of competitive forces on the implementation of value-creating strategies, was evident from the empirical results. This, however, applies more to single-commodity firms than with diversified firms

The findings also suggested that in the past global mining firms have often been surprised by competitive forces, whilst there is limited evidence of a competitive early warning capability in these firms. Despite such surprises, it emerged from the study that global mining firms are highly likely to expect an increased level of business risk in their competitive environment in the coming years. Based upon these findings, it is imperative that the influence of the wide array of forces in the competitive environment be managed with diligence.

8.1.7 **Recommendation 7**

It is recommended that a well-structured and dynamic functioning competitive early warning capability should receive attention in global mining firms, in order to limit unnecessary surprises in the competitive environment.

Key requirements for competitive analysis

Although the empirical results confirmed the fact that competitive analysis activities are perceived in global mining firms as a prerequisite for business success, limited evidence was found of an effective and well-structured competitive intelligence and competitive analysis capability. The empirical results furthermore suggest that, although diversified firms are more progressive than their single-commodity counterparts, competitive

intelligence and competitive analysis are probably conducted in an ad hoc and unstructured manner in most global mining firms. This strongly relates to the "old-world approach" to competitive analysis.

8.1.8 **Recommendation 8**

It is recommended that a structured competitive intelligence and competitive analysis capability be developed within global mining firms.

8.1.9 **Recommendation 9**

It is recommended that some change management initiatives be implemented in order to establish such a competitive intelligence and competitive analysis capability as important management decision support tools.

Competitive analysis process

The findings in the empirical study suggested that a wide variety of analytical methods, ranging from new business opportunity to commodity, competitive, financial, geological, technoeconomic and macroeconomic analysis are continuously applied in global mining firms. This underscores the strong tangible and quantitative approach to analysis in these firms, which is invariably focused upon certain highly relevant key success factors in this industry.

As a catalyst to the foregoing, financial valuation was found to be the primary method of competitive analysis in a global mining firm, through which an understanding of a competitive force can be developed. A strong quantifiable approach to competitive analysis in such mining firms was thus confirmed. Such a quantitative approach to competitive analysis, largely relates to the information most easily available in global mining firms on which analysis can be conducted. According to the empirical results, important second-tier competitive analysis methods been used by global mining firms including competitor analysis, scenario analysis and SWOT analysis.

One may infer from this that the competitive analytical methods most frequently used in the corporate mining environment are those that are most prominent in the curricula of business schools and other tertiary institutions around the world.

Apart from certain competitive analytical methods being unpopular because they are hardly applicable to contemporary analytical needs, certain other analytical methods appear to be unknown or information is simply not available to apply such analytical methods in global mining firms. Theses analytical methods include network analysis and management profiling.

8.1.10 Recommendation 10

It is recommended that a more holistic approach to competitive analysis, focusing upon the analysis of tangible as well as intangible assets of the competitive force being analysed, be developed in global mining firms.

The business development, corporate finance and strategic planning departments appear to be the main users of competitive analysis. Furthermore, financial statements and financial analyst reports were found to be the primary sources of information when conducting competitive analysis in global mining firms. Although these publications could be perceived to be valuable sources of information, the facts included in them could be dubious because they are primarily public relations documents and mainly give a historical view of the competitive force being analysed. Of concern, from a competitive intelligence perspective, is the slight importance of human intelligence as a source of competitive information.

8.1.11 Recommendation 11

It is recommended that a wider and more thorough approach be developed to the collection of information on a particular competitive force being analysed. In strong support of the easy acquisition of secondary data and information on the competitive force being analysed, the focus should be given to the ethical collection of human

intelligence regarding the tangible and intangible assets of the particular competitive force.

Of particular significance in the context of this thesis, is the discrepancy between the availability and importance of information on the future strategic intentions, management decision making patterns and management's intentions in the competitive analysis process. One could thus argue that if the latter information categories were perceived to be so important, one would expect global mining firms to pay substantially more attention to them to ensure that executives have in-depth insight into them. This, however, does not seem to be the case. This applies to both single-commodity and diversified global mining firms (see figures 6.34 & 6.35).

A general inference of the empirical results relates to the occurrence in global mining firms that the availability of information, and not so much the importance thereof, largely determines the competitive analytical method being used, as well as its influence on strategic decision making. As a corollary to this, the empirical results also confirmed that the more information needed to be developed into intelligence, the less available it becomes. This happens despite the significance of the latter in strategic decision making.

8.1.12   Recommendation 12

It *is recommended that global mining firms place more emphasis on acquiring intelligence-related information, because senior executives have a definite need for it in the context of competitive learning about the future intentions of a competitive force.*

According to the empirical results, approximately 67% of all competitive analysis requests in global mining firms are conducted for the boards of directors, executive management teams and senior divisional management. This largely confirms the strategic focus of competitive analysis in global mining firms.

8.1.13 Recommendation 13

It is recommended that the executive teams of global mining firms purposefully make competitive analysis part of their arc of strategic instruments.

The empirical results of the study also confirm the fact that competitive analysis in global mining firms is becoming more quantitative. In light of the discrepancy between the availability and importance of more qualitative information (future strategic intentions, management decision-making patterns and management intentions) for decision-making purposes, there is much room for improvement.

Influence of competitive analysis on strategic decision-making

From the empirical results it was also apparent that the application of competitive analysis in global mining firms was largely conducted with a clear focus on strategy-related activities. However a case for concern was that stakeholder-related issues and threat analysis appear to be slightly irrelevant and neutral in the application of competitive analysis. It could be argued that there seemed to be some lack of foresight in global mining firms about the influences stemming from the diverse corners of the competitive environment. This matter again emphasises the need in global mining firms for a structured early warning and competitive analysis capability.

Global mining firms also appear to have a limited knowledge of the real future intentions of the forces active in their competitive environment. This may be indicative of the fact that global mining firms approach their competitive environment too narrowly and too reactively, considering its contemporary turbulence and dynamics.

8.1.14 Recommendation 14

It is recommended that global mining firms focus continuously and dynamically on all the forces active in their competitive environment.

Interrelated to the above, it emerged in the study that the turbulence and complexity of the competitive environment have increased to such an extent that global mining firms

need to approach their competitive environment more dynamically and creatively. This argument again confirms the need in these firms for a dynamic early warning and competitive analysis capability, which is ultimately the primary objective of this thesis.

From the empirical research it thus appears that although competitive analysis in global mining firms is focused upon strategic issues, it has a strong internal and project-driven tangible undercurrent. This is true despite the fact that the study found that there is a definite need for more insight into the real future intentions of the various forces active in the competitive environment.

The empirical research confirmed the fact that global mining firms should consider the creation of comprehensive competitive learning by adopting a dynamic approach to competitive analysis. In this regard, competitive analysis, and for that matter competitive intelligence, should become part of such a firm's strategic decision-making processes.

To achieve the study's primary objective that is, the development of a dynamic competitive analysis model for a global mining firm, all the information obtained from the literature and empirical research was reviewed. In the context of the principles of grounded theory, a systems approach to the firm and Procter and Gamble's dynamic competitive response model, a conceptual dynamic competitive analysis model for a global mining firm was subsequently developed. The findings of the literature and empirical research in this study were consequently incorporated into the envisaged analytical model, comprising the following six sequential parts (See figure 7.3):

- competitive early warning

- determination of key intelligence topics

- collection of competitive information

- DACSOMEF analysis process

- competitive theatre

- strategic decision-making

8.1.15   Recommendation 15

It is recommended that all six steps in the conceptual dynamic competitive analysis model be incorporated into the nucleus of global mining firms. In addition, the different steps should be combined in a quest to dynamically improve the strategic decisions of these firms.

Based upon the six sequential steps of the conceptual model as indicated above, the analytical part of the model can be summarised as depicted in table 8.1 below:

Table 8.1: Key information areas of the DACSOMEF analytical segment

	Key information areas
Dynamic competitive environment	
Step D1	Map the competitive force's remote competitive environment
Step D2	Map the competitive force's industry environment
Step D3	Analyse the competitive force at macro level
Assets	
Step A1	Analyse the competitive force with regard to its marketplace initiatives
Step A2	Analyse the competitive force with regard to its assets and operational initiatives
Step A3	Analyse the competitive force with regard to its financial status
Capabilities and competencies	
Step C1	Analyse the competitive force with regard to its capabilities and competencies
Step C2	Analyse the competitive force with regard to its approach to technology
Strategy	
Step S1	Determine how the competitive force is competing
Step S2	Analyse the competitive force with regard to its marketplace strategies
Step S3	Analyse the competitive force with regard to the application of strategic funds
Organisational structure and culture	
Step O1	Evaluate the competitive force's organisational structure
Step O2	Evaluate the competitive force's organisational culture
Step O3	Evaluate the competitive force's organisational assumptions
Management mindset	
Step M1	Assess the competitive force's corporate mindset
Step M2	Conduct competitive behaviour profiling on the key decision makers
Step M3	Determine the group dynamics of the key decision makers
Environmental relationships	
Step E1	Evaluate the competitive force's stakeholders
Step E2	Evaluate the competitive force's activity/value chain
Step E3	Evaluate the competitive force's alliances and special relationships
Step E4	Evaluate the competitive force's formal and informal networks
Future intent	
Step F1	Determine the competitive force's future intent with regard to the above-mentioned information categories
Step F2	Draw conclusions about the findings in step F1 regarding the particular key intelligence topic

8.1.16   Recommendation 16

It is recommended that competitive analysis in global mining firms be rethought, away from a narrow approach focused on the financial and operational realities of the competitive force being analysed, to include all key information areas explicated in the DACSOMEF analytical process.

8.1.17   Recommendation 17

It is recommended that all analysis which forms part of the DACSOMEF analytical process as elucidated in figure 8.1, be focused upon what the real future intent of the competitive force being analysed regarding the particular key intelligence topic could possibly be.

It is imperative to determine what the depth of analysis in the different key information categories should be. The analysis team and the decision-maker should agree on this before commencement of the analysis process by way of a traffic light analogy. In this regard, green could indicate a very basic level of analysis, yellow an intermediate level and red an extremely thorough forensic level of analysis (figure 7.4).

8.1.18 Recommendation 18

It is recommended that the depth of analysis be determined according to the DACSOMEF analytical traffic light prior to commencement of the analysis process.

According to the DACSOMEF analytical model, competitive analysis should be based on a specific key intelligence topic, and should aim at the highest level of competitive learning - self-learning. This could be accommodated by way of a competitive theater. Such a competitive theater could include scenario learning, war-gaming and strategic simulation. In this vein, the latter exercises could help to overcome the possible discontinuity between competitive analysis and competitive strategy.

8.1.19   Recommendation 19

It is recommended that the findings and recommendations stemming from a DACSOMEF analysis should be applied in a competitive theatre, through scenario learning, war-gaming or strategic simulation exercises, in an effort to overcome the possible discontinuity between competitive analysis and competitive strategy in global mining firms.

In the light of the conceptual dynamic competitive analysis model as set out in the previous sections, it is imperative that the multitude of tasks indicated in the conceptual analytical model be entrenched in the firm on the basis of a supportive learning culture and the intimate involvement of key decision makers. Without such cultural support and management involvement, the DACSOMEF competitive analysis model will generally remain a static "old world" process with limited influence on the focal firm's endeavours to gain insight into the future intent of the various competitive forces, in its overall quest for a competitive advantage. Alternatively, it could catapult a global mining firm to new levels of competitive advantage, given the dynamics and turbulence of the competitive environment.

8.1.20   Recommendation 20

It is recommended that the executive management teams of global mining firms should give dedicated support to the implementation of such a conceptual dynamic competitive analysis model, and additionally, that it be implemented by vigorous change management initiatives.

8.2   FUTURE AREAS OF RESEARCH

In the study, the following areas were identified as possible topics for future research:

- The globality of global mining firms and the requirements to become a truly global mining firm need to be further investigated. The mere fact that mining firms have global operations and market or sell their products internationally does not imply that they are truly global firms.

- This study reconfirms the fact that competitive intelligence has enough conceptual, historical, developmental and empirical support to stand on its own as a fully-fledged management function. The requirements to establish competitive intelligence as an independent management function, next to marketing, finance, human resources, etc, could be a viable topic for future research.

- Against the backdrop of a turbulent and dynamic competitive environment, the value of a competitive early warning capability for any firm, including global mining firms, has been reconfirmed in this study. However, the academic foundation for such a management instrument is currently limited and needs to be substantially broadened.

- This study also confirms the fact that there is a definite "disconnection" between competitive analysis and strategic decision making, and that executives frequently approach complex decisions about other forces in the competitive environment in a simplistically manner. Consequently, the application of the findings and recommendations of competitive analysis in a "competitive theatre" needs to be investigated and developed academically and in practice.

- Against the backdrop of the current knowledge base on competitive analysis, the model as developed in this study, introduces a new context for competitive analysis. The model has definite implications for competitive analysis across all schools of

thought. Conversely, any new contribution in any field would have implications for future research. This is no exception in this study.

- Since the analytical model outlined in this study is a conceptual framework, additional refining of the different key information areas and the way competitive learning could be enhanced in the context of a turbulent competitive environment is deemed necessary. This also relates to the practical application of the analytical model.

- In general, the study confirmed the fact that many global mining firms have a rather *"laissez-faire"* approach to their competitive environment and competitive analysis as regards the latter. The implementation of a well-structured dynamic competitive analysis capability in such a firm leaves much room for possible future research.

8.3 CONCLUSIONARY REMARKS

The study addressed a relatively wide number of issues, which could to a certain extent, be perceived as a possible shortcoming. However, the mere fact that very few comprehensive studies exist in the field of competitive intelligence and competitive analysis in South Africa, and also internationally, should make this study a valuable contribution to the current knowledge base in the discipline. This is further emphasised by the fact that apart from this study, there is little evidence of a more holistic approach to competitive analysis, than the application of certain "popular" analytical techniques. This applies particularly to the practical application in business.

The fact that the value of a knowledge and learning-related discipline such as competitive analysis could be confirmed by this study as applied in an "old world" industry such as the global mining industry, is in itself invaluable. Against the turbulent realities of the competitive environment, it is thus important that competitive intelligence and

competitive analysis be established as an independent management discipline that can truly add value in firms' quest for competitive advantage.

In conclusion, the forces of ideological change and technology-driven globalisation make the latter the single most important issue facing countries, firms and organisations around the world. This also applies to global mining firms. To remain competitive in the global competitive environment in such circumstances, it is essential that these firms develop a competitive learning approach to their business endeavours. The implementation of the conceptual DACSOMEF dynamic competitive analysis model could proof invaluable in this field.

ANNEXURE 1

College of Economic and Management Sciences
UNIVERSITY OF SOUTH AFRICA
PO Box 392
UNISA
0003
South Africa

16 September 2004

Mr Russell King
Executive Vice President
Group Human Resources & Business Development
ANGLO AMERICAN PLC
20 Carlton House Terrace
LONDON SW1Y 5AN
United Kingdom

Dear Mr King

SURVEY OF COMPETITIVE ANALYSIS PRACTICES IN THE GLOBAL MINING INDUSTRY: 2004

During the last decade, across continents global mining firms have been involved in a wide spectrum of commodities, and have also experienced an increase in the speed and complexity of change in their competitive environment. In their quest to create a sustainable competitive advantage, this phenomenon has compelled such firms to become more proactive about these influences.

Against this background, Mr H Brummer a D Com student at the University of South Africa is conducting research in an endeavour to develop a dynamic competitive analysis model for a firm active in the global mining industry. It is envisaged that such an analytical model will give a firm a deeper understanding of the uncertainty of possible future competitive dynamics.

In order to conduct this research, some empirical results are necessary. Your firm has consequently been selected for inclusion in the empirical research. We would appreciate it if you could complete the attached questionnaire. Such an endeavour will undoubtedly contribute to and improve the knowledge of competitive analysis and the global mining industry at large.

The questionnaire has been designed for easy completion and should take about 45 minutes to fill in. We are aware that this will entail a sacrifice on your part. Your willingness to participate in this survey would therefore be greatly appreciated. The questionnaire consists of three parts.

- **Part 1** deals with certain definitions, which explain key topics addressed in the questionnaire.

- **Part 2** focuses on competitive analysis and has been divided into four sections. The different sections in **part 2** deal with the following issues:

  - **Section 1:** The need for competitive analysis in a global mining firm with regard to its competitive environment

  - **Section 2:** The key requirements necessary for conducting successful competitive analysis in a global mining firm

  - **Section 3:** The competitive analysis process supporting strategic decision making in a global mining firm

  - **Section 4:** The influence of competitive analysis on the strategic decision making process of a global mining firm

- **Part 3** consists of general organisational and demographical issues about your firm.

Your complete honesty and frankness in completing the questionnaire would be appreciated. Your responses will be treated with the utmost confidentiality. Please return your completed questionnaire electronically to **hennie.brummer@kumbaresources.com** or fax it to: **+27 12 307 4087** before **10 October 2004**. However, should you experience any difficulties with the questionnaire, do not hesitate to contact Mr Brummer at the following telephone numbers: **+27 12 307 4057** or **+27 83 609 1186**.

If so required, the questionnaire will be followed up by a 20-minute telephone interview regarding any difficulties in completing the questionnaire, or any new insights gained with regard to competitive analysis in the global mining industry. In the process of assisting you to improve your firm's competitive analysis capability, Mr. Brummer will gladly submit his combined research findings to you.

We truly appreciate your valuable contribution to the development of the knowledge base on competitive analysis and the global mining industry.

PROF H BADENHORST-WEISS
DEPARTMENT OF BUSINESS MANAGEMENT
UNIVERSITY OF SOUTH AFRICA

Yours faithfully

COMPETITIVE ANALYSIS IN THE GLOBAL MINING INDUSTRY

QUESTIONNAIRE

DEFINITIONS

1.1 Competitive environment
The external environment in which the firm reacts to and endeavours to influence the different competitive forces active therein, in the process of conducting its business, focusing on the creation of a sustainable competitive advantage.

1.2 Competitive force
A force, which is active in a firm's competitive environment and includes its customers, competitors, suppliers, possible new entrants, producers of substitute products, agents, shareholders, alliance partners, unions, governments and government agencies, as well as any other party that may influence its business endeavours.

1.3 Strategic surprise
A sudden realisation that the firm has been operating on the basis of an erroneous threat or opportunity perception. It occurs through failure to predict, much less anticipate, an acute and immediate (external) threat or opportunity with regard to the firm's vital " interests".

1.4 Competitive intelligence: A structured and systematic process that involves the collection, analysis and dissemination of "all source"-based information about competitive forces that have, or are likely to have an impact on the firm's strategic ambitions and objectives.

1.5 Key intelligence needs: The outcome of a systemised and formal interactive dialogue with the firm's key decision makers in order to identify and prioritise the firm's most important information and intelligence requests, which should result in the production of actionable intelligence that such decision makers would feel compelled to act upon.

1.6 Competitive analysis: A step in the competitive intelligence process in which information about a specific competitive force is subjected to systematic examination in order to derive meaningful insight into the future intent of such a competitive force, in order to stimulate management decision making and action.

) These terms will appear in italics where used in the questionnaire.

PART 2

COMPETITIVE ANALYSIS

Section 1: The need for competitive analysis in a global mining firm with regard to its competitive environment

2.1.1 In your view, what are the **key success factors** necessary to achieve a sustainable competitive advantage in the contemporary global mining industry?

(Make a tick **( )** in the appropriate block, where **1** indicates the issue as **highly irrelevant** and **7** as **highly relevant**.**)**

* (Factors appear in alphabetic order in the table)

	Issue	1	2	3	4	5	6	7
a	Access to cost-effective global financing							
b	Access to world class mining deposits							
c	Continuous improvement initiatives in all the firm's global operations							
d	Efficient logistical chain(s) supporting global operations							
e	Full pipeline of future high-value mining projects (brown- and greenfields)							
f	Influence over your firm's global value chain(s)							
g	Innovative technical research and development conducted in your firm and/or associated groups							

h	In-depth knowledge of the future intentions of the *competitive forces* in your *competitive environment* (ie customers, competitors, stakeholders)							
i	Low position on cost curve							
j	Market leadership							
k	Maintenance and/or growth of market share							
l	Minimum country risk with regard to your firm's global operations							
m	Minimum influence of currency and commodity price fluctuations							
n	Sound relations with stakeholders with regard to your firm's global operations (government, shareholders, labour unions, etc)							
o	Strong knowledge-sharing culture and practices in your firm							
p	Other (please indicate)							

Please elaborate, if you have any additional comments.

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2.1.2 Which *competitive environmental forces* **and/or actions** have most frequently impacted on your firm's competitive position during the previous three years?

(Make a tick **( )** in the appropriate block, where **1** indicates the force and/or action **had absolutely no influence** and **7** where it had **a very strong influence** on your firm.)

* (Influences appear in alphabetic order in the table)

	Environmental force and/or action	1	2	3	4	5	6	7
a	Alliance formation by major *competitive forces*							
b	Customer initiatives							
c	Commodity price fluctuations							
d	Competitor initiatives							
e	Exchange rate fluctuations							
f	Global macro-environmental uncertainty							
g	Logistical issues							
h	Merger and acquisition initiatives of major *competitive forces*							
i	Product supply-demand imbalances							
j	Regulatory influences							
k	Stakeholder initiatives							
l	Substitute products							
m	Supplier initiatives							
n	Technological breakthroughs in the mining, refining and/or mineral consumption industries							
o	Other (please indicate)							

2.1.3   To what extent has your firm ever been *surprised* by the apparent/misconstrued bona fides and/or actions of a *competitive force* during the last three years?

(Make a tick **( )** in the appropriate block, where **1** indicates that your firm has **often been surprised** and **7** that it has **never been surprised** by the apparent/misconstrued bona fides and/or actions of a *competitive force*.)

	1	2	3	4	5	6	7
The apparent/misconstrued bona fides and/or actions of a *competitive force* have surprised our firm							

2.1.4   How is your firm alerted to early signals of possible *strategic surprises* developing in the *competitive environment*?

(Consider all possible ways. Make an appropriate tick **( )** where **1** indicates the possible way of being alerted as **highly irrelevant** and **7** as **highly relevant**.)

(Possible ways of being alerted appear in alphabetic order in the table.)

	Possible ways of being alerted	1	2	3	4	5	6	7
a	Attending global mining conferences							
b	Coincidentally							
c	External consultants							
d	Financial analysts							
e	Industry experts							
f	Involvement in mining related professional bodies							
g	Mining-related news services (electronic and/or hard copy)							
h	Reports from staff							
i	Structured early warning process							

j	Other ways (please specify)							

2.1.5   If you have identified the potential for a change in the **strategic plans** of a *competitive force* that may influence your firm, how would your firm react?

(Make a tick **( )** in the appropriate block, where **1** indicates that your firm has a **completely informal** and **7** a **completely formal way** of reacting to the influence of a change in the strategic plans of a *competitive force*.)

Statement	1	2	3	4	5	6	7
Our firm's reaction to a potential change in the strategic plans of a *competitive force* that may have a major influence on us							

2.1.6   To what extent does your firm expect an **increased level of business risk** in its *competitive environment* in the next three years?

(Make a tick **( )** in the appropriate block, where **1** indicates that an increased level of business risk is **highly likely** and **7** that it is **highly unlikely**.)

	1	2	3	4	5	6	7
Increased level of business risk in the *competitive environment* in the next three years							

2.2.1   Please indicate to what extent you agree with the following statements about your firm's competitive analysis activities.

(Consider all statements. Make appropriate ticks **( )** where **1** indicates the statement as being **highly irrelevant** and **7** as **highly relevant** to your firm.)

	Statement	1	2	3	4	5	6	7
a	Our firm recognises *competitive analysis* as an important prerequisite for business success							
b	*Competitive analysis* in our firm is focused upon the strategic requirements of our firm							
c	We have a systematic approach to mitigate structural risk in our *competitive environment*							
d	Our firm's *key intelligence needs* are determined according to its strategic needs							
e	Our firm uses industry open source information (industry data bases, annual financial reports, press articles, etc) to conduct analysis about a *competitive force*							
f	Our firm places much emphasis on the collection of human intelligence (eg at trade shows and other industry events), about the various forces in our *competitive environment*							
g	We have an organised effort in our firm to channel all informatio*n* about our *competitive forces* to a central repository for easy retrieval							

h	*Competitive analysis* is conducted in a coordinated manner by various units and departments in our firm							
i	*Competitive analysis* is conducted by cross-functional teams							
j	Executives/senior managers use actionable intelligence generated by *competitive analysis* in all major decisions about the *competitive environment*							
k	We have the ability to determine the future intent of a *competitive force* on which we base our competitive strategies							
l	We are using *competitive analysis* to create a competitive advantage							

Please elaborate, if you have any additional comments.

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General: The following question focuses on <u>all</u> analyses being conducted in your firm.

2.3.1   What **analytical methods** does your firm apply to conduct its business?

(Please mark all the methods. Make appropriate ticks **( )** where **1** indicates **highly unimportant** and **7 highly important,** with regard to the analytical methods used in your firm.)

* (Analytical methods appear in alphabetic order in the table.)

	Analytical method	1	2	3	4	5	6	7
a	Analysis of new business opportunities							
b	Commodity analysis							
c	Competitive analysis							
d	Feasibility studies							
e	Due diligence studies							
f	Financial analysis							
g	Financial valuation							
h	Geological surveys							
i	Market research							
j	Macro-economic analysis							
k	Production/operational analysis							
l	Socio-political analysis							
m	Techno-economic analysis							
n	Technical research and developmental studies							
o	Other (please specify)							

Please elaborate if you have any additional comments.

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Competitive analysis: The remaining part of section 3 deals with competitive analysis.

2.3.2   When conducting *competitive analysis* on a *competitive force*, what analytical methods are mostly used in your firm?

(Consider all methods. Make appropriate ticks ( ) for each method used, where **1** indicates that the method is **not used at all** and **7** that it is **used continuously**.)

* (Analytical methods appear in alphabetic order)

	Analytical method	1	2	3	4	5	6	7
a	Balanced scorecard							
b	Boston Consulting Group's growth-share portfolio matrix							
c	Competitor analysis							
d	Customer and marketing analysis							
e	Financial ratio and statement analysis (ie Du Pont analysis)							
f	Financial valuation							
g	Functional capability and resource analysis							
h	Management profiling							
i	Network analysis							
j	Patent analysis							
k	Porter's Five Forces' industry analysis							
l	Porter's Diamond analysis							
m	Scenario analysis							
n	Stakeholder analysis							
o	Strategic funds programming							
p	Strategic group analysis							

q	Sustainable growth rate analysis							
r	SWOT analysis							
s	Value chain analysis							
t	Other (please specify)							

2.3.3 In your view, which of the above-mentioned analytical methods are **most appropriate** for developing an understanding of the future intentions of a *competitive force*? Please give reasons for your answer.

....
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....
....

2.3.4 If your firm does conduct *competitive analysis*, what **departments/groups** are involved?

(Consider all departments/groups. Make appropriate ticks **( )** for each one in your firm, where **1** indicates that the department/group **does not apply *competitive analysis* at all** and **7** that it does **apply it continuously**.)

(Different departments/groups appear in alphabetic order in the table)

	Department/Group	1	2	3	4	5	6	7
a	Business development							
b	Competitive intelligence							
c	Continuous improvement							
d	Corporate finance							
e	External consultants							
f	Geological services							
g	Knowledge management							
h	Marketing departments							
i	Multifunctional teams							
j	Operational units							
k	Regional head offices							
l	Research and development							
m	Strategic business unit(s)							
n	Strategic planning department							
o	Other (please specify)							

2.3.5 If more than one department/group in your firm does conduct *competitive analysis*, which department/group's analytical output has the **greatest strategic impact on the firm's future**? Please elaborate.

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2.3.6 During the *competitive analysis* process with regard to a particular *competitive force*, what **type of information sources** is used in your firm?

(Consider all information sources. Make appropriate ticks **( )** for each source, where **1** indicates that the information source is **used occasionally** and **7** that it is **used continuously**.)

* (Information sources appear in alphabetic order in the table.)

	Information source	1	2	3	4	5	6	7
a	Actual visits to operations							
b	Annual reports and financial statements							
c	Conference papers							
d	Consultants reports							
e	Market information							
f	Financial analyst reports							
g	Geological surveys							
h	Human intelligence							
i	Industry and country reports							
j	Industry data bases (hard copy and/or electronic)							
k	Information provided by the competitive force being analysed							
l	Internal reports (prepared by own firm)							
m	Press-reports and articles (hard copy and/or electronic)							
n	Technical reports							
o	Other (specify)							

2.3.7   In your view, **how available** is information on the following aspects of a *competitive force* for strategic decision-making purposes in your firm?

(Consider all aspects. Make appropriate ticks ( ) for each aspect where 1 indicates that information is **highly unavailable** about the particular aspect, and 7 that it is **highly available** about the particular aspect.)

(Aspects appear in alphabetic order in the table)

	Aspects of a competitive force	1	2	3	4	5	6	7
a	Appropriate levels of technology							
b	Basket of strategies							
c	Capabilities and competencies of its employees (ie innovative technological knowledge)							
d	External relations (ie share-holders, alliances)							
e	Financial value and/or performance							
f	Future strategic intentions							
g	Influences from its competitive environment							
h	Management's decision-making patterns							
i	Management's intentions							
j	Market position							
k	Operations (domestic and global)							
l	Organisational culture							
m	Organisational structure							
n	Value chain(s)							
o	Other (please specify)							

Please elaborate, if you have any additional comments.

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2.3.8   For **whom is** *competitive analysis* normally conducted in your firm? Please elaborate.

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2.3.9 What information on a *competitive force* is **most important** for strategic decision-making purposes about such a competitive force in your firm?

(Consider all aspects. Make appropriate ticks ( ) for each aspect where **1** indicates that information is **highly unimportant** and **7** that it is **highly important** about the particular aspect.)

(Aspects appear in alphabetic order in the table)

	Aspects of a competitive force	1	2	3	4	5	6	7
a	Appropriate levels of technology							
b	Basket of strategies							
c	Capabilities and competencies of its employees (ie innovative technological knowledge)							
d	External relations (ie shareholders, alliances)							
e	Financial value and/or performance							
f	Future strategic intentions							
g	Influences from its competitive environment							
h	Management's decision-making patterns							
i	Management's intentions							
j	Market position							
k	Operations (domestic and global)							
l	Organisational culture							
m	Organisational structure							
n	Value chain(s)							
o	Other (please specify)							

Please elaborate, if you have any additional comments.

……………………………………………………………………………………………

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2.3.10 In your view, **how true are the following statements** about the *competitive analysis* process in your firm?

(Consider all statements. Make appropriate ticks **( )** for each statement where **1** indicates the statement being **false under all conditions** and **7** that it **is true under all conditions**.)

	Statement	1	2	3	4	5	6	7
a	Only a limited number of *competitive analysis* methods is being used in our firm							
b	*Competitive analysis* is becoming more quantitative because of the strong growth in numerical data, analysis techniques and information technology							
c	The value of current *competitive analysis* in our firm is limited because it is based largely upon historical data							
d	*Competitive analysis* in our firm is normally based on available data and not on what is necessary for sound strategic decision making							
e	Most *competitive analytical* methods in use today are outdated and need to be reconsidered							

*) Note that an answer of 4 would possibly indicate sometimes true or sometimes false.

Please elaborate if you have any comments.

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Section 4: The influence of *competitive analysis* on strategic decision-making

2.4.1   If your firm does conduct *competitive analysis*, what is the **purpose** of such analysis?

(Consider all purposes? Make appropriate ticks **(   )** for each purpose, where **1** indicates the purpose of competitive analysis as being **highly irrelevant** and **7** as **highly relevant**.)

* (The possible different purposes appear in alphabetic order in the table.)

	Purpose of competitive analysis	1	2	3	4	5	6	7
a	Annual strategic planning session							
b	Benchmarking							
c	Due diligence studies							
d	Joint venture activities							
e	Marketing and sales strategies							
f	Mergers and acquisition activities							
g	New business development opportunities							
h	Stakeholder-related issues							
i	Tactical decision purposes							
j	Threat analysis (regulatory and/or business)							
k	Strategic positioning of company							
l	Other (specify):							

Please elaborate if you have any additional comments.

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

2.4.2   Does your firm have extensive knowledge about the **strategic intent** of the relevant *competitive forces* active in your *competitive environment*?

(Make a tick **( )** in the appropriate block, where **1** indicates **no knowledge whatsoever** and **7 extensive knowledge**.)

	1	2	3	4	5	6	7
Knowledge about the strategic plans of the relevant *competitive forces* in your *competitive environment*							

2.4.3   In your view, what is **the influence** of *competitive analysis* on the strategic decision making process in your firm?

(Consider all statements. Make appropriate ticks **( )** for each statement where **1** indicates the statement to be **false under all conditions** and **7 true under all conditions**.)

	Statement	1	2	3	4	5	6	7
a	Our executive team does not make a strategic decision about a *competitive force* without considering the actionable intelligence generated by *competitive analysis*							
b	Our *competitive analysis* findings have a major influence in altering our firm's strategic decisions in a dynamic manner							
c	The speed and complexity of change in the global mining industry have become so forceful that we need to analyse our *competitive forces* in a dynamic							

manner							

Please elaborate if you have any additional comments.

……………………………………………………………………………………………

……………………………………………………………………………………………

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PART 3

CORPOGRAPHICAL INFORMATION

3.1 Name of organisation:

………………………………………………………………………………

3.2 Country where head office is situated:

………………………………………………………………………………

3.3 Postal address:

………………………………………………………………………………………

………………………………………………………………………………………

………………………………………………………………………………………

Postal/zip code..…………………………………………………………………….

Country code……………………………………………………………………….

3.4 If listed, on which bourses?

Primary listing:

………………………………………………………………………………

Other listings:

………………………………………………………………………………………

………………………………………………………………………………

3.5   Audited annual turnover (US$) during most current financial year

………………………………………………………………………………

3.6   Most recent market capitalisation (US$)

………………………………………………………………………………

3.7   Commodities in portfolio (please ensure that percentages add up to 100).

	Commodity	% of total asset value	% of total sales		Commodity	% of total asset value	% of total sales
a	Diamonds			h	Nickel		
b	Gold			i	Zinc		
c	Platinum			j	Iron ore		
d	Coal			k	Manganese		
e	Aluminium			l	Chromium		
f	Copper			m	Other (please specify)		
g	Lead						

3.8 Industrial sectors (please ensure that percentages add up to 100).

	Industrial sectors	% of total asset value	% of total sales
a	Exploration		
b	Mining		
c	Smelting		
d	Manufacturing		
e	Trading		
f	Other (please specify)		

3.9 Geographical location of operations (please ensure that percentages add up to 100).

	Region	% of total asset value		Region	% of total asset value
a	North America		e	Former USSR	
b	South America		f	Asia	
c	Western Europe		g	Australia	
d	Central Europe		h	Africa	

3.10 Geographical division of sales (please ensure that percentages add up to 100).

	Region	% of total		Region	% of total
a	North America		e	Former USSR	
b	South America		f	Asia	
c	Western Europe		g	Australia	
d	Central Europe		h	Africa	

3.11 Personal details of person completing the questionnaire

Name:

……………………………………………………………………………………

Functional area of involvement:

…………………………………………………………………………………..

Position in organisation:

……………………………………………………………………………………

Highest qualification(s) and institution(s) where obtained:

……………………………………………………………………………………

Telephone number:

……………………………………………………………………………………

E-mail address:

……………………………………………………………………………………

Remark

It would be appreciated if you could include an example of a *competitive analysis* report completed by your firm in your completed questionnaire.

*) Note that such a report will be treated with the utmost confidentiality.

Thank you for the effort in answering this questionnaire.

KUMBA RESOURCES

Kumba Resources Limited
Reg No 2000/011076/06
Roger Dyason Road Pretoria West 0183
P O Box 9229 Pretoria 0001 South Africa
Tel +27 12 307 5000 Fax +27 12 323 3400
Website www.kumbaresources.com

2004-08-23

Direct Tel: (012) 307 4312
Direct Fax: (012) 307 4364
Reference: CJF012-A

Mr Mike Salamon
Executive Director
BHP Billiton plc
P O Box 61820
MARSHALLTOWN
2107

Dear Mike

I would like to introduce to you, Hennie Brummer, Principal, Business Analysis in our Strategy and Business Development division. Hennie is a postgraduate student at the University of South Africa (UNISA), working towards a D Com degree in Business Management.

As part of his studies, he is currently conducting an empirical study on how global mining companies conduct competitive analysis, (ie how do they analyse other companies such as customers, possible alliance partners, competitors, etc?). His research method involves a questionnaire that has to be completed by respondents from a representative sample of global mining companies. BHP Billiton has consequently been selected for inclusion in the empirical research.

Mike, I would appreciate it if you could be so kind in identifying somebody within your company with whom Hennie can liaise in order to complete such a questionnaire. Please be assured that all the information will only be used for academic purposes and all company-related details will remain anonymous. Hennie will also gladly submit his combined research findings to you on completion of his studies. He can be contacted at hennie.brummer@kumbaresources.com or +27-12-307 4057.

I trust you will be supportive of this initiative.

Kind regards

DR C J FAUCONNIER
CHIEF EXECUTIVE

Directors MLO Marole (Chairman) Dr CJ Fauconnier (Chief Executive) PM Baum BE Davison TL de Beer JJ Geldenhuys MJ Kilbride* Dr D Konar CF Meintjes*
AJ Morgan WA Nairn SA Nkosi CML Savage Dr NS Segal F Titi DJ van Staden* RG Wadley* PL Zim   Company Secretary MS Viljoen
* Executive

573

From:	Hennie Brummer [KLP Strategy & Business Development]
Sent:	2004-08-09 14:12
To:	'christophe.waroquet@alcan.com'
Subject:	FW: Research on Competitive Analysis in the Global Mining Industry

Dear Christopher

Good day. My name is *Hennie Brummer*. I am a postgraduate student at the University of South Africa (UNISA), working towards a D. Com. degree in Business Management.

I received your name from **Professor Craig Fleisher**, Odette Research Chair and Professor of Business of Strategy & Entrepreneurship at the University of Windsor, Ontario, Canada (also co-author of the book:
Strategic and Competitive Analysis).

As part of the degree, I am currently conducting an empirical study on **how global mining companies conduct competitive analysis** (i.e. how do they analyze an external force active in their external environment). I am also interested in learning whether such analysis plays any major role in the company's strategic decision-making process. My research method involves a questionnaire that will be electronically forwarded to respondents around the world.

Your firm has, consequently, been selected for inclusion in the empirical research. I would appreciate your willingness to complete the questionnaire as well as your insight in the topic. Please be assured that the information will only be used for academic purposes and all company-related details will remain anonymous.

Could you *please indicate if I could forward the questionnaire to you*, or whether I should contact somebody else within your company? In such an event, I will appreciate if you could supply me with such a person's contact detail. Lastly, should you have any questions or comments, please do not hesitate to contact me at **+27 12 307 4057** or at **hennie.brummer@kumbaresources.com**.

Thank you for your time.

Best Regards

Hennie Brummer

DEVELOPMENT OF A DYNAMIC COMPETITIVE ANALYSIS MODEL FOR A GLOBAL MINING FIRM

EMPIRICAL RESULTS: SEPTEMBER – NOVEMBER 2004

1   QUESTIONNAIRES RECEIVED

Global mining firm	Country where head office is located	Ranking position according to global market capitalisation	Date questionnaire received
BHP Billiton plc	United Kingdom	1	19/10/2004
Rio Tinto plc	United Kingdom	2	13/09/2004
Anglo American plc	United Kingdom	3	21/09/2004
CVRD	Brazil	7	15/10/2004
Xstrata	United Kingdom	10	09/09/2004
Anglo Gold Ashanti	South Africa	11	05/11/2004
Placer Dome	Canada	12	26/08/2004
Anglo Platinum	South Africa	13	13/09/2004
Phelps Dodge	Canada	14	14/09/2004
Gold Fields	South Africa	15	27/09/2004
Impala Platinum	South Africa	18	06/09/2004
Noranda	Canada	19	27/09/2004
Falconbridge	Canada	23	27/09/2004
Noranda Mining	Australia	26	27/09/2004
Yanzhou Coal	PR of China	27	13/10/2004
Harmony Gold	South Africa	33	09/09/2004
Glamis Gold	USA	37	22/09/2004
Mitsubishi Corporation	Japan	40	22/10/2004
Mitsui Mining	Japan	41	14/09/2004
Kumba Resources	South Africa	42	13/09/2004
Caemi	Brazil	47	15/10/2004
Sasol Mining	South Africa	48	23/09/2004
Meridian Gold	USA	49	14/09/2004

(Sub total 23)

2   FIRMS WHO DID NOT WANTED TO PARTICIPATE IN THE SURVEY

Global mining firm	Country where head office is located	Ranking position according to global market capitalisation	Reason for not participating
Teck Cominco	Canada	22	Did not want to participate, as they saw no reason why they should
WMC Resources	Australia	24	Did not want to participate, as they saw no reason why they should
Grupo Mexico	Mexico	30	Did not want to participate, as they saw no reason why they should
Outokumpu	Sweden	31	Did not want to participate, as they saw no reason why they should
Lonmin	United Kingdom	35	Did not want to participate, due to work pressure
Industrias Penoles	Mexico	45	Did not want to participate, as they saw no reason why they should
Ivanhoe Mining	Canada	50	Did not want to participate due to work pressure

Sub total – 7

3   FIRMS FROM WHOM NO REPLY WAS OBTAINED

Global mining firm	Country where head office is located	Ranking position according to global market capitalisation	Comments
Alcoa	USA	4	12 requests – no reply
Newmont Mining	USA	5	10 request – no reply
Alcan	Canada	6	12 requests – no reply
Norilisk	Russia	8	Five requests – no reply
Barrick Gold	Canada	9	Nine requests – no reply
Inco	Canada	16	Nine requests – no reply
Freeport McMoran	USA	17	Five requests – no reply
Alumina Limited	Australia	20	Six requests – no reply
Cameco Corp.	USA	21	Two requests – no reply
Peabody Energy	USA	25	Six requests – no reply
Sumitomo Mining	Japan	28	Four requests – no reply
Antofagasta plc	United Kingdom	29	Five requests – no reply
Consol Energy	USA	32	Eight requests – no reply
Buenaventura	Peru	34	Three requests – no reply
Goldcorp, Inc	USA	36	Two requests – no reply
National Aluminum	India	38	Two requests – no reply
Kinross Gold	Canada	39	Two requests – no reply
Aber Diamond Corporation	Canada	43	Two requests – no reply
KGHM Polska Miedz	Poland	44	Two requests – no reply
Vedanta Resources	United Kingdom	46	Two requests – no reply

(Sub total 20)

4   ADDITIONAL REQUESTS FOR INCLUSION IN THE RESEARCH SAMPLE – NO REPLY

- Eramet, France
- Wheaton River, USA
- Elkem, France
- Hindalco Inds, India
- Neyveli Lignite, India
- Wheaton River, USA
- Fording Canadian, Canada
- New Boliden, Sweden

(Sub total 8)

5   SUMMARY OF EMPIRICAL RESEARCH

Questionnaires received	23
Firms who did not want to participate	7
No reply	20
Additional requests – no reply	8
Total number of global mining firms contacted	**58**

ANNEXURE 5

MEAN SCORES

Table 1

Mean

Question	Categories		
	Diversified firms	Single-commodity firms	Total
q2.1.1a	4.67	5.50	5.17
q2.1.1b	6.89	6.50	6.65
q2.1.1c	5.33	5.64	5.52
q2.1.1d	6.44	4.93	5.52
q2.1.1e	6.33	6.21	6.26
q2.1.1f	4.56	3.86	4.13
q2.1.1g	4.56	4.86	4.74
q2.1.1h	6.22	5.21	5.61
q2.1.1i	6.00	6.14	6.09
q2.1.1j	5.00	4.50	4.70
q2.1.1k	5.33	4.79	5.00
q2.1.1l	4.56	5.21	4.96
q2.1.1m	4.44	5.29	4.96
q2.1.1n	6.44	6.07	6.22
q2.1.1o	5.44	5.64	5.57
q2.1.1p	7.00	5.33	1.00

Table 2

Mean

Question	Categories		
	Diversified firms	Single-commodity firms	Total
q2.1.2a	4.44	3.36	3.78
q2.1.2b	4.33	2.86	3.43
q2.1.2c	5.11	6.21	5.78
q2.1.2d	5.67	4.50	4.96
q2.1.2e	6.22	5.79	5.96
q2.1.2f	4.89	4.57	4.70
q2.1.2g	5.44	3.29	4.13
q2.1.2h	4.33	4.07	4.17
q2.1.2i	5.22	4.71	4.91
q2.1.2j	5.11	5.36	5.26
q2.1.2k	4.67	4.00	4.26
q2.1.2l	2.67	2.29	2.43
q2.1.2m	3.33	2.14	2.61
q2.1.2n	3.44	3.14	3.26

Table 3

Mean

Categories	q2.1.3
Diversified firms	3.33
Single-commodity firms	2.79
Total	3.00

Table 4

Mean

	Categories		
	Diversified firms	**Single-commodity firms**	**Total**
q2.1.4a	4.00	4.50	4.30
q2.1.4b	3.22	3.21	3.22
q2.1.4c	4.33	4.00	4.13
q2.1.4d	4.89	4.79	4.83
q2.1.4e	5.89	5.14	5.43
q2.1.4f	4.22	4.07	4.13
q2.1.4g	4.89	4.86	4.87
q2.1.4h	6.67	4.93	5.61
q2.1.4i	5.22	3.29	4.04

Table 5

Mean

Categories	q2.1.5
Diversified firms	4.89
Single-commodity firms	3.93
Total	4.30

Table 6

Mean

Categories	q2.1.6
Diversified firms	2.89
Single-commodity firms	2.93
Total	2.91

Table 7

Mean

| Question | Categories | | |
	Diversified firms	Single-commodity firms	Total
q2.2.1a	5.89	5.64	5.74
q2.2.1b	5.33	5.57	5.48
q2.2.1c	4.67	4.29	4.43
q2.2.1d	5.00	5.36	5.22
q2.2.1e	5.89	5.79	5.83
q2.2.1f	6.00	4.86	5.30
q2.2.1g	5.22	4.43	4.74
q2.2.1h	5.33	4.64	4.91
q2.2.1i	5.22	5.07	5.13
q2.2.1j	5.33	5.29	5.30
q2.2.1k	5.33	4.00	4.52
q2.2.1l	6.11	4.86	5.35

Table 8

Mean

Question	Categories		
	Diversified firms	Single-commodity firms	Total
q2.3.1a	6.56	6.50	6.52
q2.3.1b	6.22	5.77	5.95
q2.3.1c	6.22	5.21	5.61
q2.3.1d	6.56	6.50	6.52
q2.3.1e	6.33	6.29	6.30
q2.3.1f	6.67	6.57	6.61
q2.3.1g	6.78	6.64	6.70
q2.3.1h	6.33	6.43	6.39
q2.3.1i	5.11	4.71	4.87
q2.3.1j	4.56	4.57	4.57
q2.3.1k	4.89	5.43	5.22
q2.3.1l	5.00	4.64	4.77
q2.3.1m	5.33	4.86	5.04
q2.3.1n	5.33	4.71	4.96
q2.3.1o	5.00	6.00	.48

Table 9

Mean

Question	Categories		
	Diversified firms	**Single-commodity firms**	**Total**
q2.3.2a	2.75	3.07	3.04
q2.3.2b	2.67	2.64	2.65
q2.3.2c	6.44	5.00	5.57
q2.3.2d	5.67	4.14	4.74
q2.3.2e	5.22	4.14	4.57
q2.3.2f	6.89	6.29	6.52
q2.3.2g	4.11	4.57	4.39
q2.3.2h	3.44	2.79	3.04
q2.3.2i	2.22	2.50	2.39
q2.3.2j	2.56	2.14	2.30
q2.3.2k	4.56	3.21	3.74
q2.3.2l	2.56	2.36	2.43
q2.3.2m	5.67	5.36	5.48
q2.3.2n	4.11	4.36	4.26
q2.3.2o	2.78	2.07	2.35
q2.3.2p	2.78	2.36	2.52
q2.3.2q	3.11	3.64	3.43
q2.3.2r	5.22	5.50	5.39
q2.3.2s	4.44	3.79	4.04

Table 10

Mean

Question	Categories		
	Diversified firms	Single-commodity firms	Total
q2.3.4a	6.44	6.43	6.43
q2.3.4b	4.75	2.36	3.37
q2.3.4c	3.00	3.23	3.14
q2.3.4d	4.63	6.07	5.55
q2.3.4e	4.00	4.85	4.50
q2.3.4f	2.78	5.21	4.26
q2.3.4g	1.89	1.83	1.86
q2.3.4h	5.78	4.71	5.13
q2.3.4i	4.33	5.79	5.22
q2.3.4j	3.33	4.54	4.05
q2.3.4k	5.33	3.77	4.41
q2.3.4l	4.89	3.92	4.32
q2.3.4m	4.88	3.85	4.24
q2.3.4n	6.38	5.21	5.64
q2.3.4o	.00	.00	.00

Table 11

Mean

Question	Categories		
	Diversified firms	Single-commodity firms	Total
q2.3.6a	6.11	4.64	5.22
q2.3.6b	6.56	6.00	6.22
q2.3.6c	4.67	3.93	4.22
q2.3.6d	5.44	4.93	5.13
q2.3.6e	5.89	5.71	5.78
q2.3.6f	6.33	5.86	6.04
q2.3.6g	5.33	5.79	5.61
q2.3.6h	5.89	4.93	5.30
q2.3.6i	5.56	4.64	5.00
q2.3.6j	6.22	5.29	5.65
q2.3.6k	5.11	5.43	5.30
q2.3.6l	5.67	5.21	5.39
q2.3.6m	5.67	5.43	5.52
q2.3.6n	4.89	5.43	5.22
q2.3.6o	.00	.00	.00

Table 12

Mean

Question	Categories		
	Diversified firms	Single-commodity firms	Total
q2.3.7a	4.56	5.07	4.87
q2.3.7b	4.00	4.00	4.00
q2.3.7c	3.78	3.50	3.61
q2.3.7d	5.33	4.43	4.78
q2.3.7e	6.44	5.57	5.91
q2.3.7f	3.89	4.50	4.26
q2.3.7g	5.11	3.93	4.39
q2.3.7h	3.00	2.86	2.91
q2.3.7i	3.11	3.00	3.04
q2.3.7j	6.00	5.14	5.48
q2.3.7k	6.22	5.57	5.83
q2.3.7l	3.67	3.57	3.61
q2.3.7m	5.11	4.14	4.52
q2.3.7n	4.67	4.07	4.30

Table 13

Mean

Question	Categories		
	Diversified firms	**Single-commodity firms**	**Total**
q2.3.9a	3.89	4.79	4.43
q2.3.9b	5.00	4.43	4.65
q2.3.9c	4.78	4.57	4.65
q2.3.9d	4.89	4.36	4.57
q2.3.9e	6.56	6.00	6.22
q2.3.9f	6.33	6.00	6.13
q2.3.9g	5.22	5.36	5.30
q2.3.9h	5.22	4.29	4.65
q2.3.9i	6.33	5.14	5.61
q2.3.9j	6.00	4.71	5.22
q2.3.9k	5.89	6.07	6.00
q2.3.9l	3.33	3.43	3.39
q2.3.9m	3.44	3.00	3.17
q2.3.9n	4.89	3.79	4.22

Table 14

Mean

Question	Categories		
	Diversified companies	**Single-commodity firms**	**Total**
q2.3.10a	3.89	4.36	4.17
q2.3.10b	5.11	5.29	5.22
q2.3.10c	2.33	4.00	3.35
q2.3.10d	2.89	3.57	3.30
q2.3.10e	3.78	3.50	3.61

Table 15

Mean

Question	Categories		
	Diversified firms	**Single-commodity firms**	**Total**
q2.4.1a	6.56	5.64	6.00
q2.4.1b	5.78	5.36	5.52
q2.4.1c	5.33	5.21	5.26
q2.4.1d	5.78	5.14	5.39
q2.4.1e	6.11	4.64	5.22
q2.4.1f	5.89	5.79	5.83
q2.4.1g	6.44	6.00	6.17
q2.4.1h	3.89	3.36	3.57
q2.4.1i	5.33	4.14	4.61
q2.4.1j	4.67	3.93	4.22
q2.4.1k	5.78	5.50	5.61
q2.4.1l	.00	.00	.00

Table 16

Mean

Categories	q2.4.2
Diversified firms	5.11
Single-commodity firms	4.29
Total	4.61

Table 17

Mean

Question	Categories		
	Diversified firms	Single-commodity firms	Total
q2.4.3a	6.22	5.50	5.78
q2.4.3b	5.67	4.71	5.09
q2.4.3c	5.22	4.86	4.96

T-TESTS

Table 1

T-Test

Independent Samples Test

Question		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Diffe-rence	Std. Error Differ ence	Lower	Upper
q2.1.1a	Equal variances assumed	4.230	.052	-1.122	21	.275	-.833	.743	-2.378	.712
	Equal variances not assumed			-1.007	11.760	.334	-.833	.827	-2.640	.974
q2.1.1b	Equal variances assumed	2.585	.123	.845	21	.408	.389	.460	-.569	1.346
	Equal variances not assumed			1.034	15.376	.317	.389	.376	-.411	1.189
q2.1.1c	Equal variances assumed	.491	.491	-.530	21	.602	-.310	.584	-1.524	.905
	Equal variances not assumed			-.523	16.478	.608	-.310	.591	-1.560	.941
q2.1.1d	Equal variances assumed	.074	.788	3.379	21	.003	1.516	.449	.583	2.449
	Equal variances not assumed			3.579	20.135	.002	1.516	.424	.633	2.399
q2.1.1e	Equal variances assumed	.154	.698	.224	21	.825	.119	.530	-.984	1.222
	Equal variances not assumed			.233	19.178	.818	.119	.512	-.951	1.189

q2.1.1f	Equal variances assumed	2.271	.147	1.185	21	.249	.698	.589	-.527	1.924
	Equal variances not assumed			1.120	14.073	.282	.698	.624	-.639	2.036
q2.1.1g	Equal variances assumed	11.926	.002	-.525	21	.605	-.302	.574	-1.496	.893
	Equal variances not assumed			-.452	10.211	.661	-.302	.667	-1.784	1.181
q2.1.1h	Equal variances assumed	4.739	.041	2.124	21	.046	1.008	.475	.021	1.995
	Equal variances not assumed			2.429	20.238	.025	1.008	.415	.143	1.873
q2.1.1i	Equal variances assumed	1.361	.257	-.302	21	.765	-.143	.473	-1.126	.840
	Equal variances not assumed			-.313	19.124	.758	-.143	.457	-1.098	.812
q2.1.1j	Equal variances assumed	2.258	.148	.747	21	.463	.500	.669	-.891	1.891
	Equal variances not assumed			.673	11.897	.514	.500	.743	-1.120	2.120
q2.1.1k	Equal variances assumed	1.483	.237	.974	21	.341	.548	.562	-.621	1.717
	Equal variances not assumed			.925	14.323	.371	.548	.592	-.720	1.815
q2.1.1l	Equal variances assumed	.828	.373	-1.138	21	.268	-.659	.579	-1.863	.546
	Equal variances not assumed			-1.066	13.691	.305	-.659	.618	-1.987	.669
q2.1.1m	Equal variances assumed	.027	.872	-1.263	21	.221	-.841	.666	-2.227	.544
	Equal variances not assumed			-1.231	15.770	.236	-.841	.684	-2.292	.609
q2.1.1n	Equal variances assumed	.025	.875	.914	21	.371	.373	.408	-.475	1.222

Question		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
	Equal variances not assumed			.995	20.886	.331	.373	.375	-.407	1.153
q2.1.1o	Equal variances assumed	1.082	.310	-.422	21	.677	-.198	.470	-1.176	.779
	Equal variances not assumed			-.453	20.582	.655	-.198	.438	-1.111	.714
q2.1.1p	Equal variances assumed	.	.	2.500	2	.130	1.667	.667	-1.202	4.535
	Equal variances not assumed			.	.	.	1.667	.	.	.

Table 2

T-Test

Independent samples test

Question		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
q2.1.2a	Equal variances assumed	.243	.627	1.343	21	.194	1.087	.810	-.597	2.771
	Equal variances not assumed			1.314	15.974	.207	1.087	.828	-.667	2.842
q2.1.2b	Equal variances assumed	1.590	.221	2.246	21	.036	1.476	.657	.109	2.843
	Equal variances not assumed			2.071	12.914	.059	1.476	.713	-.065	3.017
q2.1.2c	Equal variances assumed	.843	.369	-2.117	21	.046	-1.103	.521	-2.187	-.019
	Equal variances not assumed			-1.829	10.345	.096	-1.103	.603	-2.441	.235

q2.1.2d	Equal variances assumed	3.178	.089	2.100	21	.048	1.167	.555	.011	2.322
	Equal variances not assumed			2.355	20.848	.028	1.167	.495	.136	2.197
q2.1.2e	Equal variances assumed	4.072	.057	.663	21	.515	.437	.659	-.933	1.806
	Equal variances not assumed			.771	19.378	.450	.437	.566	-.748	1.621
q2.1.2f	Equal variances assumed	.719	.406	.511	21	.614	.317	.621	-.973	1.608
	Equal variances not assumed			.549	20.565	.589	.317	.579	-.888	1.523
q2.1.2g	Equal variances assumed	.007	.934	4.026	21	.001	2.159	.536	1.044	3.274
	Equal variances not assumed			4.048	17.531	.001	2.159	.533	1.036	3.281
q2.1.2h	Equal variances assumed	.938	.344	.301	21	.766	.262	.869	-1.546	2.070
	Equal variances not assumed			.310	18.833	.760	.262	.844	-1.506	2.030
q2.1.2i	Equal variances assumed	2.180	.155	.649	21	.523	.508	.782	-1.119	2.135
	Equal variances not assumed			.706	20.882	.488	.508	.719	-.989	2.004
q2.1.2j	Equal variances assumed	.046	.833	-.452	21	.656	-.246	.544	-1.378	.886
	Equal variances not assumed			-.453	17.297	.657	-.246	.544	-1.392	.900
q2.1.2k	Equal variances assumed	1.494	.235	.908	21	.374	.667	.734	-.860	2.193
	Equal variances not assumed			.951	19.647	.353	.667	.701	-.798	2.131
q2.1.2l	Equal variances assumed	.842	.369	.624	21	.539	.381	.610	-.888	1.650

Question		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
	Equal variances not assumed			.588	13.921	.566	.381	.648	-1.010	1.772
q2.1.2m	Equal variances assumed	2.232	.150	2.342	21	.029	1.190	.508	.134	2.247
	Equal variances not assumed			2.182	13.397	.047	1.190	.546	.016	2.365
q2.1.2n	Equal variances assumed	.205	.655	.500	21	.623	.302	.604	-.954	1.557
	Equal variances not assumed			.487	15.783	.633	.302	.619	-1.012	1.616
q2.1.2o	Equal variances assumed									
	Equal variances not assumed									

Table 3

T-Test

Independent samples test

Question		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
q2.1.3	Equal variances assumed	7.494	.012	1.144	21	.265	.548	.479	-.448	1.543
	Equal variances not assumed			1.037	12.132	.320	.548	.528	-.602	1.697

Table 4

T-Test

Independent samples test

Question		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Diffe-rence	Std. Error Diffe-rence	Lower	Upper
q2.1.4a	Equal variances assumed	2.326	.142	-.927	21	.365	-.500	.540	-1.622	.622
	Equal variances not assumed			-.998	20.670	.330	-.500	.501	-1.543	.543
q2.1.4b	Equal variances assumed	.077	.784	.016	21	.988	.008	.510	-1.052	1.068
	Equal variances not assumed			.016	18.904	.987	.008	.495	-1.028	1.043
q2.1.4c	Equal variances assumed	.015	.903	.613	21	.546	.333	.544	-.797	1.464
	Equal variances not assumed			.604	16.378	.554	.333	.552	-.834	1.501
q2.1.4d	Equal variances assumed	.369	.550	.205	21	.840	.103	.504	-.945	1.152
	Equal variances not assumed			.213	19.309	.834	.103	.485	-.911	1.117
q2.1.4e	Equal variances assumed	2.152	.157	1.613	21	.122	.746	.462	-.216	1.708
	Equal variances not assumed			1.777	20.998	.090	.746	.420	-.127	1.619
q2.1.4f	Equal variances assumed	.349	.561	.237	21	.815	.151	.636	-1.171	1.473
	Equal variances not assumed			.238	17.305	.815	.151	.635	-1.186	1.488
q2.1.4g	Equal variances assumed	.058	.812	.069	21	.946	.032	.462	-.930	.993

Question		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
	Equal variances not assumed			.069	17.758	.946	.032	.458	-.931	.995
q2.1.4h	Equal variances assumed	7.960	.010	2.914	21	.008	1.738	.596	.498	2.979
	Equal variances not assumed			3.536	16.153	.003	1.738	.492	.697	2.779
q2.1.4i	Equal variances assumed	1.057	.316	2.765	21	.012	1.937	.700	.480	3.393
	Equal variances not assumed			2.632	14.473	.019	1.937	.736	.363	3.510

Table 5

T-Test

Independent samples test

Question		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
q2.1.5	Equal variances assumed	.617	.441	2.205	21	.039	.960	.435	.055	1.866
	Equal variances not assumed			2.394	20.851	.026	.960	.401	.126	1.795

Table 6

T-Test

Independent samples test

Question		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	**Sig.**	**t**	**df**	**Sig. (2-tailed)**	**Mean Diffe-rence**	**Std. Error Diffe-rence**	**95% Confidence Interval of the Difference**		
									Lower	**Upper**	
q2.1.6	Equal variances assumed	7.545	.012	-.136	21	.893	-.040	.292	-.647	.568	
	Equal variances not assumed			-.160	18.466	.875	-.040	.248	-.559	.480	

Table 7

T-Test

Independent samples test

Question		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	**Sig.**	**t**	**df**	**Sig. (2-tailed)**	**Mean Diffe-rence**	**Std. Error Diffe-rence**	**95% Confidence Interval of the Difference**		
									Lower	**Upper**	
q2.2.1a	Equal variances assumed	.372	.548	.620	21	.542	.246	.397	-.579	1.071	
	Equal variances not assumed			.656	20.108	.519	.246	.375	-.536	1.028	
q2.2.1b	Equal variances assumed	.121	.731	-.331	21	.744	-.238	.719	-1.733	1.257	
	Equal variances not assumed			-.313	14.107	.759	-.238	.761	-1.868	1.392	

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
q2.2.1c	Equal variances assumed	3.464	.077	.552	21	.587	.381	.691	-1.055	1.817
	Equal variances not assumed			.505	12.544	.623	.381	.755	-1.256	2.018
q2.2.1d	Equal variances assumed	.571	.458	-.597	21	.557	-.357	.599	-1.602	.888
	Equal variances not assumed			-.624	19.627	.540	-.357	.572	-1.552	.837
q2.2.1e	Equal variances assumed	.212	.650	.230	21	.821	.103	.450	-.832	1.038
	Equal variances not assumed			.212	13.081	.835	.103	.486	-.945	1.152
q2.2.1f	Equal variances assumed	.026	.872	1.996	21	.059	1.143	.573	-.048	2.334
	Equal variances not assumed			2.059	18.938	.053	1.143	.555	-.019	2.305
q2.2.1g	Equal variances assumed	.551	.466	1.216	21	.237	.794	.653	-.563	2.151
	Equal variances not assumed			1.283	19.963	.214	.794	.619	-.497	2.085
q2.2.1h	Equal variances assumed	.068	.797	1.078	21	.293	.690	.641	-.642	2.023
	Equal variances not assumed			1.056	16.066	.306	.690	.654	-.695	2.076
q2.2.1i	Equal variances assumed	1.592	.221	.237	21	.815	.151	.636	-1.171	1.473
	Equal variances not assumed			.260	20.981	.797	.151	.579	-1.054	1.356
q2.2.1j	Equal variances assumed	.010	.920	.082	21	.935	.048	.581	-1.161	1.256
	Equal variances not assumed			.079	15.067	.938	.048	.604	-1.239	1.334
q2.2.1k	Equal variances assumed	4.061	.057	2.453	21	.023	1.333	.544	.203	2.464

Question		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
	Equal variances not assumed			2.239	12.456	.044	1.333	.596	.041	2.626
q2.2.11	Equal variances assumed	.003	.957	2.515	21	.020	1.254	.499	.217	2.291
	Equal variances not assumed			2.515	17.221	.022	1.254	.499	.203	2.305

Table 8

T-Test

Independent samples test

Question		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
q2.3.1a	Equal variances assumed	.048	.829	.150	21	.882	.056	.370	-.713	.824
	Equal variances not assumed			.141	13.716	.890	.056	.394	-.792	.903
q2.3.1b	Equal variances assumed	4.274	.052	.855	20	.403	.453	.530	-.652	1.558
	Equal variances not assumed			.938	19.613	.359	.453	.483	-.555	1.461
q2.3.1c	Equal variances assumed	9.432	.006	1.670	21	.110	1.008	.604	-.247	2.263
	Equal variances not assumed			1.915	20.107	.070	1.008	.526	-.089	2.105
q2.3.1d	Equal variances assumed	.105	.749	.174	21	.863	.056	.319	-.608	.719
	Equal variances not assumed			.176	17.788	.862	.056	.316	-.609	.720
q2.3.1e	Equal variances assumed	.519	.479	.084	21	.934	.048	.566	-1.129	1.225
	Equal variances not assumed			.092	20.914	.928	.048	.519	-1.033	1.128

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
q2.3.1f	Equal variances assumed	.933	.345	.375	21	.712	.095	.254	-.433	.624
	Equal variances not assumed			.397	20.125	.696	.095	.240	-.405	.596
q2.3.1g	Equal variances assumed	1.519	.231	.556	21	.584	.135	.243	-.370	.639
	Equal variances not assumed			.602	20.789	.554	.135	.224	-.332	.601
q2.3.1h	Equal variances assumed	1.008	.327	-.232	21	.819	-.095	.411	-.950	.759
	Equal variances not assumed			-.218	13.892	.831	-.095	.437	-1.033	.842
q2.3.1i	Equal variances assumed	.836	.371	.510	21	.616	.397	.779	-1.222	2.016
	Equal variances not assumed			.531	19.421	.601	.397	.747	-1.165	1.959
q2.3.1j	Equal variances assumed	1.755	.200	-.038	21	.970	-.016	.413	-.875	.844
	Equal variances not assumed			-.035	11.887	.973	-.016	.459	-1.017	.985
q2.3.1k	Equal variances assumed	29.371	.000	-.700	21	.491	-.540	.771	-2.142	1.063
	Equal variances not assumed			-.579	9.023	.577	-.540	.933	-2.648	1.569
q2.3.1l	Equal variances assumed	.056	.815	.612	21	.547	.357	.584	-.857	1.571
	Equal variances not assumed			.604	16.478	.554	.357	.591	-.894	1.608
q2.3.1m	Equal variances assumed	.100	.755	.832	21	.415	.476	.573	-.715	1.667
	Equal variances not assumed			.836	17.483	.415	.476	.570	-.724	1.676
q2.3.1n	Equal variances assumed	.051	.824	.970	21	.343	.619	.638	-.708	1.946
	Equal variances not assumed			.931	14.916	.367	.619	.665	-.799	2.037
q2.3.1o	Equal variances assumed	.	.	.	0	.	-1.000	.	.	.
	Equal variances not assumed			.	.	.	-1.000	.	.	.

Table 9

T-Test

Independent samples test

Question		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
q2.3.2a	Equal variances assumed	.527	.476	-.440	20	.665	-.321	.731	-1.847	1.204
	Equal variances not assumed			-.410	11.955	.689	-.321	.784	-2.030	1.387
q2.3.2b	Equal variances assumed	.394	.537	.035	21	.972	.024	.680	-1.391	1.438
	Equal variances not assumed			.036	18.395	.972	.024	.666	-1.373	1.421
q2.3.2c	Equal variances assumed	.142	.710	3.025	21	.006	1.444	.477	.452	2.437
	Equal variances not assumed			3.260	20.692	.004	1.444	.443	.522	2.367
q2.3.2d	Equal variances assumed	.163	.690	2.190	21	.040	1.524	.696	.077	2.971
	Equal variances not assumed			2.296	19.722	.033	1.524	.664	.138	2.909
q2.3.2e	Equal variances assumed	.279	.603	1.617	21	.121	1.079	.668	-.309	2.468
	Equal variances not assumed			1.681	19.323	.109	1.079	.642	-.263	2.422
q2.3.2f	Equal variances assumed	7.225	.014	1.888	21	.073	.603	.320	-.061	1.268
	Equal variances not assumed			2.248	17.705	.038	.603	.268	.039	1.168

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
q2.3.2g	Equal variances assumed	1.397	.250	-.551	21	.588	-.460	.836	-2.198	1.277
	Equal variances not assumed			-.520	14.013	.611	-.460	.886	-2.360	1.439
q2.3.2h	Equal variances assumed	.002	.967	1.238	21	.229	.659	.532	-.448	1.765
	Equal variances not assumed			1.206	15.732	.246	.659	.546	-.501	1.818
q2.3.2i	Equal variances assumed	.001	.974	-.503	21	.620	-.278	.552	-1.426	.870
	Equal variances not assumed			-.502	17.056	.622	-.278	.554	-1.445	.890
q2.3.2j	Equal variances assumed	.570	.459	.684	21	.502	.413	.604	-.843	1.668
	Equal variances not assumed			.639	13.572	.533	.413	.646	-.976	1.802
q2.3.2k	Equal variances assumed	5.159	.034	1.737	21	.097	1.341	.772	-.264	2.947
	Equal variances not assumed			1.937	20.936	.066	1.341	.692	-.099	2.781
q2.3.2l	Equal variances assumed	.036	.851	.339	21	.738	.198	.585	-1.019	1.416
	Equal variances not assumed			.342	17.776	.736	.198	.580	-1.021	1.417
q2.3.2m	Equal variances assumed	1.300	.267	.464	21	.647	.310	.667	-1.078	1.697
	Equal variances not assumed			.524	20.661	.606	.310	.590	-.919	1.539
q2.3.2n	Equal variances assumed	.044	.837	-.389	21	.701	-.246	.633	-1.563	1.070
	Equal variances not assumed			-.383	16.433	.706	-.246	.642	-1.604	1.112
q2.3.2o	Equal variances assumed	5.128	.034	1.008	21	.325	.706	.701	-.751	2.164

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
q2.3.2p	Equal variances not assumed			.893	11.233	.391	.706	.791	-1.030	2.443
	Equal variances assumed	3.892	.062	.529	21	.602	.421	.795	-1.233	2.075
q2.3.2q	Equal variances not assumed			.481	12.277	.639	.421	.875	-1.481	2.322
	Equal variances assumed	.520	.479	-.637	21	.531	-.532	.834	-2.267	1.204
	Equal variances not assumed			-.669	19.756	.511	-.532	.795	-2.192	1.128
q2.3.2r	Equal variances assumed	.121	.732	-.465	21	.647	-.278	.597	-1.520	.965
	Equal variances not assumed			-.455	15.962	.655	-.278	.611	-1.573	1.017
q2.3.2s	Equal variances assumed	8.251	.009	.893	21	.382	.659	.738	-.875	2.193
	Equal variances not assumed			.986	21.000	.335	.659	.668	-.731	2.048

Table 10

T-Test

Independent samples test

Question		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Diffe-rence	Std. Error Diffe-rence	95% Confidence Interval of the Difference	
									Lower	Upper
q2.3.4a	Equal variances assumed	.038	.848	.030	21	.976	.016	.525	-1.075	1.107
	Equal variances not assumed			.032	20.315	.975	.016	.493	-1.011	1.043
q2.3.4b	Equal variances assumed	8.316	.010	2.283	17	.036	2.386	1.045	.181	4.592
	Equal variances not assumed			2.104	10.515	.060	2.386	1.134	-.124	4.897
q2.3.4c	Equal variances assumed	.150	.703	-.228	19	.822	-.231	1.012	-2.348	1.887
	Equal variances not assumed			-.230	15.361	.821	-.231	1.003	-2.365	1.903
q2.3.4d	Equal variances assumed	13.283	.002	-2.048	20	.054	-1.446	.706	-2.920	.027
	Equal variances not assumed			-1.596	7.687	.151	-1.446	.906	-3.551	.659
q2.3.4e	Equal variances assumed	2.033	.169	-1.061	20	.301	-.846	.798	-2.510	.818
	Equal variances not assumed			-.988	13.042	.341	-.846	.856	-2.695	1.003
q2.3.4f	Equal variances assumed	.427	.521	-3.699	21	.001	-2.437	.659	-3.806	-1.067
	Equal variances not assumed			-3.680	16.917	.002	-2.437	.662	-3.834	-1.039

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
q2.3.4g	Equal variances assumed	.048	.828	.088	19	.930	.056	.628	-1.259	1.370
	Equal variances not assumed			.087	15.930	.932	.056	.641	-1.305	1.416
q2.3.4h	Equal variances assumed	.983	.333	1.162	21	.258	1.063	.915	-.840	2.967
	Equal variances not assumed			1.193	18.693	.248	1.063	.891	-.804	2.931
q2.3.4i	Equal variances assumed	.022	.884	-3.034	21	.006	-1.452	.479	-2.448	-.457
	Equal variances not assumed			-2.931	15.261	.010	-1.452	.496	-2.507	-.398
q2.3.4j	Equal variances assumed	.265	.612	-1.771	20	.092	-1.205	.680	-2.624	.214
	Equal variances not assumed			-1.687	14.334	.113	-1.205	.714	-2.734	.323
q2.3.4k	Equal variances assumed	.645	.431	1.697	20	.105	1.564	.921	-.358	3.486
	Equal variances not assumed			1.641	15.259	.121	1.564	.953	-.464	3.592
q2.3.4l	Equal variances assumed	.330	.572	1.247	20	.227	.966	.775	-.650	2.582
	Equal variances not assumed			1.285	18.985	.214	.966	.752	-.608	2.540
q2.3.4m	Equal variances assumed	.050	.825	.985	19	.337	1.029	1.044	-1.156	3.214
	Equal variances not assumed			.980	14.691	.343	1.029	1.050	-1.213	3.271
q2.3.4n	Equal variances assumed	5.128	.035	1.359	20	.189	1.161	.854	-.620	2.942
	Equal variances not assumed			1.633	19.559	.118	1.161	.711	-.324	2.646

Table 11

T-Test

Independent samples test

Question		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
q2.3.6a	Equal variances assumed	.450	.510	2.371	21	.027	1.468	.619	.181	2.756
	Equal variances not assumed			2.542	20.546	.019	1.468	.578	.265	2.671
q2.3.6b	Equal variances assumed	.225	.640	1.479	21	.154	.556	.376	-.225	1.336
	Equal variances not assumed			1.478	17.142	.158	.556	.376	-.237	1.348
q2.3.6c	Equal variances assumed	.771	.390	1.031	21	.314	.738	.716	-.750	2.226
	Equal variances not assumed			1.053	18.363	.306	.738	.701	-.733	2.209
q2.3.6d	Equal variances assumed	.220	.644	.789	21	.439	.516	.654	-.843	1.875
	Equal variances not assumed			.793	17.496	.438	.516	.650	-.853	1.885
q2.3.6e	Equal variances assumed	.647	.430	.255	21	.801	.175	.684	-1.247	1.596
	Equal variances not assumed			.269	19.956	.790	.175	.648	-1.178	1.527
q2.3.6f	Equal variances assumed	2.371	.139	1.214	21	.238	.476	.392	-.340	1.292
	Equal variances not assumed			1.118	12.889	.284	.476	.426	-.444	1.397
q2.3.6g	Equal variances assumed	3.341	.082	-.881	21	.388	-.452	.514	-1.521	.616

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
	Equal variances not assumed			-.802	12.374	.437	-.452	.564	-1.677	.772
q2.3.6h	Equal variances assumed	1.692	.207	1.168	21	.256	.960	.822	-.750	2.671
	Equal variances not assumed			1.220	19.554	.237	.960	.787	-.684	2.605
q2.3.6i	Equal variances assumed	.521	.479	1.339	21	.195	.913	.682	-.505	2.330
	Equal variances not assumed			1.420	20.189	.171	.913	.643	-.427	2.252
q2.3.6j	Equal variances assumed	4.240	.052	1.444	21	.164	.937	.649	-.413	2.286
	Equal variances not assumed			1.592	20.999	.126	.937	.588	-.287	2.160
q2.3.6k	Equal variances assumed	.224	.641	-.796	21	.435	-.317	.399	-1.147	.512
	Equal variances not assumed			-.758	14.546	.460	-.317	.419	-1.212	.577
q2.3.6l	Equal variances assumed	1.499	.234	.945	21	.355	.452	.479	-.543	1.448
	Equal variances not assumed			1.071	20.578	.297	.452	.422	-.427	1.332
q2.3.6m	Equal variances assumed	2.707	.115	.456	21	.653	.238	.523	-.849	1.325
	Equal variances not assumed			.418	12.736	.683	.238	.569	-.994	1.470
q2.3.6n	Equal variances assumed	.019	.893	-.935	21	.360	-.540	.577	-1.740	.661
	Equal variances not assumed			-.909	15.624	.377	-.540	.594	-1.800	.721

Table 12

T-Test

Independent samples test

Question		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Diffe-rence	Std. Error Diffe-rence	95% Confidence Interval of the Difference	
									Lower	Upper
q2.3.7a	Equal variances assumed	.554	.465	-.908	21	.374	-.516	.568	-1.698	.666
	Equal variances not assumed			-.958	19.998	.349	-.516	.538	-1.639	.607
q2.3.7b	Equal variances assumed	.192	.666	.000	21	1.000	.000	.373	-.776	.776
	Equal variances not assumed			.000	20.494	1.000	.000	.349	-.726	.726
q2.3.7c	Equal variances assumed	.014	.906	.417	21	.681	.278	.666	-1.108	1.663
	Equal variances not assumed			.409	16.103	.688	.278	.679	-1.162	1.717
q2.3.7d	Equal variances assumed	2.727	.114	1.545	21	.137	.905	.585	-.313	2.122
	Equal variances not assumed			1.428	13.014	.177	.905	.633	-.464	2.273
q2.3.7e	Equal variances assumed	.194	.664	2.534	21	.019	.873	.344	.157	1.589
	Equal variances not assumed			2.627	19.171	.017	.873	.332	.178	1.568
q2.3.7f	Equal variances assumed	1.262	.274	-.962	21	.347	-.611	.635	-1.932	.709
	Equal variances not assumed			-.914	14.361	.376	-.611	.669	-2.042	.820

									Lower	Upper
q2.3.7g	Equal variances assumed	1.101	.306	2.249	21	.035	1.183	.526	.089	2.276
	Equal variances not assumed			2.452	20.919	.023	1.183	.482	.179	2.186
q2.3.7h	Equal variances assumed	.239	.630	.315	21	.756	.143	.454	-.801	1.087
	Equal variances not assumed			.321	18.419	.751	.143	.444	-.789	1.075
q2.3.7i	Equal variances assumed	7.697	.011	.290	21	.775	.111	.383	-.686	.908
	Equal variances not assumed			.259	11.531	.800	.111	.429	-.828	1.050
q2.3.7j	Equal variances assumed	.011	.917	1.459	21	.159	.857	.588	-.365	2.079
	Equal variances not assumed			1.479	18.001	.156	.857	.579	-.360	2.074
q2.3.7k	Equal variances assumed	.498	.488	1.602	21	.124	.651	.406	-.194	1.496
	Equal variances not assumed			1.675	19.591	.110	.651	.389	-.161	1.462
q2.3.7l	Equal variances assumed	1.087	.309	.221	21	.827	.095	.432	-.802	.993
	Equal variances not assumed			.232	19.889	.819	.095	.410	-.760	.951
q2.3.7m	Equal variances assumed	1.043	.319	1.630	21	.118	.968	.594	-.267	2.204
	Equal variances not assumed			1.775	20.899	.091	.968	.546	-.167	2.103
q2.3.7n	Equal variances assumed	2.492	.129	.805	21	.430	.595	.740	-.943	2.133
	Equal variances not assumed			.859	20.419	.400	.595	.693	-.848	2.039

Table 13

T-Test

Independent samples test

Question		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Diffe-rence	Std. Error Diffe-rence	Lower	Upper
q2.3.9a	Equal variances assumed	.022	.884	-1.620	21	.120	-.897	.554	-2.048	.254
	Equal variances not assumed			-1.589	16.097	.132	-.897	.564	-2.093	.299
q2.3.9b	Equal variances assumed	.171	.684	1.060	21	.301	.571	.539	-.550	1.692
	Equal variances not assumed			1.072	17.822	.298	.571	.533	-.550	1.693
q2.3.9c	Equal variances assumed	.172	.682	.338	21	.739	.206	.611	-1.065	1.478
	Equal variances not assumed			.349	19.012	.731	.206	.592	-1.032	1.444
q2.3.9d	Equal variances assumed	1.598	.220	.924	21	.366	.532	.576	-.665	1.729
	Equal variances not assumed			.970	19.756	.344	.532	.548	-.613	1.677
q2.3.9e	Equal variances assumed	.200	.659	1.864	21	.076	.556	.298	-.064	1.175
	Equal variances not assumed			2.031	20.912	.055	.556	.274	-.013	1.125
q2.3.9f	Equal variances assumed	.326	.574	.799	21	.433	.333	.417	-.534	1.200
	Equal variances not assumed			.833	19.409	.415	.333	.400	-.503	1.170

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									Lower	Upper
q2.3.9g	Equal variances assumed	.881	.359	-.318	21	.754	-.135	.425	-1.019	.749
	Equal variances not assumed			-.283	11.412	.783	-.135	.477	-1.181	.911
q2.3.9h	Equal variances assumed	.934	.345	1.580	21	.129	.937	.593	-.296	2.169
	Equal variances not assumed			1.703	20.703	.103	.937	.550	-.208	2.081
q2.3.9i	Equal variances assumed	1.809	.193	2.425	21	.024	1.190	.491	.170	2.211
	Equal variances not assumed			2.761	20.417	.012	1.190	.431	.292	2.089
q2.3.9j	Equal variances assumed	2.582	.123	2.212	21	.038	1.286	.581	.077	2.494
	Equal variances not assumed			2.427	20.980	.024	1.286	.530	.184	2.387
q2.3.9k	Equal variances assumed	13.710	.001	-.419	21	.679	-.183	.435	-1.088	.723
	Equal variances not assumed			-.369	10.987	.719	-.183	.495	-1.272	.907
q2.3.9l	Equal variances assumed	.173	.682	-.172	21	.865	-.095	.555	-1.249	1.059
	Equal variances not assumed			-.175	18.382	.863	-.095	.544	-1.235	1.045
q2.3.9m	Equal variances assumed	1.122	.301	.701	21	.491	.444	.634	-.874	1.763
	Equal variances not assumed			.697	16.850	.495	.444	.638	-.902	1.791
q2.3.9n	Equal variances assumed	6.724	.017	1.622	21	.120	1.103	.680	-.312	2.518
	Equal variances not assumed			1.821	20.823	.083	1.103	.606	-.158	2.364

Table 14

T-Test

Question		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tail-ed)	Mean Diffe-rence	Std. Error Diffe-rence	Lower	Upper
q2.3.10a	Equal variances assumed	.012	.913	-.609	21	.549	-.468	.769	-2.068	1.132
	Equal variances not assumed			-.596	16.051	.559	-.468	.785	-2.133	1.196
q2.3.10b	Equal variances assumed	1.825	.191	-.332	21	.743	-.175	.525	-1.267	.918
	Equal variances not assumed			-.350	19.889	.730	-.175	.499	-1.216	.867
q2.3.10c	Equal variances assumed	1.271	.272	-3.066	21	.006	-1.667	.544	-2.797	-.536
	Equal variances not assumed			-3.307	20.719	.003	-1.667	.504	-2.716	-.618
q2.3.10d	Equal variances assumed	2.445	.133	-1.153	21	.262	-.683	.592	-1.914	.549
	Equal variances not assumed			-1.254	20.886	.224	-.683	.544	-1.815	.450
q2.3.10e	Equal variances assumed	.127	.725	.503	21	.620	.278	.552	-.870	1.426
	Equal variances not assumed			.502	17.056	.622	.278	.554	-.890	1.445

Table 15

T-Test

Independent samples test

Question		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
q2.4.1a	Equal variances assumed	3.458	.077	1.600	21	.125	.91270	.57045	-.27361	2.09901
	Equal variances not assumed			1.859	19.436	.078	.91270	.49106	-.11354	1.93894
q2.4.1b	Equal variances assumed	.582	.454	.725	21	.477	.42063	.58052	-.78662	1.62789
	Equal variances not assumed			.777	20.553	.446	.42063	.54151	-.70699	1.54826
q2.4.1c	Equal variances assumed	1.062	.315	.152	21	.880	.11905	.78203	-1.50727	1.74537
	Equal variances not assumed			.160	19.791	.875	.11905	.74462	-1.43526	1.67336
q2.4.1d	Equal variances assumed	.052	.822	.951	21	.352	.63492	.66757	-.75338	2.02322
	Equal variances not assumed			.951	17.201	.355	.63492	.66773	-.77261	2.04245
q2.4.1e	Equal variances assumed	3.179	.089	1.738	21	.097	1.46825	.84479	-.28858	3.22509
	Equal variances not assumed			1.855	20.416	.078	1.46825	.79150	-.18063	3.11713
q2.4.1f	Equal variances assumed	1.467	.239	.158	21	.876	.10317	.65427	-1.25745	1.46380
	Equal variances not assumed			.164	19.350	.871	.10317	.62894	-1.21160	1.41795
q2.4.1g	Equal variances assumed	.833	.372	.897	21	.380	.44444	.49530	-.58558	1.47447

Question		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
	Equal variances not assumed			.976	20.886	.340	.44444	.45530	-.50272	1.39161
q2.4.1h	Equal variances assumed	.910	.351	.977	21	.340	.53175	.54446	-.60052	1.66401
	Equal variances not assumed			1.007	18.908	.327	.53175	.52800	-.57374	1.63723
q2.4.1i	Equal variances assumed	.625	.438	1.681	21	.108	1.19048	.70829	-.28249	2.66344
	Equal variances not assumed			1.578	13.783	.137	1.19048	.75428	-.42969	2.81064
q2.4.1j	Equal variances assumed	.116	.737	1.014	21	.322	.73810	.72775	-.77533	2.25152
	Equal variances not assumed			1.008	16.859	.328	.73810	.73228	-.80787	2.28406
q2.4.1k	Equal variances assumed	.357	.556	.489	21	.630	.27778	.56754	-.90248	1.45804
	Equal variances not assumed			.507	19.105	.618	.27778	.54827	-.86935	1.42490

Table 16

T-Test

Independent samples test

Question		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
q2.4.2	Equal variances assumed	.028	.870	1.817	21	.084	.82540	.45432	-.11942	1.77021
	Equal variances not assumed			1.823	17.397	.086	.82540	.45287	-.12841	1.77921

Table 17

T-Test

Independent samples test

Question		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Diffe-rence	Std. Error Differ-ence	Lower	Upper
q2.4.3a	Equal variances assumed	2.799	.109	1.390	21	.179	.72222	.51956	-.35827	1.80271
	Equal variances not assumed			1.613	19.501	.123	.72222	.44775	-.21331	1.65775
q2.4.3b	Equal variances assumed	.812	.378	1.525	21	.142	.95238	.62443	-.34620	2.25096
	Equal variances not assumed			1.543	17.885	.140	.95238	.61707	-.34463	2.24940
q2.4.3c	Equal variances assumed	.138	.714	.537	21	.597	.36508	.68047	-1.05004	1.78020
	Equal variances not assumed			.530	16.569	.603	.36508	.68821	-1.08981	1.81997

CORRELATIONS

Group = Single-commodity firms

Correlations (b)

		2.3.9.a	2.3.9.b	2.3.9.c	2.3.9.d	2.3.9.e	2.3.9.f	2.3.9.g	2.3.9.h	2.3.9.I	2.3.9.j	2.3.9.k	2.3.9.L	2.3.9.m	2.3.9.n	2.3.9.o
2.3.7.a	Pearson Correlation	.394														
	Sig. (2-tailed)	.164														
	N	14														
2.3.7.b	Pearson Correlation		-.187													
	Sig. (2-tailed)		.522													
	N		14													
2.3.7.c	Pearson Correlation			.679(**)												
	Sig. (2-tailed)			.008												
	N			14												
2.3.7.d	Pearson Correlation				.682(**)											
	Sig. (2-tailed)				.007											
	N				14											
2.3.7.e	Pearson Correlation					.576(*)										

	Sig. (2-tailed)					.031								
	N					14								
2.3.7.f	Pearson Correlation						.331							
	Sig. (2-tailed)						.248							
	N						14							
2.3.7.g	Pearson Correlation							.623(*)						
	Sig. (2-tailed)							.017						
	N							14						
2.3.7.h	Pearson Correlation								-.156					
	Sig. (2-tailed)								.595					
	N								14					
2.3.7.I	Pearson Correlation									-.335				
	Sig. (2-tailed)									.241				
	N									14				
2.3.7.j	Pearson Correlation										-.051			
	Sig. (2-tailed)										.863			
	N										14			
2.3.7.k	Pearson Correlation											.563(*)		
	Sig. (2-tailed)											.036		
	N											14		
2.3.7.l	Pearson Correlation												.346	

	Sig. (2-tailed)												.226		
	N												14		
2.3.7.m	Pearson Correlation													.638(*)	
	Sig. (2-tailed)													.014	
	N													14	
2.3.7.n	arso Correlation														.706(**)
	Sig. (2-tailed)														.005
	N														14

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).
a Cannot be computed because at least one of the variables is constant.
b Group = Single-commodity firms

Group = Diversified firms

Correlations (b)

		2.3.9.a	2.3.9.b	2.3.9.c	2.3.9.d	2.3.9.e	2.3.9.f	2.3.9.g	2.3.9.h	2.3.9.I	2.3.9.j	2.3.9.k	2.3.9.L	2.3.9.m	2.3.9.n	2.3.9.o
2.3.7.a	Pearson Correlation	.045														
	Sig. (2-tailed)	.908														
	N	9														
2.3.7.b	Pearson Correlation		.000													
	Sig. (2-tailed)		1.000													
	N		9													
2.3.7.c	Pearson Correlation			.325												
	Sig. (2-tailed)			.393												
	N			9												
2.3.7.d	Pearson Correlation				.022											
	Sig. (2-tailed)				.956											
	N				9											
2.3.7.e	Pearson Correlation					.580										
	Sig. (2-tailed)					.101										
	N					9										
2.3.7.f	Pearson Correlation						.028									
	Sig. (2-tailed)						.942									
	N						9									
2.3.7.g	Pearson Correlation							.701(*)								
	Sig. (2-tailed)							.035								
	N							9								

2.3.7.h	Pearson Correlation									-.801(**)						
	Sig. (2-tailed)									.010						
	N									9						
2.3.7.I	Pearson Correlation										-.808(**)					
	Sig. (2-tailed)										.008					
	N										9					
2.3.7.j	Pearson Correlation											-.567				
	Sig. (2-tailed)											.111				
	N											9				
2.3.7.k	Pearson Correlation												.024			
	Sig. (2-tailed)												.950			
	N												9			
2.3.7.l	Pearson Correlation													.000		
	Sig. (2-tailed)													1.000		
	N													9		
2.3.7.m	Pearson Correlation														-.349	
	Sig. (2-tailed)														.357	
	N														9	
2.3.7.n	Pearson Correlation															-.280
	Sig. (2-tailed)															.466
	N															9

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

a Cannot be computed because at least one of the variables is constant.

b Group = Diversified firms

The DACSOMEF competitive analysis segment

Dynamic competitive environment		
Step	**What**	**How**
Step D1	Map the competitive force's remote competitive environment	▪ Conduct a global and domestic PESTE analysis from the perspective of the competitive force being analysed, focusing on the following: ✓ Political scenario ✓ Economical scenario ✓ Social scenario ✓ Technological scenario ✓ Ecological scenario ▪ Determine the potential impact of changes in the competitive force's PESTE environment on its future strategic intent
Step D2	Map the competitive force's industry environment	▪ Conduct a five forces' analysis from the perspective of the competitive force being analysed, focusing upon the following: ✓ Suppliers ✓ New entrants ✓ Industry competitors ✓ Buyers ✓ Substitutes • Determine the potential impact of changes in the competitive force's industry environment on its future strategic intent

Dynamic competitive environment		
Step	What	How

Step D3	Analyse the competitive force on the macro level	▪ Determine the critical success factors (CSFs) of the competitive force, which have an overriding influence on its current and future strategies
		
		▪ Critical success factors usually revolve around one of the firm's most significant business initiatives and have their origins in four major areas:
		  ✓ Macroenvironmental characteristics (ie political, technological environment may determine CSFs
		  ✓ Industry characteristics (ie cost control, design, distribution capabilities)
		  ✓ Competitive position (ie a firm's position vis-à-vis its rivals
		  ✓ Firm specific factors
		
		▪ Determine the potential impact of changes in the competitive force's critical success factors could be on its future strategic intent

Assets		
Step	**What**	**How**

Step A1	Analyse the competitive force on the micro level with regard to its marketplace initiatives	▪ Determine the competitive force's marketplace initiatives
		  ✓ In what product-customer segments is the competitive force involved?
		  ✓ What does the competitive force's product mix look like?
		  ✓ Where does the competitive force lie on the various products' cost curve?
		  ✓ What price policy does the competitive force follow?
		  ✓ What market share does the competitive force have in the market segments in which it is involved?
		  ✓ What key accounts does it have and how has it evolved over time?
		  ✓ How does it compete or wish to compete in these marketplace segments?
		  ✓ What is the purpose of being in these segments?
		
		▪ Determine the influence of the competitive force's market intentions and changes in its market intentions on its current and future competitive strategy

Step A2	Analyse the competitive force on the micro level with regard to its assets and operational initiatives	▪ Describe a competitive force's tangible assets in the context of the following:
		  ✓ Operations/operational units per commodity/product group
		  ✓ Annual production per commodity/commodity/operational unit
		  ✓ Cost analysis of various operations
		  ✓ Reserves per commodity (if a mining firm)
		  ✓ Configuration of tangible assets
		  ✓ Stocks and flows of products
		  ✓ Logistics
		  ✓ Exploration initiatives per commodity (if a mining firm)
		  ✓ Planned expansion per commodity/operational unit
		
		▪ Understand a competitive force's tangible assets in the context of certain attributes:
		  ✓ Availability
		  ✓ Specificity (location, time, space)
		  ✓ Sustainability of production
		  ✓ Replicability (uniqueness of assets)
		  ✓ Substitutability of assets

		▪ Determine the importance of a competitive force's assets in context of its total production, profitability and marketplace scope ▪ Identify any asset changes that may occur ▪ Determine the influence of the competitive force's assets and its asset changes on its current and future competitive strategy

Step A3	Analyse the competitive force on the micro level with regard to its financial status	▪ Conduct a Du Pont financial analysis
		▪ Determine the following financial ratios of the competitive force:
		  ✓ Activity/efficiency ratios
		  ✓ Long-term solvency ratios
		  ✓ Liquidity ratios
		  ✓ Profitability ratios
		  ✓ Market value ratios
		
		▪ Determine what the potential impact of its financial state could be on the future strategic intent

Capabilities and competencies		
Step	**What**	**How**
Step C1	Analyse the competitive force on the micro level with regard to its capabilities and competencies	▪ Determine the sources of a competitive force's capabilities and competencies in the context of the following: ✓ Capabilities: the ability to utilise and transform assets into goods and services ✓ Competencies: the means by which a competitive force deploys resources in a characteristic manner as a source of competitive advantage ▪ Evaluate a competitive force's competencies and capabilities according to the VRIO framework: ✓ Value ✓ Rareness ✓ Imitability (degree to which they are imitable) ✓ Orientation ▪ Determine the competitive force's most critical capabilities and competencies ▪ Monitor and project any changes in capabilities and competencies ▪ Determine how existing and projected capabilities and competencies affect future strategic intent
Step C2	Analyse the competitive force on the micro level with regard to its approach to technology	▪ Determine a competitive force's technology strategy ▪ Determine a competitive force's technology assets ▪ Determine a competitive force's technology capabilities and competencies ▪ Identify a competitive force's application of technology along its activity/value chain ▪ Determine the influence of the competitive force's view and its application of technology on future strategies ▪ Determine any technology changes that may occur along the

		competitive force's value chain and the potential impact on its future strategies
Strategy		
Step	**What**	**How**

Step S1	Determine how the competitive force is competing within the competitive environment?	▪ Determine the competitive force's long-term objectives for regards the following:
		  ✓ Operations
		  ✓ Finance
		  ✓ Marketing
		  ✓ Growth prospects
		
		▪ Evaluate current performance against long-term objectives, in respect of the following:
		  ✓ Is performance meeting objectives?
		  ✓ Is the competitive force satisfied with its current position?
		  ✓ How are its objectives likely to change?
		
		▪ Identify the competitive force's current strategies:
		  ✓ What are the competitive force's intended strategies?
		  ✓ What are the competitive force's realised strategies?
		
		▪ Determine what strategic shifts are the competitive force is likely to make with regard to the future?
		
		▪ Determine where the competitive force is vulnerable?
		
		▪ Determine how the competitive force will probably react to a proposed strategy change by the home firm?

Step	What	How
Step S2	Analyse the competitive force on the micro level with regard to its marketplace strategy	▪ Based upon the answers to the questions in Step A1, determine the competitive force's current and future market place strategy according to the following figure: **Scope:** To whom is the competitive force selling and why do they buy its products? **Posture:** How does the competitive force compete in the market place (from its own perspective)? **Goals:** What does the competitive force strive to achieve?

Step	What	How
Step S3	Conduct an analysis of the application of strategic funds with regard to the competitive force's growth projects	- Based upon the Du Pont analysis in Step A3, separate the competitive force's strategic funds from its operational maintenance - Determine its strategic opportunities - Rank the strategic opportunities according to merit, based upon the following: ✓ Forecast cost/benefits ✓ Strategic fit ✓ Risk profile ✓ Practical considerations of the funding pattern - Determine the optimal strategic proposals for the competitive force - Monitor its behaviour in the application of its strategic funds
Organisational structure and culture	
Step	**What**	**How**
Step O1	Evaluate the competitive force's organisational infrastructure	- Understand the competitive force's organisational infrastructure in context of the following: ✓ Structure; ✓ Systems (flow of information, resources, reward, motivation and control) ✓ People ✓ Decision making processes (eg formal, hierarchical, bureaucratic, authoritarian) ✓ Dynamics - Monitor, identify and assess infrastructure changes - Determine the influence of infrastructure changes on the competitive force's future strategic intent

Step O2	Evaluate the competitive force's organisational culture:	• Determine the behaviours, norms, beliefs and values of a competitive force
		
		• Determine a competitive force's culture in context of the following:
		   ✓ Integration
		   ✓ Embeddedness
		   ✓ Alignment
		   ✓ Durability
		   ✓ Adaptability
		
		• Monitor, identify and assess changes to the above-mentioned
		
		• Determine the influence of cultural changes on the competitive force's future strategy

Step O3	Evaluate the competitive force's organisational assumptions	• Determine the competitive force's assumptions about its competitive environment and its own organization
		
		• Evaluate its assumptions according to the following attributes:
		   ✓ Validity
		   ✓ Breadth
		   ✓ Consistency
		   ✓ Dispersion
		   ✓ Endurance
		
		• Monitor, identify and assess changes in organisational assumptions
		
		• Determine the influence of changes in assumptions on the competitive force's future marketplace strategy

Management mindset		
Step	**What**	**How**
Step M1	Assess the competitive force's corporate mindset	▪ Determine the degree of globality evident in the competitive force's corporate mindset in the context of the following: ✓ Is the competitive force an industry leader in discovering and pursuing opportunities in all corners of the world? ✓ Does the competitive force regard every customer anywhere in the world as an important customer in its domestic market? ✓ Does the competitive force draw its employees from the worldwide talent pool? ✓ Do employees of every nationality have the same opportunity to move up the career ladder all the way to the top? ✓ In scanning the horizon for potential competitive threats, does the competitive force examine all economic regions of the world? ✓ In selecting a location for any activity, does the competitive force seek to optimise the choice on a truly global basis? ✓ Does the competitive force view the global arena as a school and not as a playground? ✓ Does the competitive force have a universal global identity or a strong national identity ▪ Determine the influence of the competitive force's corporate mindset on its future strategic intent

Step	What	How
Step M2	Conduct competitive behavioural profiling on the competitive force's key decision-makers	▪ Identify key individuals in a competitive force ▪ Identify those individuals who influence and make the competitive force's major decisions ▪ Determine most suitable secondary and primary sources of information on key individuals ✓ Identify direct and indirect data with regard to the specific target individuals o Direct data – data based upon the personality, experience, etc, of the subjects o Indirect data – data that concern matters others than the personality of the subjects, but which can be analysed to shed some light on the subject ▪ Conduct field research on particular subjects ✓ Contact as many people as possible, in a structured manner ▪ Conduct a remote psychological assessment on the subjects (according to the MBTI) ✓ Determine the following on subject individuals: o Extraversion/Introversion o Sensing/Intuition o Thinking/Feeling o Judging/Perceiving ✓ Establish a profile type of the target individuals ✓ Determine key characteristics of target individuals with regard to the negotiation approach, conflict handling, future orientation ▪ Determine what every key individual may decide to do in a particular set of circumstances ▪ Determine the influence of such decisions on the future intent of the competitive force

Step	What	How
Step M3	Determine the group dynamics of the key decision-makers of the competitive force	• Identify a competitive force's true decision makers • Collect individual profiles on these decision makers • Determine how information is processed in group context (selected and interpreted) • Determine how decisions are made in group context (formally and informally) • Map and evaluate influence of each decision-maker • Determine likely decision process for the particular decision by the competitive force • Determine the influence of such decisions on the future intent of the competitive force
Environmental relationships		
Step	What	How
Step E1	Evaluate the competitive force's stakeholders	• Identify the relevant stakeholders at corporate level and around all the competitive force's global operations. These could include the following: ✓ Shareholders ✓ Labour unions ✓ Communities ✓ Regulatory bodies ✓ Environmental and other influential lobby groups ✓ Press ✓ Financial analysts • Determine the influence of changes in the activities and attitude of the competitive force's stakeholders on its future strategic intentions

Step E2	Evaluate the competitive force's activity/value chain	▪ Identify the relevant units in the competitive force's activity/value chain
		▪ Evaluate its activity/value chain in the context of: ✓ External connectedness and the degree of integration by way of information technology, logistical management, procurement and personnel exchanges ✓ Internal connectedness ✓ Uniqueness of the connectedness ✓ Value-adding capability
		▪ Monitor, identify and assess changes in the competitive force's activity/value chain
		▪ Determine the influence of changes in the activity/value chain on the competitive force's future strategic intent
Step E3	Evaluate the competitive force's alliances and special relationships	▪ Identify and evaluate the competitive force's alliances (formal economic relationships) and special relationships (informal) in the context of the following: ✓ Direction ✓ Mutuality of interest ✓ Commitment ✓ Contribution ✓ Evolution
		▪ Monitor, identify and assess changes in alliances and special relationships with regard to the competitive force in the context of: ✓ Bonds (what bonds it together?) ✓ Origin ✓ Goals ✓ Key individuals involved ✓ Exclusivity
		▪ Monitor, identify and assess changes in alliances and special relationships
		Determine the influence of changes in the alliances and special relationships on the competitive force's future strategic intent

Step	What	How
Step E4	Evaluate the competitive force's formal and informal networks	▪ Identify and evaluate the different types of networks that the competitive force has (vertical, technology, development, marketing, operational, ownership and political) ▪ Evaluate a competitive force's networks with regard to the following: ✓ Structure ✓ Leadership ✓ Purpose ✓ Stability ▪ Plot the competitive force's most important networks ▪ Monitor, identify and assess changes in the competitive force's formal and informal networks ▪ Determine the influence of changes in its networks on the competitive force's future strategic intentions
Future intent		
Step F1	Determine the competitive force's future intent with regard to the different DACSOMEF-analytical categories	▪ Dynamic competitive environment ▪ Assets ▪ Competencies and capabilities ▪ Strategy ▪ Organisational structure and culture ▪ Management mindset ▪ Environmental relationships ▪ Future (combination of the previous seven categories)
Step F2	Draw conclusions about the findings in step F1 and the particular key intelligence topic	▪ From the DACSOMEF analytical categories, indicate what might be expected from the competitive force with regard to its future strategic intent and its potential influence on the home firm

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