

**AN INTEGRATED FRAMEWORK TO IMPROVE
THE ENTREPRENEURIAL CLIMATE
IN THE SOUTH AFRICAN MINING INDUSTRY**

by

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OPSOMMING

'N GEINTEGREERDE RAAMWERK OM DIE ENTREPRENEURIES KLIMAAT IN DIE SUID AFRIKAANSE MYNBOU INDUSTRIE TE VERBETER

Wanneer die suksesse en mislukkings van maatskappye ondersoek word, is dit duidelik dat prestasie oor die langtermyn afhang van die vermoë om te innoveer en leiding in die industrie te neem. Entrepreneuriese maatskappye herontdek hulself en stof hulle mededingers uit, en diegene wat 'n kultuur van innovasie en verandering kan volhou, bly ontwikkel en groei. Terselfdertyd word die sake-omgewing meer kompleks, uitdagend en onstuimig. Vir bestuur is die vraag: "Hoe kan ons strategies én entrepreneuries wees in 'n omgewing van onvoorspelbare verandering?"

Een ding is seker – organisasies kan nie staatmaak op die strategieë wat hulle in die verlede gebruik het nie. 'n Nuwe tipe leierskap – **entrepreneuriese leierskap** – is nodig wat buigbaarheid, verandering, innovasie en reaksie-gerigtheid beklemtoon. Verder, in 'n onstuimige sake-omgewing, hang oorlewing van nuwe benaderings tot strategie af. Organisasies moet hulle waardekettings bestuur om winsgewendheid te maksimeer. Hulle moet hulle kern-bevoegdhede eksploiteer, en mededingers verstaan om hulself vir mededingende voordeel in die markplek te posisioneer.

Soos die wêreld dieper die kennis-gebaseerde, post-industriële ekonomie inbeweeg, word die rol van innovasie en entrepreneurskap toenemend belangrik. Dit is veral waar van 'n relatief klein ekonomie soos Suid-Afrika. Om minder op die aflandige ekonomie staat te maak, is Suid-Afrika afhanklik van die skepping van nuwe produkte en dienste, en om dit vinnig en effektief na die internasionale markplek te bring. Om dit te bereik moet Suid-Afrika 'n hoër mate van innovasie en skepping van nuwe ondernemings in sy interne ekonomiese sektor bereik. Om kompetend op die wêreldmark te wees het Suid-Afrika voortreflike tegnologie, meer besitterskap produkte en dienste, en beter prosesse nodig. Suid-Afrika moet sy spoed en koste-effektiwiteit van innovasie verhoog om sy mededingers se toenemende sofistikasie in die kapitalisering van geleenthede te ewenaar.

As een van die belangrikste bydraers tot die groei en ontwikkeling van die ekonomie, is dit vanselfsprekend dat dit ook van toepassing op die Suid-Afrikaanse mynwese. Volgens die Kamer van Mynwese se jaarverslag (2005:14), was die sektor verantwoordelik vir onder andere die volgende:

- 6.6 persent van bruto nasionale produk (BNP) in 2004.
- 9.9 persent van totale investering in die ekonomie.
- 35.35 persent (R534-biljoen) van die mark kapitalisasie van die JSE vir 2004.
- R90.3-biljoen uitvoere (29.3 persent van Suid-Afrika se totale produk uitvoere).
- Gemiddeld byna 500 000 werkers in diens gehad.
- R34.3-biljoen aan lone en voordele aan werkers uitbetaal.
- R6.9-biljoen and direkte belasting en R4.1-biljoen aan ander belastings uitbetaal.
- Beduidende hoeveelheid van die vraag en aanbod van energie in Suid-Afrika.
- Beduidende infrastruktuur ontwikkeling.
- Dikwels die enigste voorsiener van sekere sosiale infrastrukture, insluitende klinieke, skole en sosiale fasiliteite.

Nieteenstaande dié indrukwekkende bydra, het die industrie bepaald groot uitdagings wat hom in die gesig staar. Die mees fundamentele uitdaging van die bedryf is die produktiwiteit van arbeid en kapitaal, en die impak daarvan op die koste van mynbou en herwinning van minerale. Verdere uitdagings is die wispelturigheid van die Rand, die negatiewe invloed van stygende insetkoste op die sektor, en die logistieke hindernisse wat uitvoer volumes beïnvloed.

Die bydrae van die industrie tot Suid-Afrika se BNP dui ook 'n afname oor die afgelope dekade wanneer die statistieke van die industrie onder oë geneem word. Dan is daar verder die erts-liggame wat aan beide fisiese en ekonomiese afname onderworpe is as gevolg van deurlopende herwinning.

Hoe behoort Suid-Afrika se mynbou maatskappye hierdie uitdagings aan te spreek, en wat moet hulle doen om mededingend te bly? Volgens die Kamer van Mynwese moet die industrie fokus op produktiwiteit en koste neigings om mededingend te bly, veral met vele lae-koste opkomende wêreld produsente in ag genome. Vir die industrie om

mededingend te bly, moet dit ook voorsien word van 'n operasionele en beleggingsomgewing wat hom nie benadeel in verhouding tot ander mynboulande nie.

Die outeur se tesis is dat Suid-Afrika se mynbou industrie sy innovasie vermoë moet opgradeer, en daarom is dit belangrik dat mynbou korporasies meer entrepreneuries word te midde daarvan dat mynmaatskappye oor die algemeen as burokratiese en onvriendelik jeens kreatiwiteit en innovasie beskou word.

Om dit te doen moet mynmaatskappye die kreatiewe mag van hulle lede benut. Idees kom van mense en innovasie is 'n bekwaamheid van die menigte. Daardie kwaliteit word aangewend wanneer mense hulleself verbind tot die missie van die onderneming en die mag het om iets met hulle bekwaamhede te doen. Dit is dus redelik om te verwag dat 'n oorvloed idees met hoë potensiaal ongemerk verbygaan omdat daar sommige strukturele hindernisse tot hul realisering is, of geen aansporing bestaan vir werknemers om sulke idees na vore te bring nie.

Entrepreneurskap word beskou as een van die hoof drywers van verandering wat in die wêreld ekonomie funksioneer – dit mobiliseer innovasie, mededinging, werkskepping en groei. Dit word selfs beskou as die enkel grootste stukrag vir skepping van ekonomiese en sosiale mobiliteit, en bewyse neem toe dat die nasionale vlak van entrepreneuriese aktiwiteit statisties beduidende verband het met vlakke van ekonomiese groei.

In terme van bogenoemde is die vraag dus: "Is die klimaat in Suid-Afrika se mynbou industrie bevorderlik om entrepreneuriese gedrag en aktiwiteit te fasiliteer?"

Korporatiewe entrepreneurskap is 'n term wat gebruik word om entrepreneuriese gedrag in gevestigde organisasies te beskryf, en die doel daarvan is om mededingende voordeel te verkry deur innovasie op alle vlakke van die onderneming aan te moedig. Dit bestaan uit vyf noodsaaklike dimensies naamlik innovasie, proaktiwiteit, risiko-neming, mededingende aggressiwiteit, en outonomie.

Daar word vier tipes korporatiewe entrepreneurskap voorgestel naamlik korporatiewe waagstuk, intrapreneurskap, organisasie transformasie, en industrie reël-buiging. Dit

is bepaald ook aan 'n proses onderworpe wat begin met die identifisering en evaluering van die geleentheid, gevolg deur ontwikkeling van 'n sakeplan, die bepaling van die bronne wat benodig word, en laastens die bestuur van die onderneming/projek.

Dit word algemeen aanvaar dat leierskap die primêre stukrag agter suksesvolle verandering is, en is daarom nodig om transformasie inisiatiewe in organisasies en individue te beïnvloed en te vestig. Maar, die uitdagings in 'n snelveranderende wêreld (ekonomies, sosiaal, polities) vereis leierskap wat dink, redeneer en optree op maniere wat geleentheidsgedrewe en holisties in benadering is om die status quo op kreatiewe wyse te vernietig.

Die hoofdoelwit van hierdie studie is gevolglik om 'n geïntegreerde raamwerk te ontwikkel vir die skepping van 'n klimaat wat bevorderlik is vir entrepreneurskap in die Suid-Afrikaanse mynwese. Sekondêre doelwitte ter ondersteuning van die hoofdoelwit is verder om:

- Begrip te kry van die entrepreneuriese fenomeen en hoe dit toegepas word tot die korporatiewe omgewing.
- Die huidige entrepreneuriese klimaat in Suid-Afrika se mynwese te bepaal.
- Die opinies en ervarings van leiers in die mynwese in te win betreffende entrepreneurskap in 'n korporatiewe setting.
- Begrip te kry oor die impak van leierskap in die skepping van 'n klimaat bevorderlik entrepreneuriese aktiwiteit in 'n maatskappy.
- Die sterk punte, swak punte, geleenthede en bedreigings in terme van die ontwikkeling van korporatiewe entrepreneurskap in Suid Afrikaanse mynwese te bepaal.
- Die voortspruitende literatuur en empiriese data toe te pas om aanbevelings voor te stel vir praktiese toepassing om die entrepreneuriese klimaat in mynbou maatskappye te bevorder.

Die empiriese navorsing bestaan uit 'n kwalitatiewe komponent wat onderhoude met hoof uitvoerende beamptes van vyf mynmaatskappye insluit, sowel as 'n kwantitatiewe

komponent wat deur middel van vraelyste aan middelvlakbestuur streef om die huidige entrepreneurs klimaat in die mynwese bepaal.

Die resultate van die navorsing toon dat top leiers dit eens is dat korporatiewe entrepreneurskap wel 'n teenmiddel vir stagnasie en gebrek aan groei kan wees, alhoewel dit nie maklik toegepas kan word in 'n omgewing van toenemende staatsinmenging en regulatoriese druk nie.

Verder het die navorsing aan die lig gebring dat die huidige klimaat in mynmaatskappye nie optimaal bevorderlik is vir entrepreneurse gedrag en aktiwiteit om te manifesteer nie.

Voortspruitend word 'n geïntegreerde raamwerk vir korporatiewe entrepreneurskap in die mynwese voorgestel om 'n klimaat bevorderlik vir entrepreneurskap te verbeter.

TABLE OF CONTENTS

CHAPTER 1: NATURE AND SCOPE OF STUDY

1.1 INTRODUCTION	1
1.2 BACKGROUND TO THE STUDY	3
1.3 PROBLEM STATEMENT	7
1.4 GOAL OF STUDY	8
1.4.1 Main objective	8
1.4.2 Sub-objectives	8
1.5 SCOPE OF STUDY	9
1.5.1 Field of study	9
1.5.2 Industry demarcation	9
1.5.3 Geographical demarcation	9
1.6 RESEARCH APPROACH	9
1.6.1 Defining research	10
1.6.2 Quantitative and qualitative methodology as research traditions	11
1.6.3 The mixed approach	12
1.7 THE RESEARCH PROCESS	12
1.7.1 Phase 1: Problem definition	13
1.7.2 Phase 2: Literature review	14
1.7.3 Phase 3: Selection of research design, subjects and data collection technique(s)	16
1.7.4 Phase 4: Data gathering	19
1.7.5 Phase 5: Data processing and analysis	28
1.7.6 Phase 6: Implications, conclusions and recommendations	35
1.8 LIMITATIONS OF THE STUDY	37
1.9 LAYOUT OF STUDY	38

CHAPTER 2: ENTREPRENEURSHIP: LITERATURE OVERVIEW

2.1 INTRODUCTION	40
2.2 DEFINING ENTREPRENEURSHIP	41

2.3	DEFINING ENTREPRENEUR	46
2.4	BRINING THE DEFINITIONS OF “ENTREPRENEURSHIP” AND “ENTREPRENEUR” TOGETHER	49
2.5	THE MYTHS OF ENTREPRENEURSHIP	53
2.5.1	Entrepreneurs are born, not made	53
2.5.2	Entrepreneurs are always inventors	53
2.5.3	Entrepreneurs have a specific profile	53
2.5.4	All you need is luck to be an entrepreneur	53
2.5.5	Anyone can be an entrepreneur	54
2.5.6	All an entrepreneur needs is a good idea	54
2.5.7	Entrepreneurs are extreme risk-takers and gamblers	54
2.5.8	Entrepreneurs are academic and social misfits	54
2.5.9	All entrepreneurs need is money	55
2.5.10	Ignorance is bliss for entrepreneurs	55
2.5.11	Entrepreneurs have high failure rates	55
2.5.12	Entrepreneurs are “lone wolfs”	56
2.5.13	Entrepreneurs are unstructured and chaotic	56
2.5.14	Conclusion	56
2.6	THE CHARACTERISTICS OF AN ENTREPRENEUR	56
2.6.1	Desire and passion	57
2.6.2	Commitment, determination and perseverance	57
2.6.3	Need to achieve	58
2.6.4	Internal locus of control	58
2.6.5	Initiative	58
2.6.6	Opportunity driven	59
2.6.7	Energy	59
2.6.8	Creativity and innovativeness	59
2.6.9	Tolerance for ambiguity	60
2.6.10	Tolerance for failure	60
2.6.11	Responsibility	60
2.6.12	Problem solving	60
2.6.13	Calculated risk taking	61
2.6.14	Self-confidence	61

2.6.15 Self-discipline	61
2.6.16 Vision	62
2.6.17 Team builder	62
2.6.18 Integrity	62
2.7 THE ENTREPRENEURIAL PROCESS	62
2.7.1 Identify and evaluate the opportunity	65
2.7.2 Develop a business plan	66
2.7.3 Determine the resources required	67
2.7.4 Manage the enterprise	68
2.7.5 Concluding remarks	68
2.8 ENTREPRENEURSHIP AS DRIVER IN THE ECONOMY	69
2.9 ENTREPRENEURSHIP IN A CORPORATE SETTING	69
2.10 SUMMARY	71

CHAPTER 3: CORPORATE ENTREPRENEURSHIP: LITERATURE OVERVIEW

3.1 INTRODUCTION	74
3.2 DEFINING CORPORATE ENTREPRENEURSHIP	76
3.3 DIMENSIONS OF CORPORATE ENTREPRENEURSHIP	80
3.3.1 Innovativeness	81
3.3.2 Risk-taking	82
3.3.3 Proactiveness	83
3.3.4 Competitive aggressiveness	84
3.3.5 Autonomy	84
3.4 TYPES OF CORPORATE ENTREPRENEURSHIP	86
3.4.1 Corporate venturing	87
3.4.2 Intrapreneuring	88
3.4.3 Organisation transformation	89
3.4.4 Industry rule-bending	89
3.4.5 Similarities in the four types	90
3.5 THE ENTREPRENEURIAL PROCESS	91
3.5.1 Identify and evaluate the opportunity	93
3.5.2 Developing a business plan	94

3.5.3 Determine the resources required	95
3.5.4 Manage the enterprise	97
3.6 SUMMARY	98

CHAPTER 4: ENTREPRENEURIAL LEADERSHIP: LITERATURE OVERVIEW

4.1 INTRODUCTION	101
4.2 DEFINITION OF LEADERSHIP	102
4.3 LEADING VERSUS MANAGING	104
4.4 DEFINITION OF ENTREPRENEURIAL LEADERSHIP	108
4.5 ENTREPRENEURIAL LEADERSHIP CHARACTERISTICS	111
4.6 SUMMARY	118

CHAPTER 5: ENTREPRENEURIAL CLIMATE IN ESTABLISHED ORGANISATIONS: LITERATURE OVERVIEW

5.1 INTRODUCTION	121
5.2 ORGANISATIONAL CLIMATE DEFINED	123
5.3 ESTABLISHING A CLIMATE FOR ENTREPRENEURSHIP	126
5.4 CHARACTERISTICS OF AN ENTREPRENEURIAL CLIMATE	130
5.4.1 Entrepreneurial leadership	133
5.4.2 Management support	134
5.4.3 Sponsors	135
5.4.4 Tolerance for risks, mistakes and failure	136
5.4.5 Innovation and creativity – new ideas encouraged	136
5.4.6 Appropriate rewards and reinforcement	138
5.4.7 Vision and strategic intent	139
5.4.8 Discretionary time and work	140
5.4.9 Empowered, multi-disciplined, diverse teams	141
5.4.10 Resource availability and accessibility	142
5.4.11 Continuous and cross-functional learning	143
5.4.12 Strong customer orientation	144
5.4.13 Flat organisational structure with open communication	146

5.5 SUMMARY	147
 CHAPTER 6: AN OVERVIEW OF THE SOUTH AFRICAN MINING INDUSTRY	
6.1 INTRODUCTION	149
6.2 OVERVIEW OF GOLD MINING IN SOUTH AFRICA	151
6.2.1 Brief historical overview	151
6.2.2 The miners of South Africa's gold	152
6.2.3 How gold is mined in South Africa	152
6.2.4 The marketing of South African gold	153
6.2.5 The importance of gold to South Africa's economy	154
6.2.6 Gold mining's contribution to foreign exchange	155
6.2.7 Gold mining's contribution to employment	156
6.2.8 Special characteristics of gold mining in South Africa	156
6.2.9 Gold mining companies	157
6.3 OVERVIEW OF DIAMOND MINING IN SOUTH AFRICA	157
6.3.1 Brief historical overview	157
6.3.2 Mining of diamonds	159
6.3.3 Production and sales of diamonds	159
6.3.4 Diamond mining companies in South Africa	160
6.4 OVERVIEW OF PLATINUM MINING IN SOUTH AFRICA	160
6.4.1 Reserves	161
6.4.2 Production	162
6.4.3 Mining platinum	162
6.4.4 Precious metals refining	163
6.4.5 PGMs – The major demand sectors	163
6.4.6 Platinum mining companies	166
6.5 OVERVIEW OF COAL MINING IN SOUTH AFRICA	166
6.5.1 Geology and reserves	167
6.5.2 Occurrence and production	167
6.5.3 Mining methods	168
6.5.4 Domestic uses	169
6.5.5 Exports	171

6.5.6 Coal mining companies in South Africa	171
6.6 OVERVIEW OF BASE METALS & MINERALS MINING IN SOUTH AFRICA	172
6.6.1 Andalusite	172
6.6.2 Antimony	173
6.6.3 Asbestos	173
6.6.4 Chromium	173
6.6.5 Cobalt	174
6.6.6 Copper	175
6.6.7 Fluorspar	175
6.6.8 Granite	176
6.6.9 Iron ore	176
6.6.10 Lead	177
6.6.11 Manganese	178
6.6.12 Nickel	178
6.6.13 Silver	179
6.6.14 Titanium	180
6.6.15 Uranium	180
6.6.16 Vanadium	181
6.6.17 Vermiculite	182
6.6.18 Zinc	182
6.6.19 Zirconium	183
6.7 MINING INDUSTRY SNAPSHOT	183
6.8 CHALLENGES FACING THE SOUTH AFRICAN MINING INDUSTRY	187
6.9 SUMMARY	187

CHAPTER 7: EMPIRICAL RESEARCH

7.1 INTRODUCTION	190
7.2 PROCESS AND SEQUENCE OF EVENTS	191
7.3 MINING COMPANIES THAT PARTICIPATED	191
7.3.1 De Beers (Diamonds)	192
7.3.2 Goldfields (Gold)	193
7.3.3 Implats (Platinum group metals [PMGs])	193

7.3.4 Kumba Resources (Coal and iron ore)	194
7.3.5 SRX Uranium One (Uranium)	196
7.4 CHIEF EXECUTIVE OFFICERS INTERVIEWS	197
7.4.1 Is corporate entrepreneurship an antidote?	198
7.4.2 Is corporate entrepreneurship an oxymoron?	199
7.4.3 Are potential ideas going unnoticed?	199
7.4.4 Can the industry's performance be improved?	200
7.4.5 How should the industry challenges be addressed?	201
7.4.6 How prevalent are the dimensions of corporate entrepreneurship?	202
7.4.7 Is entrepreneurial leadership possible in the mining industry?	203
7.4.8 Could mining companies adopt the leadership approach of GE?	204
7.4.9 What is the role of leadership in organisational climate?	204
7.5 ENTREPRENEURIAL CLIMATE SURVEY	205
7.5.1 The survey questionnaire	207
7.5.2 Part 1: Biographical information	207
7.5.3 Part 2: Self- and Superior-assessment	208
7.5.4 Part 3: Climate survey	216
7.6 SUMMARY	226

CHAPTER 8: CONCLUSIONS & RECOMMENDATIONS

8.1 INTRODUCTION	228
8.2 CONCLUSION SYNOPSIS	228
8.2.1 Conclusions from CEO interviews	229
8.2.2 Conclusions on entrepreneurial characteristics/competencies	230
8.2.3 Conclusions on entrepreneurial climate	232
8.2.4 High-level SWOT analysis conclusion	219
8.3 RECOMMENDATIONS	234
8.3.1 Triggering events for corporate entrepreneurship	235
8.3.2 Towards an entrepreneurial climate	236
8.3.3 Not just another management tool or technique	237
8.3.4 Entrepreneurship as dominant logic	237
8.3.5 Integrating entrepreneurship with strategy	238

8.3.6 Strategy for entrepreneurship	241
8.3.7 Entrepreneurial leadership development	251
8.3.8 Structuring for corporate entrepreneurship	253
8.3.9 Developing management innovation	257
8.3.10 Human resources management	261
8.4 SUMMARY	266

CHAPTER 9: AN INTEGRATED FRAMEWORK FOR CORPORATE ENTREPRENEURSHIP

9.1 INTRODUCTION	268
9.2 AN OVERVIEW OF THE INTEGRATED FRAMEWORK	269
9.3 RECOMMENDATIONS FOR IMPLEMENTATION	272
9.3.1 Assess the organisation's internal climatic imperatives	273
9.3.2 Instil discomfort with the status quo	275
9.3.3 Create a vision that stretches employees	276
9.3.4 Create a sense of urgency	276
9.3.5 Involve employees	278
9.3.6 Remove obstacles that hinder corporate entrepreneurship	278
9.3.7 Find and reward sponsors	279
9.3.8 Open up the system for innovation	280
9.3.9 Create an intrapreneurial architecture	280
9.3.10 Enable choice in the lives of employees	281
9.3.11 Build community and be intolerant of selfish politics	282
9.3.12 Measure the rate of innovation	283
9.3.13 Train and develop employees	284
9.4 ACHIEVEMENT OF THE STUDY'S OBJECTIVES	285
9.5 RECOMMENDATIONS FOR FUTURE RESEARCH	286
9.6 SUMMARY	286
 BIBLIOGRAPHY	 289
 ANNEXURE A	 315

ANNEXURE B	316
ANNEXURE C	324
ANNEXURE D	339
ANNEXURE E	344
ANNEXURE F	347

LIST OF TABLES

TABLE 1.1	Strengths and weaknesses of quantitative and qualitative methods	11
TABLE 1.2	Techniques for gathering data and their advantages versus disadvantages	20
TABLE 1.3	Paterson job grading system characteristics	27
TABLE 1.4	Calculation of effect sizes for means	35
TABLE 2.1	Development of entrepreneurship theory and the term entrepreneur	42
TABLE 2.2	Key insights of the most important theories of entrepreneurship	43
TABLE 2.3	Seven perspectives on the nature of entrepreneurship	51
TABLE 2.4	Common explanations of the entrepreneurial process	64
TABLE 3.1	Summary of dimensions of corporate entrepreneurship	86
TABLE 3.2	Summary of types of corporate entrepreneurship	91
TABLE 4.1	Differences between leaders and managers	105
TABLE 4.2	Differences between the manager-leader and the traditional manager	107
TABLE 4.3	Entrepreneurial leader and manager leader comparison	112
TABLE 4.4	The entrepreneurial leadership paradigm	113
TABLE 4.5	Measures of entrepreneurial leadership construct	117
TABLE 5.1	Dominant themes characterising an entrepreneurial climate	130
TABLE 7.1	Self- and Superior-assessment for entrepreneurial characteristics findings	209
TABLE 7.2	Entrepreneurial climate survey results	217
TABLE 7.3	Test for response bias (ANOVA)	218
TABLE 7.4	Test for practical significance	219
TABLE 8.1	Triggering events for corporate entrepreneurship	235
TABLE 8.2	Functional competencies for entrepreneurial leadership	252
TABLE 8.4	Self competencies for entrepreneurial leadership	253

LIST OF FIGURES

FIGURE 1.1	Mining's contribution to GDP and total investment	3
FIGURE 1.2	Correlation between contribution to GDP and total investment	4
FIGURE 1.3	The research process	13
FIGURE 1.4	Structure of the study	38
FIGURE 2.1	Timmons model of the entrepreneurial process	63
FIGURE 5.1	Tree as metaphor of the organisation	124
FIGURE 6.1	The contribution of mining to 10 years of democracy expressed in 2004 real rand terms	186
FIGURE 7.1	Respondents by employer	207
FIGURE 7.2	Respondents by department	208
FIGURE 7.3	Respondents by age group	208
FIGURE 7.4	Respondents by gender	208
FIGURE 7.5	Self-assessment for entrepreneurial characteristics	210
FIGURE 7.6	Superior-assessment for entrepreneurial characteristics	212
FIGURE 7.7	Comparison of self- and superior assessment	215
FIGURE 7.8	Entrepreneurial climate analysis (Radar graph)	221
FIGURE 7.9	Entrepreneurial climate analysis (Clustered bar chart)	221
FIGURE 8.1	Chain of greatness	236
FIGURE 8.2	Entrepreneurial grid	240
FIGURE 8.3	Opportunity assessment and internal value creation	244
FIGURE 8.4	The organisation as circles ("orbits")	256
FIGURE 8.5	The elements of management innovation	258
FIGURE 8.6	Using key elements of HRM practices to create an entrepreneurial environment	262
FIGURE 9.1	Integrated framework for corporate entrepreneurship	269

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“The ones actually in the arena; who strives valiantly; who errs and comes short again and again; who knows the great enthusiasms, the great devotions and spends himself in a worthy cause; who at the best, knows in the end the triumph of high achievement; and who at the worst if he fails, at least fails while daring greatly, so that his place shall never be with those cold and timid souls who know neither victory or defeat.”
(Theodore Roosevelt)

CHAPTER 1

NATURE AND SCOPE OF THE STUDY

1.1 INTRODUCTION

When the successes and failures of companies are examined, it is clear that achievement over the long-term depends on the ability to innovate, and take the leadership role in the industry. Entrepreneurial companies reinvent themselves, and leap ahead of their competitors, and those who can sustain a culture of innovation and change keep on developing and growing. At the same time, the environment for business is becoming more complex, challenging and turbulent. For managers, the questions are clear: "How can you be strategic and entrepreneurial in an environment of unpredictable change?" How should management respond?

One thing is clear - organisations cannot rely on the strategies they have used in the past. A new kind of leadership is required - ***entrepreneurial leadership*** that emphasises flexibility, change, innovation and responsiveness. Further, in the turbulent environment, survival depends on new approaches to strategy. Organisations have to manage their value chains to maximise profitability. They have to leverage their core competence, and understand competitors to position themselves for competitive advantage in the marketplace. Above all, they have to encourage diversity and risk, and create an environment in which entrepreneurship can flourish.

As the world transitions deeper into the knowledge-based post-industrial economy the role of innovation and entrepreneurship becomes increasingly important. This is particularly true for a relatively small economy like South Africa. In order to reduce its reliance on the offshore economy, South Africa is dependent upon creating new products and services and bringing these to the international marketplace quickly and efficiently. To achieve this South Africa must achieve higher rates of innovation and new venture creation in its

internal economic sector. To be globally competitive, South Africa needs superior technology, more proprietary products and services, and better processes. As its competitors become more scientific, and managerially sophisticated, it takes them less and less time to innovate. South Africa has to increase its speed and cost-effectiveness of innovation in the country to match its competitors' increasing sophistication in capitalising on opportunities.

As one of the most important contributors to the growth and development of the economy, this obviously also applies to the South African mining industry. According to the Chamber of Mines of South Africa Annual Report (2005:14), the sector:

- Accounted for 6.6 percent of gross domestic product (GDP) in 2004.
- Directly accounted for 9.9 percent of total fixed investment in the economy.
- Accounted for 35.3 percent or R534-billion of the market capitalisation of the JSE for 2004.
- Contributed R90.3-billion to exports, representing 29.3 percent of South Africa's total merchandise exports in 2004.
- Moved 98.9 million tons of bulk commodity ores for export.
- Directly employed an average of 457 371 workers in 2004.
- Accounted for 7 percent of people employed in the non-agricultural formal sector and 9 percent of the total private sector non-agricultural employment.
- Paid R34.3 billion in wages and benefits to employees.
- Paid about R6.9-billion in direct taxes and R4.1-billion in other taxes.
- Supports vital supply and demand relationships with banking and financial, construction, engineering, manufacturing, transport and processing sectors.
- Was the world's largest producer of platinum group metals (pgm), gold, chromium, ferrochrome, vanadium, manganese and vermiculite.
- Accounted for a significant amount of the supply and demand for energy in South Africa.

- Is responsible for significant infrastructure development.
- Is often the sole provider of certain social infrastructure, including clinics, schools and social facilities (Chamber of Mines of South Africa 2005:14).

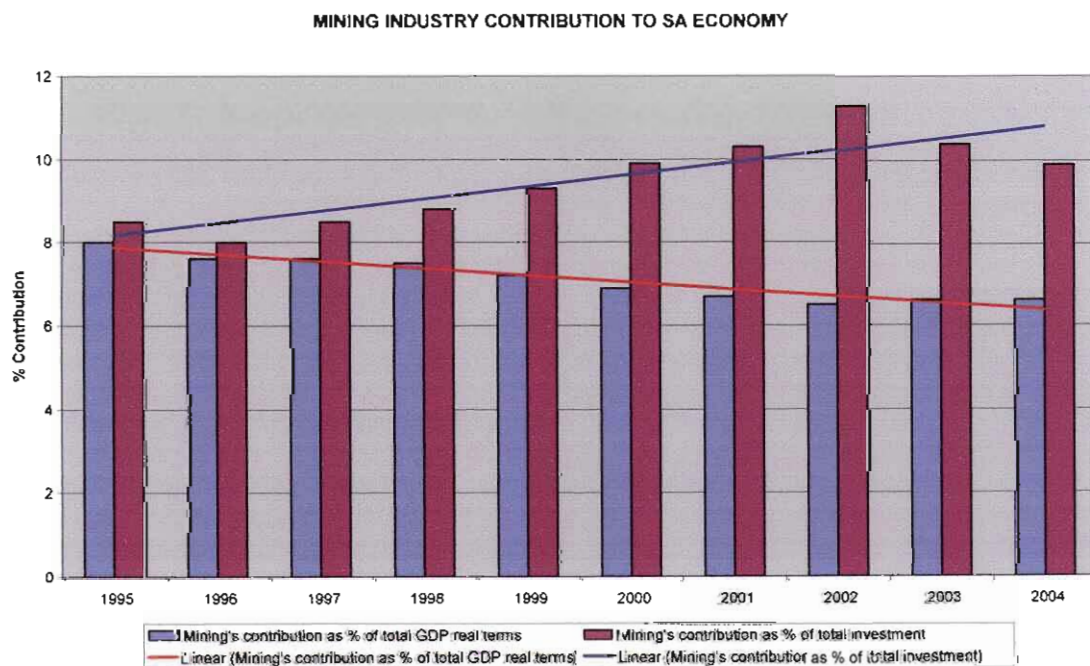
However impressive this contribution may seem, daunting challenges loom, as will become evident in the next section.

1.2 BACKGROUND TO THE STUDY

The direct contribution of mining to the economy has declined during the past number of years (Hounscome & Ashton, 2001:9) which is evident when analysing the key mineral industry statistics for South Africa (Chamber of Mines of South Africa, 2005:6), with specific reference to mining's contribution to South Africa's Gross Domestic Product (GDP).

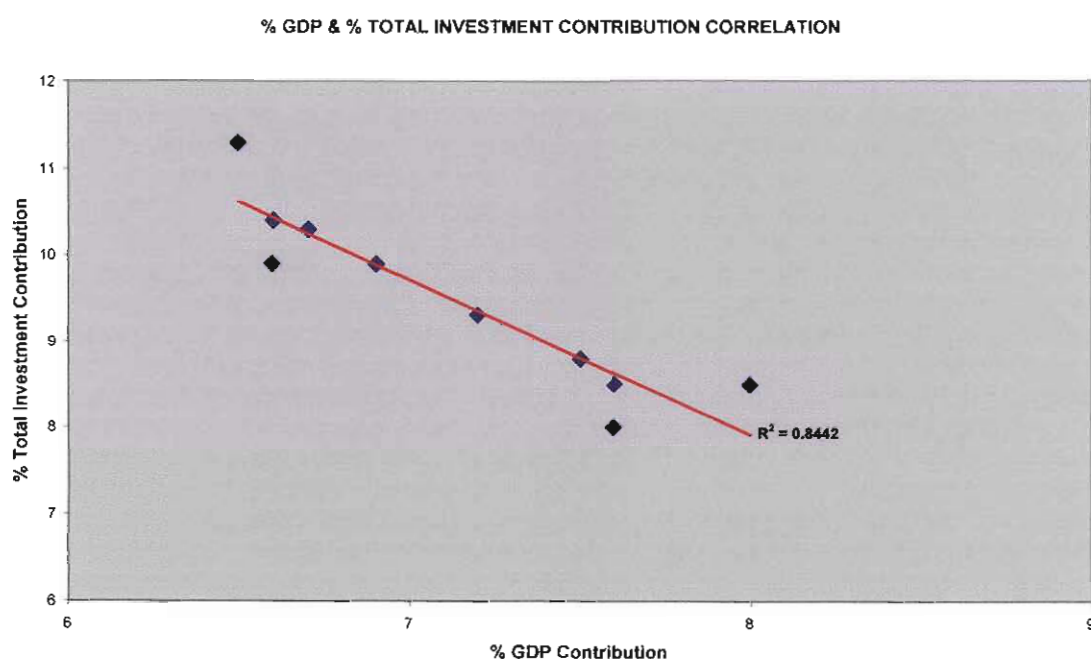
Mining's contribution as percentage of total GDP in real terms, together with its contribution as percentage of total investment over the past 10 years is shown in Figure 1.1 below.

Figure 1.1: Mining's contribution to GDP and total investment



From figure 1.1 the downward trend of contribution to GDP is noticeable, with an upward trend of total investment on the other hand. An interesting observation is the move in opposite directions in terms of the trends of both factors, and the question arises: is there a correlation in this phenomenon? When plotting the data on a scatter diagram to address this question, the results become evident in Figure 1.2.

Figure 1.2: Correlation between contribution to GDP and total investment



There seems to be a negative correlation which implies an inverse relationship between the two variables: as one increases so the other decreases. The correlation coefficient is 0.84, and on the scale from 0 to 1, the coefficient is very close to one (perfect correlation). This implies that there is a strong inverse linear relationship between the two variables. The author believes that it therefore seems reasonable to conclude that there is strong inverse relationship between mining's contribution as percentage of total GDP in real terms and mining's contribution as percentage of total investment.

Important to note, however, is that the coefficient only measures the **strength of the relationship** between two variables, and does **not** measure **cause and effect** (Wisniewski, 2002:323).

The cause and effect should rather be ascribed to the problems and challenges facing the industry, i.e. the productivity of labour and capital, volatility of the rand, rising input costs, logistical constraints and the depletion of ore reserves (as discussed in the problem statement in the next section).

According to the Chamber of Mines of South Africa (2005) South Africa's mining industry has to focus on productivity and cost trends to remain competitive, particularly with many low-cost emergent world producers. Operating margins have to remain, or become competitive to attract investment into the industry, and to sustain existing operations. For the industry to remain competitive, it must be provided with an operating and investment environment that does not disadvantage it in relation to other mining countries.

The challenge for South Africa's mining industry would be to upgrade its innovative ability, and it is therefore important that South African mining corporations become more entrepreneurial in the face of the aforementioned challenges, intensifying global competition and accelerating technological change, amidst the constraint that mining companies are generally viewed as bureaucratic and inhospitable to creativity and innovation.

To do so mining companies must tap into the creative power of their members. Ideas come from people, and innovation is a capability of the many. That capability is utilised when people give commitment to the mission and life of the enterprise and have the power to do something with their capabilities.

The large organisations of the industrial age are inherently bureaucratic. It is therefore reasonable to expect that in such organisations one would find a plethora of ideas and potential ideas that go unnoticed because there are some structural impediments to their realisation, or little or no incentive for employees to bring such ideas forth.

However, South Africa's performance in terms of international rankings of entrepreneurial activity released by the Global Entrepreneurship Monitor

(GEM) reveals that South Africa ranked 25th out of 35 countries included in the GEM 2005 survey and has consistently ranked within a group of countries with mid to low levels of Total Entrepreneurial Activity (TEA) (von Broembsen *et al.*, 2005:7).

Comparisons with other developing countries that participated in GEM 2005 show that South Africa has the lowest entrepreneurial activity rate of all the developing countries. South Africa's low TEA rate is attributable not only to our low rate of necessity entrepreneurship, but, more importantly, also to our low opportunity entrepreneurship activity rate, which is the lowest of all the developing countries (von Broembsen *et al.*, 2005:7).

On the other hand, the GEM 2003 survey also revealed that low levels of business formation are not offset by high levels of entrepreneurial activity within established companies. According to a new measure of entrepreneurial activity within established companies (called Firm Entrepreneurial Activity (FEA) Index) released by GEM, South Africa ranked 36th out of 40 countries (Orford *et al.*, 2003:1), and very relevant to the corporate entrepreneurship theme in this study.

Although the FEA index was omitted in the 2004 and 2005 surveys, it is nevertheless important to take cognisance thereof, because, on both measures, South Africa ranked last amongst the developing countries included in the survey.

The requisite new venture creation can, in principle, come from two separate sources. The first source being individuals who create new products and ventures – the process generally known as **entrepreneurship**. The second is existing corporations, which spend some of their resources in developing new ventures and new products – innovation and entrepreneurship in a corporate setting, called **corporate entrepreneurship**.

However, not only are fewer South Africans involved in starting new businesses, but it now appears that the population of established businesses

in South Africa is less likely to be innovative and growth-oriented. Both these factors have negative implications for economic growth in South Africa. If correct, the GEM findings may be part of the explanation of why South Africa persistently experiences economic growth rates below those in many developing countries. The clear implication for policy is that much greater attention must be paid to building an entrepreneurial society (Orford *et al.*, 2003).

Large organisations, like mining companies, can be entrepreneurial in the positive sense of creating real economic value for everyone's benefit through the development of new products and services. Corporate entrepreneurship is therefore in national interest, not only because large organisations account for much of the nation's economic output and jobs, but also because corporate and independent entrepreneurs complement and compete with one another. Having both enhances a nation's competitiveness, and, consumers and the economy are the beneficiaries.

1.3 PROBLEM STATEMENT

The most fundamental challenge facing the South African mining industry is the **productivity of labour and capital** and their impact on the cost of mining and extracting minerals (Chamber of Mines of South Africa, 2005). Further challenges are the **volatility of the rand**, the negative impact of **rising input cost pressures** on the sector and **logistical constraints** that affects export volumes (Chamber of Mines of South Africa, 2005:3).

Adding to the problem is that ore bodies are subject to both physical and economic depletion (Minnit, 2001:169). However, apart from the physical depletion of a mineral asset through consistent extraction that can seriously affect local communities at a regional level, the principal obstacle to sustained economic growth and stability in mineral economies is the volatility of the revenue stream derived from mineral resource development (Minnit, 2001:172).

How should South African mining companies address these challenges and what should they do to remain competitive? According to Macfarlane (2001:59) competition in the minerals industry has involved four main areas, namely the acquisition of prospective mineral properties, acquisition of information regarding mineral properties, the employment of new technologies at the metallurgical stages and competition for new or increased market share.

In addition, this study proposes the framework of corporate entrepreneurship for the facilitation of ongoing change and innovation in the mining industry – to provide a blueprint for coping effectively with the new competitive realities that mining companies encounter.

1.4 GOAL OF THE STUDY

The goal of the study is summarised in a main objective and sub-objectives.

1.4.1 Main objective

The main objective of the study is to develop an integrated framework to create a climate conducive for corporate entrepreneurship in the mining industry.

1.4.2 Sub-objectives

The sub-objectives in support of the main objective of this study are to:

- Gain understanding on the entrepreneurial phenomenon and how it applies to the corporate environment.
- Determine the current entrepreneurial climate in South Africa's mining industry.
- Determine the opinions and experiences of selected leaders in the mining industry pertaining to entrepreneurship in a corporate setting.

- Gain understanding on the impact of leadership in creating a climate conducive to entrepreneurial activity in a company.
- Determine the strengths, weaknesses, opportunities and threats in terms of corporate entrepreneurship development in South Africa's mining industry.
- Apply the forthcoming literature and empirical data to propose recommendations for practical application to improve the entrepreneurial climate in mining companies.

1.5 SCOPE OF THE STUDY

1.5.1 Field of study

The field of study falls within the subject discipline of entrepreneurship in existing companies, i.e., corporate entrepreneurship, including terminologies such as intrapreneurship, corporate venturing and intrapreneuring.

1.5.2 Industry demarcation

The study is limited to the South African mining industry and encompasses corporate entrepreneurship in general across functions, departments and divisions.

1.5.3 Geographical demarcation

The study is limited to the borders of the Republic of South Africa.

1.6 RESEARCH APPROACH

A discipline or profession is established by developing a body of knowledge which is unique – that body of knowledge is produced through research (Amaratunga *et al.*, 2002:17). Peters and Howard (2001:598) believe that good research should focus on diagnosis rather than prescription, which in

this study can only reasonably be achieved through asking the right questions.

The point of departure in research for this study is to focus on the ultimate purpose to add something of value to the body of accumulated entrepreneurship knowledge. The acid test for this research study in corporate entrepreneurship is therefore whether it credibly adds to the store of wisdom a leader needs to be able to create a climate conducive for entrepreneurial activity?

1.6.1 Defining research

Amaratunga *et al.* (2002:17) states that there is no consensus in the literature on how research should be defined, but from the many different definitions offered there appears to be agreement that research is a process of enquiry and investigation; it is systematic and methodical; and it increases knowledge.

Basically, research is an enquiry process that includes the components for collective inquiry, research design, methodology, data collection and analysis, concluding with communication of the findings. It later appears in published form (Juznic & Urbanija, 2003:324).

The Research Assessment Exercises (RAE) assesses the quality of research in universities in the United Kingdom (Boaden & Cilliers, 2001:5), and 'research' for the purpose of the RAE is to be understood as original investigation undertaken in order to gain knowledge and understanding. It includes work of direct relevance to the needs of commerce, industry, and to the public and voluntary sectors; scholarship; the invention and generation of ideas, images, performances, artefacts including design, where these lead to new or substantially improved insights; and the use of existing knowledge in experimental development to produce new or substantially improved materials, devices, products and processes, including design and construction (RAE, 2006:34).

1.6.2 Quantitative and qualitative methodology as research traditions

Research may be categorised into two distinct types: qualitative and quantitative (Amaratunga *et al.*, 2002:19; Cummings & Worley, 2005:123).

The former concentrates on words and observations to express reality and attempts to describe people in natural situations (Amaratunga *et al.*, 2002:19). Qualitative techniques generally are easier to use because they do not rely on numerical data. That fact also makes them easier to understand and interpret (Cummings & Worley, 2005:123)

In contrast, the quantitative approach grows out of a strong academic tradition that places considerable trust in numbers that represent opinions or concepts (Amaratunga *et al.*, 2002:19). Quantitative techniques can provide more accurate readings of the organisational problem (Cummings & Worley, 2005:123).

Table 1.1: Strengths and weaknesses of quantitative and qualitative methods

Methodology	Strengths	Weaknesses
Quantitative	• Can provide wide coverage of the range of situations. • Can be fast and economical. • Where statistics are aggregated from large samples, they may be of considerable relevance to policy decisions.	• The methods used tend to be rather inflexible and artificial. • Not very effective in understanding processes or the significance that people attach to actions. • Not very helpful in generating theories. • Because they focus on what is, or what has been recently, they make it hard for policy makers to infer what changes and actions should take place in the future.

Methodology	Strengths	Weaknesses
Qualitative	• Data-gathering methods seen more as natural than artificial. • Ability to look at change processes over time. • Ability to understand people's meaning. • Ability to adjust to new issues and ideas as they emerge. • Contribute to theory generation.	• Data collection can be tedious and require more resources. • Analysis and interpretation of data may be more difficult. • Harder to control the pace, progress and end-points of research process. • Policy makers may give low credibility to results from qualitative approach.

Adapted and reworked from Amaratunga et al. (2002:19)

It is thus apparent that both qualitative and quantitative methods involve different strengths and weaknesses.

1.6.3 The mixed approach

Amaratunga *et al.* (2002:23) states that there is strong suggestion within the research community that research, both quantitative and qualitative, is best thought of as complementary and should therefore be mixed in research of many kinds.

Quantitative data can help with the qualitative side of a study during design by finding a representative sample and locating deviant samples, while qualitative data can help the quantitative side of the study by aiding with conceptual development and instrumentation (Amaratunga *et al.*, 2002:23).

Justifying a mixed methodology research design in corporate entrepreneurship is that both single methodologies have strengths and weaknesses. The combination therefore focuses on their relevant strengths.

1.7 THE RESEARCH PROCESS

Authors vary as to the number of steps to be followed in the process of conducting research. Babbie (1998:107) and Du Plooy (1995:34) indicate eight steps, Joppe (2006) six steps, Page and Meyer (2000:35) and Frankfort-Nachmias and Leon-Guerrero (2005:3) five steps, and Kerssens-van

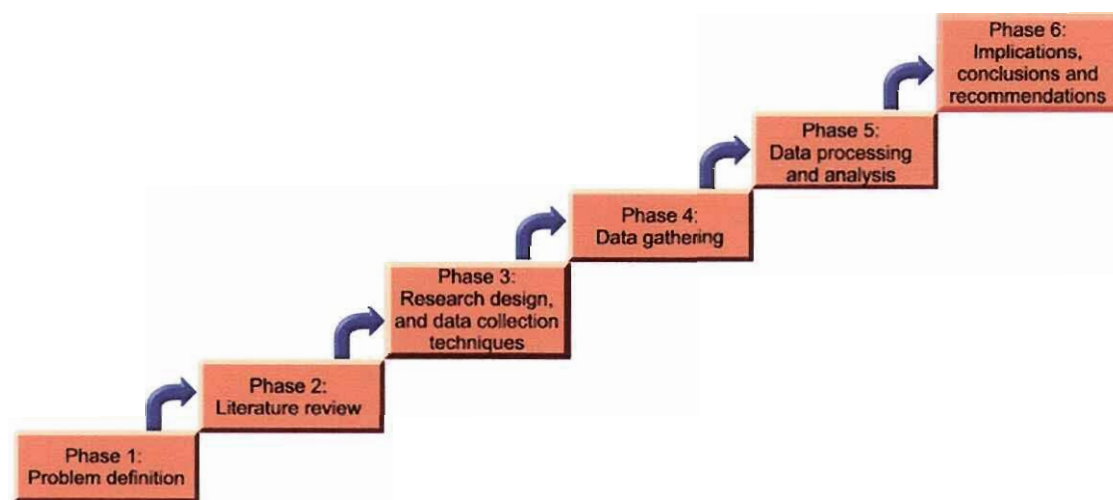
Drongelen (2001:503) three. Although the authors vary in their proposed steps, they are all closely interrelated.

For the purpose of this study, the six steps as proposed by Joppe (2006), will be used and are indicated in Figure 1.3 below.

Joppe (2006) proposes that the research process involves six distinct phases, although they are not always completely linear, since research is iterative (earlier phases influence later ones, while later ones can influence the early phases). It is important to appreciate that the nature of the research process is often relatively unstructured and frequently unpredictable (Rememvi *et al.*, 1998:27).

One of the most important characteristics of a good researcher is the unwillingness to take shortcuts, or to rush through the research. It is important to keep an open mind to recognise changes that must be accommodated to ensure the reliability and validity of the research (Joppe, 2006).

Figure 1.3: The research process



Derived from: Joppe (2006)

1.7.1 Phase 1: Problem definition

The first step in the research process is that of identifying a research problem (Du Plooy, 1995:35). Before deciding on the final topic of this study, various

ideas were generated through analysis of historical data and secondary information to help define in clear terms what the problem is.

According to Joppe (2006) Albert Einstein apparently said that the formulation of a problem is often more essential than its solution! While generating ideas, a person should not evaluate them or be concerned about availability of literature or availability of appropriate sampling (Du Plooy, 1995:35).

Page and Meyer (2000:34) also refers to a number of important questions to address during this phase, namely:

- Will the topic be interesting?
- Will the topic be relevant to enhance a person's knowledge in business administration?
- Will it be possible to be able to substantiate the importance and usefulness of the research?
- Will the research idea maintain one's enthusiasm and conviction?
- Is there enough literature available to enable a person to do a proper literature study?
- Is it possible to define the scope of the research properly?
- Is the data susceptible to analyses?
- Will the supervisor be positive and dedicated to the outcome of the study?

1.7.2 Phase 2: Literature review

Once the research idea has been decided, a literature study must be conducted (Page & Meyer, 2000:38). The purpose of the literature study is to hone a person's theoretical understanding of the topic, to familiarise one with the latest theoretical developments and debates in the area of research and to acquaint one with the problems, hypotheses and results obtained by previous research (Du Plooy, 1995:37).

Knowledge is cumulative: every piece of research will contribute another piece to it. That is why it is important to commence all research with a review of the related literature or research, and to determine whether any data sources exist already that can be brought to bear on the problem at hand. Just as each study relies on earlier work, it will provide a basis for future work by other researchers (Joppe, 2006).

The literature review should provide the reader with an explanation of the theoretical rationale of the problem being studied as well as what research has already been done and how the findings relate to the problem at hand.

The literature review for the study included:

- Entrepreneurship.
- Corporate entrepreneurship.
- Entrepreneurial leadership.
- Organisational climate.
- South Africa's mining industry.

The literature on entrepreneurship, corporate entrepreneurship, entrepreneurial leadership and organisation climate covers various countries and views, and is found locally, internationally and on internet. The literature study formed the basis for establishing what the unique challenges facing existing organisations in terms of corporate entrepreneurship are.

The knowledge gained from the literature study was used to empirically test the independent and dependent variables against each other in practise and to analyse it. Subsequently, the literature study ensures that this study does not simply duplicate the efforts of others, but contributes something original and meaningful to the body of knowledge, and also served to identify gaps in existing knowledge.

1.7.3 Phase 3: Selection of research design, subjects and data collection technique(s)

Once the problem has been carefully defined, the researcher needs to establish the plan that will outline the investigation to be carried out. The research design indicates the steps that will be taken and in what sequence they occur (Joppe, 2006).

A researcher may choose from several research strategies (also called “designs”) and within each strategy from various data collection and analysis methods. Furthermore, he or she can use certain tactics to combine strategies and methods (Kerssens-van Drongelen, 2001:503).

Designing good measures are linked to the extent to which a measurement is operationally defined, reliable, and valid (Cummings & Worley, 2005:181).

A good measure is **operationally defined**; that is, it specifies the empirical data needed, how they will be collected and, most important, how they will be converted from data to information. It is extremely important in measurement because they provide precise guidelines about what characteristics of the situation are to be observed and how they are to be used (Cummings & Worley, 2005:181).

Reliability concerns the extent to which a measure represents the “true” value of a variable; that is, how accurately the operational definition translates data into information (Cummings & Worley, 2005:181). It also concerns the repeatability and consistency of the methods, conditions and results (Neuman, 1997:138), i.e., if the method of data collection is reliable, it means that anybody else that uses the same method, or the same person using the same method at another time, would come up with the same results (Du Plooy, 1995:31).

Internal reliability refers to the extent to which data collection, analysis and interpretation are consistent, given the same conditions (Du Plooy, 1995:31).

External reliability deals with the issue of whether or not independent researchers can replicate studies in the same or similar settings and obtain similar results (Du Plooy, 1995:31).

The reliability of measures can be improved by rigorously and operationally defining the chosen variables; by using multiple methods to measure a particular variable; by using multiple items to measure the same variable on a questionnaire; and by using standardised instruments (Cummings & Worley, 2005:181).

Validity concerns the extent to which a measure actually reflects the variable it is intended to reflect (Cummings & Worley, 2005:182), in other words the degree of accuracy with which the research has measured the cause and effect relationship (Babbie, 1998:133; Page & Meyer, 2000:86).

Validity in research therefore deals with the accurate interpretability (i.e. internal validity) of the results and the generalisation of the results (i.e. external validity) (Du Plooy, 1995:31).

The validity of measures can be improved by asking experts if a proposed measure actually represents a particular variable, and by using multiple measures of the same variable to make preliminary assessments of the measure's criterion or convergent validity (Cummings & Worley, 2005:182).

According to Joppe (2006) there are two main types of research design, namely exploratory research and conclusive research:

- **Exploratory research** is often conducted because a problem has not been clearly defined as yet, or its real scope is as yet unclear. It allows the researcher to familiarise him/herself with the problem or concept to be studied, and perhaps generate hypotheses to be tested. It is the initial research, before more conclusive research is undertaken (Joppe, 2006).

- **Conclusive research** is meant to provide information that is useful in reaching conclusions or decision-making. It tends to be quantitative in nature, in the form of numbers that can be quantified and summarised. It relies on both *secondary* data, particularly existing databases that are reanalysed to shed light on a different problem than the original one for which they were constituted, and *primary research*, or data specifically gathered for the current study (Joppe, 2006).

According to Joppe (2006) the purpose of conclusive research is to provide a reliable or representative picture of the population through the use of a valid research instrument, and is in itself subdivided into two types, namely descriptive research and causal research.

Descriptive research or statistical research provides data about the population or universe being studied. But it can only describe the “who, what, when, where and how” of a situation, not what caused it (Joppe, 2006).

Joppe (2006) argues that descriptive research is therefore used when the objective is to provide a systematic description that is as factual and accurate as possible. It provides the number of times something occurs, or frequency, lends itself to statistical calculations such as determining the average number of occurrences or central tendencies.

One of its major limitations is that it cannot help determine what causes a specific behaviour, motivation or occurrence. In other words, it cannot establish a **causal research** relationship between variables. The two most commonly types of descriptive research designs are observation and surveys (Joppe, 2006).

Joppe (2006) states that if the objective is to determine which variable might be causing a certain behaviour, i.e. whether there is a cause and effect relationship between variables, causal research must be undertaken. In order to determine causality, it is important to hold the variable that is assumed to

cause the change in the other variable(s) constant and then measure the changes in the other variable(s).

There are two research methods for exploring the cause and effect relationship between variables, namely experimentation, and simulation.

1.7.4 Phase 4: Data gathering

Each of the types of research design can rely on one or more data collection techniques:

- **Primary research** which includes observation technique and direct communication with subjects, e.g. survey technique, interview or projective methods.
- **Secondary research**, which essentially means reviewing literature and data sources, collected for some other purpose than the study at hand.

Irrespective of the data collection technique used, it is critical that the researcher analyse it for its validity and reliability (Joppe, 2006).

The four major techniques for gathering diagnostic data are questionnaires, interviews, observations, and unobtrusive measures (Cummings & Worley, 2005:116).

Questionnaires: One of the most efficient ways to collect data is through questionnaires. Because they typically contain fixed-response queries about various features of an organisation, these paper-and-pencil measures can be administered to large numbers of people simultaneously. Also, they can be analysed quickly, especially with the use of computers, thus permitting quantitative comparison and evaluation (Cummings & Worley, 2005:117).

Interviews: A second important measurement technique is the individual or group interview. Interviews are probably the most widely used technique for

collecting data because they permit the interviewer to ask the respondent direct questions. Further probing and clarification is, therefore, possible as the interview proceeds. This flexibility is invaluable for gaining private views and feelings about the organisation and for exploring new issues that emerge during the interview (Cummings & Worley, 2005:119).

Observations: One of the more direct ways of collecting data is simply to observe organisational behaviours in their functional settings. This can be done by walking casually through a work area and looking around or by simply counting the occurrences of specific kinds of behaviours (Cummings & Worley, 2005:121)

Unobtrusive Measures: Unobtrusive data are not collected directly from respondents but from secondary sources, such as company records and archives. These data are generally available in organisations and include records of absenteeism or tardiness; grievances; quantity and quality of production or service; financial performance; meeting minutes; and correspondence with key customers, suppliers, or governmental agencies (Cummings & Worley, 2005:121).

The techniques for gathering data and their advantages versus their potential problems are presented in table 1.2 below.

Table 1.2: Techniques for gathering data and their advantages versus disadvantages

Method	Major advantages	Major potential problems
Questionnaires	1. Responses can be qualified and easily summarised. 2. Easy to use with large samples. 3. Relatively inexpensive 4. Can obtain large volume of data.	1. Non-empathy. 2. Predetermined questions / missing issues. 3. Over-interpretation of data. 4. Response bias.
Interviews	1. Adaptive – allows data collection on a range of possible subjects. 2. Source of “rich” data. 3. Empathic. 4. Process of interviewing can build rapport.	1. Expense. 2. Bias in interviewer responses. 3. Coding and interpretation difficulties. 4. Self-report bias.

Method	Major advantages	Major potential problems
Observations	1. Collects data on behaviour, rather than reports of behaviour. 2. Real time, not retrospective. 3. Adaptive.	1. Coding and interpretation difficulties. 2. Sampling inconsistencies. 3. Observer bias and questionable reliability. 4. Expense.
Unobtrusive measures	1. Non-reactive – no response bias. 2. High face validity. 3. Easily quantified.	1. Access and retrieval difficulties. 2. Validity concerns. 3. Coding and interpretation difficulties.

Source: Cummings and Worley, 2005:117 from Nadler, 1977:119

1.7.4.1 Data collection techniques used in the study

The data collection techniques used in the study was interviews and questionnaires.

1.7.4.1.1 Interviews

In order to understand the views, opinions and experiences of leaders in the mining industry in terms of the entrepreneurial phenomenon in a corporate setting, interviews were conducted with a number of Chief Executive Officers (CEOs) from the gold-, platinum-, diamond-, coal-, iron ore-, and uranium sectors of the mining industry.

For this purpose, an interview protocol was designed in order to gain insight into their views, opinions and experiences pertaining corporate entrepreneurship. See annexure A for the interview protocol.

Appointments were made with CEOs and face-to-face interviews were conducted, using the interview protocol as guideline. Interviews were recorded and then transcribed to paper format. Due to the uniqueness of the spoken word, the interviews were then edited to ensure sensible reading. See annexure A for the edited transcripts of the interviews.

1.7.4.1.2 Questionnaires

In order to establish the entrepreneurial climate in mining organisations, a questionnaire was designed, using the following instruments as basis for the design:

- The Entrepreneurial Performance Index (EPI), developed by Michael M. Morris.
- The Corporate Entrepreneurship Assessment Instrument (CEAI), developed by Donald F. Kuratko, Jeffrey S. Hornsby, and Ray V. Montagno.
- The Innovation Climate Questionnaire, developed by Gifford Pinchot.
- Self-assessment for entrepreneurial characteristics, developed by Kauffman Centre for Entrepreneurial Leadership.
- The Organisational Climate Questionnaire (OQC), developed by Litwin and Stringer.

The author named the questionnaire “**Entrepreneurial Climate Questionnaire**” (See annexure C), and consists of three parts, namely:

- Part 1: Biographical Information – For purposes of determining possible correlations between biographical information and opinions expressed in the survey, respondents had to supply their employer, department, age group and gender.
- Part 2: Self- and Superior Assessment – This part served as introduction to stimulate thought, and respondents had to assess themselves and their superiors on a scale of 1 to 4 in terms of typical entrepreneurial characteristics. It also served to gain understanding of respondents’ entrepreneurial orientation.
- Part 3: Climate Questionnaire – For the purpose of determining the entrepreneurial climate in the organisation (discussed below).

The literature review identified thirteen dimensions for a climate conducive to corporate entrepreneurship and using a four-point **Likert scale** five statements for each dimension were randomised and put to respondents, thus resulting in a total of sixty-five statements.

A Likert scale, also referred to as a summated scale, consists of a collection of statements about the attitudinal object (Huysamen, 1994:125). In respect of each statement respondents have to indicate their degree of agreement or disagreement with its content on, say, a five point scale (Huysamen, 1994:125).

After deliberations with Statistical Advise Services of North West University, it was decided to use a four-point scale in this study, with appreciatively (positively) formulated items.

The Likert scale is presently the most popular type of scale in the social sciences (Huysamen, 1994:126; Page & Meyer, 2000:75). This popularity stems from the fact that it is easier to compile than any of the other attitude scales, e.g. Guttman and Thurstone scales (Huysamen, 1994:126).

In the questionnaire used in this study, the following format was used:

The questionnaire consists of 65 statements. Please indicate your choice with each question by selecting one of the variables on the right, i.e., from strongly disagree to strongly agree. Please indicate your choice with an "X".		Strongly Disagree	Slightly Disagree	Slightly Agree	Strongly Agree
1	Relevant question				

All the questions could be answered by making a cross in the relevant block by using the following key:

- 1 = Strongly disagree.
- 2 = Slightly disagree.
- 3 = Slightly agree.
- 4 = Strongly agree.

Using the four-point Likert scale, the respondents indicated the extent to which they agreed or disagreed with 65 statements regarding the thirteen dimensions that was explained theoretically.

1.7.4.2 Sample design

Another critical consideration in determining a study's methodology is selection of subjects (or sample). If the researcher decides to study all elements within a population, s/he is in fact conducting a census. Although this may be ideal, it may not be very practical and can be far too costly. The alternative is to select a sample from the population. If chosen correctly, it is considered to be representative of the population (Joppe 2006).

Cummings and Worley (2005:122) state that application of the different data-collection techniques invariably raises the following questions: "How many people should be interviewed and who should they be?" "What events should be observed and how many?" "How many records should be inspected and which ones?"

Sampling becomes an issue when data are collected from selected members, behaviours, or records. This is often the case when diagnosing organisation-level issues or large systems. In these cases, it may be important to ensure that the sample of people, behaviours, or records adequately represents the characteristics of the total population (Cummings & Worley, 2005:122).

Cummings and Worley (2005:122) further highlight that the larger the population or the more complex the system, the more difficult it is to establish a "right" sample size. As the population increases in size and complexity, the less meaning one can attach to simple measures, such as an overall average score on a questionnaire item.

There are two types of sampling, namely probability and non-probability sampling (Neuman, 1997:202; Babbie, 1998:194; Page & Meyer, 2000:98; Levine *et al.*, 2005:10; Joppe, 2006).

Probability sampling involves the selection of a random sample from a list, containing the names of all the members in the population to be studied (Babbie, 1998: 194). A probability sample is therefore one in which the subjects of the sample are chosen on the basis of known probabilities (Levine *et al.*, 2005:10).

In probability sampling, the sample is selected in such a way that each unit within the population or universe has a known chance of being selected. It is this concept of “known chance” that allows for the statistical projection of characteristics based on the sample to the population (Joppe, 2006).

Babbie (1998:194) states that probability sampling remains the primary method for selecting large, representative samples for social science research, e.g. political polls, and according to Joppe (2006) there are three main types of probability sampling, namely random (simple) sampling, stratified sampling and cluster sampling:

- **Simple random sampling** is a sampling procedure that assures that each element in the population has an equal chance of being selected.
- **Stratified sampling** first puts the whole population into mutually exclusive subgroups or strata and then units are selected randomly from each stratum. The segments are based on some predetermined criteria such as geographic location, size or demographic characteristic. It is important that the segments be as heterogeneous as possible.
- **Cluster sampling** selects the subjects in groups or clusters. This approach allows overcoming the constraints of costs and time associated with a very dispersed population.

However, according to Babbie (1998:194) many research situations make probability sampling impossible or inappropriate. Thus, the other option is non-probability sampling.

In **non-probability sampling**, the sample is selected in such a way that the chance of being selected of each unit within the population or universe is unknown (Joppe, 2006). A non-probability sample is therefore one in which the items or individuals included are chosen without regard to their probability of occurrence (Levine *et al.*, 2005:10).

The selection of the subjects is arbitrary or subjective, since the researcher relies on his/her experience and judgement (Joppe, 2006). Such samples cannot be fully representative of the population, but there is no other way of accessing the members of the population (Page & Meyer, 2000:44).

According to Babbie (1998:194) and Joppe (2006) there are three main types of non-probability sampling, namely judgment sampling, quota sampling, and convenience sampling.

- In **judgement sampling**, the researcher or some other “expert” uses his/her judgement in selecting the units from the population for study based on the population’s parameters.
- In **quota sampling**, the population is first segmented into mutually exclusive sub-groups, just as in stratified sampling. Then judgement is used to select the subjects or units from each segment based on a specified proportion. It is this second step which makes the technique one of non-probability sampling.
- In **convenience sampling**, the selection of units from the population is based on easy availability and/or accessibility. The trade-off made for ease of sample obtainment is the representation of the sample.

1.7.4.3 *Sampling method used in the study*

It would be too costly and time consuming for each and every individual employed in the mining industry in South Africa to complete the questionnaire.

Other problems also include literacy, level of education and basic understanding of what is to be achieved. It was subsequently decided to target only middle-management

Middle-management usually describes those responsible for the execution and interpretation of policies, and normally responsible for the operation of divisions or departments. It is that layer of management in an organisation whose primary job responsibility is to monitor activities of subordinates and to generate reports for upper management.

One of the most widely used systems in the South African mining industry is the Paterson (1972) job grading system. This system categorises jobs according to the level of “decision making” involved in the execution of tasks. Table 1.3 below describes the job categories or “bands” in more detail:

Table 1.3: Paterson job grading system characteristics

Paterson band	Band characteristic – types of decisions made
A Band	• Defined decisions; • All actions required in the job are defined by the tool, implement or documents used, or the procedures specified in the job; • Jobs can be learnt quickly; • Only limited training is needed; • The employee can only choose to act, and decide “when” and “how fast” to execute the action. Such actions are usually elements of an operation.
B Band	• Operative/automatic decisions; • Involve work in which the processes are defined and freedom of choice is restricted to the operations; • There is a narrow range of possibilities to choose from, and a set of procedures for each possible choice; • Within the “established operating procedures” the employee can decide “where” and “when” to do the action; • Experience is necessary to deal with unforeseen situations; a full understanding of the theory and/or systems behind the job is not required.
C Band	• Process/systems/deterministic decisions; • Decisions involve the choice of the best method to execute “what has to be done” out of a number of options; • Decisions are based on knowledge acquired through qualifications, experience, established practices, systems, rules and regulations, i.e. “how”, “where” and “when”. • An understanding of the theory and/or the systems behind what has to be done is necessary; • The outcome is deterministic in nature.

Paterson band	Band characteristic – types of decisions made
D Band	• Interpretative/ probabilistic decisions; • Implementation of overall plans/programmes and/or budgets achieved by interpreting directives and choosing the best option out of a number of different possible courses of action or decisions. i.e. "what to do"; • Involves optimisation of resources to achieve objectives; • Also includes decisions on process, organisation procedures, systems, rules/regulations, manuals and interpretations of situations not covered by existing rules. • Some decisions will be probabilistic decisions and the planning horizon will be at least one year ahead (in detail).
E Band	• Programming decisions; • Takes the strategic/policy decisions made by top management and prepares the overall plans, programmes and budgets which will give life to strategy and policy; • Coordination across major functions is a key activity; • Feature of decisions taken at this level is long-term planning (at least 5 years ahead).

Source: National Association of Social Housing Organisations (2005:8)

Another band, the F band refers to top management (executives / directors) (De Klerk, 2001:121; Boikhutso, 2004:79; Employment Equity Act, 1998)

1.7.5 Phase 5: Data processing and analysis

After the data has been collected, the task of analysing and interpreting the data needs to be done. This will enable the researcher to draw conclusions and make recommendations. The interpretation of data is essential for the simple reason that the usefulness and relevance of the research findings lie in proper interpretation (Du Plooy, 1995:42). Interpretation refers to the task of drawing inferences from the collected facts and implies a search for the broader meanings of the findings (Du Plooy, 1995:42).

Data analysis fall into two broad classes: qualitative and quantitative. Qualitative techniques generally are easier to use because they do not rely on numerical data. That fact also makes them easier to understand and interpret. Quantitative techniques, on the other hand, can provide more accurate readings of the organisational problem (Cummings & Worley, 2005:123).

1.7.5.1 Qualitative tools

According to Cummings and Worley (2005:123), of the several methods for summarising diagnostic data in **qualitative terms**, two of the most important are content analysis and force-field analysis:

- **Content Analysis:** A popular technique for assessing qualitative data, especially interview data, is content analysis, which attempts to summarise comments into meaningful categories. When done well, a content analysis can reduce hundreds of interview comments into a few themes that effectively summarise the issues or attitudes of a group of respondents.
- **Force-Field Analysis:** This method organises information pertaining to organisational change into two major categories: forces for change and forces for maintaining the status quo or resisting change. One can either rank the order or rate the strength of the different forces.

1.7.5.2 Qualitative Tools

Cummings and Worley (2005:126) state that the most common quantitative tools are means, standard deviations, frequency distributions, scattergrams, correlation coefficients, and difference tests:

- **Arithmetic mean:** One of the most economical and straightforward ways to summarize quantitative data is to compute a mean and standard deviation for each item or variable measured. These represent the respondents' average score and the spread or variability of the responses, respectively. These two numbers easily can be compared across different measures or subgroups.
- But the mean can be a misleading statistic. It only describes the average value and thus provides no information on the distribution of the responses. Different patterns of responses can produce the same mean score. Therefore, it is important to use the **standard deviation** along with the **frequency distribution** to gain a clearer understanding of the data.

The frequency distribution is a graphical method for displaying data that shows the number of times a particular response was given.

- **Scattergrams and Correlation Coefficients:** In addition to describing data, quantitative techniques also permit researchers to make inferences about the relationships between variables. Scattergrams and correlation coefficients are measures of the strength of a relationship between two variables.
- **Difference Tests:** The difference test can be used to compare a sample group against some standard or norm to determine whether the group is above or below that standard. It also can be used to determine whether two samples are significantly different from each other.

1.7.5.3 *Data processing and analysis techniques used in the study*

The statistical techniques used in this study were arithmetic means, standard deviations and frequency distributions:

1.7.5.3.1 Arithmetic mean

The arithmetic mean is one of the three measures of central tendency (Neuman, 1997:298) and the one most commonly used (Levine *et al.*, 2005:105). Wisniewski (2002:91) stated that descriptive or deductive statistics endeavours to describe and analyse a subject or group, to determine some measure of an average and some measure of variability around the average.

The arithmetic mean is the sum of the total values, divided by the number of values measured (Wisniewski, 2002:92; Levine *et al.*, 2005:105). In this study, the mean indicates the average response on the Likert scale for a specific question. The mean is the most widely used measure of central tendency (Neuman, 1997:300). The arithmetic mean is the only measure of central tendency where the sum of the deviations of each value from the mean will always be zero (Lind *et al.*, 2002:68).

The arithmetic mean is calculated with the following formula (Wisniewski, 2002:92; Levine *et al.*, 2005:106):

$$\bar{x} = \frac{\sum x}{n}$$

Where $\bar{x}$ = sample mean

x = individual data items

n = number of data items

A person is only able to comment on the reliability of this mean if you have access to the original data and can see the original figures. There is no way of knowing if the arithmetic mean is a typical or a representative value (Wisniewski, 2002:93). The mean includes all the data items, including any extreme values and is strongly affected by changes in extreme values (Neuman, 1997:300; Wisniewski, 2002:95).

Thus, the mean can be seen as a balance point for a set of data. It is used to determine the relative importance of the statements in each section and to rank them according to their importance. The higher the arithmetic mean, the higher the relative importance of the statement / question relative to other statements / questions.

1.7.5.3.2 Standard deviation

The measure of variability used in this study is that of standard deviation. Standard deviation is the most difficult to compute measure of dispersion, but it is also the most comprehensive and widely used (Neuman, 1997:301). Its intent is to demonstrate the measure of variability around the average value (Wisniewski, 2002:96; Levine *et al.*, 2005:114). It is based on the mean and gives an average distance between all the scores and the mean. Standard deviation is calculated with the following formula (Wisniewski, 2002:96; Levine *et al.*, 2005:114):

$$s = \sqrt{\frac{\sum (x - \bar{x})^2}{n-1}}$$

Where: s = sample standard deviation

x = individual data items

$\bar{x}$ = sample mean

n = number of data items

The above formula is for the calculation of sample standard deviation and not population standard deviation. The sample standard deviation is used as an estimator of the population standard deviation (Lind *et al.*, 2002:107) and is of limited use by itself, as it is used for comparison purposes only (Neuman, 1997:301).

1.7.5.3.3 Frequency distributions

Frequency distributions are the grouping of data into mutually exclusive classes showing the number of observations in each (Lind *et al.*, 2002:22; Levine *et al.*, 2005:55). Thus, it is a way to describe a set of data as descriptive statistics. The data can be grouped in a frequency table, thus making the data more meaningful (Wisniewski, 2002:50). It may also be appropriate to show the frequency distribution in the form of percentages of the total (Wisniewski, 2002:53).

One of the most common ways to portray a frequency distribution is a histogram (Lind *et al.*, 2002:35). A histogram is a graph in which the classes are marked on the horizontal axis and the class frequencies on the vertical axis (Lind *et al.*, 2002:35). The class frequencies are represented by the heights of the bars and the bars are drawn adjacent to each other. A histogram provides an easily interpreted visual representation of a frequency distribution.

1.7.5.3.4 Reliability of the research instrument

In order to determine the internal consistency between the variables in the questionnaires, the Cronbach alpha coefficient was calculated (Page & Meyer, 2000:292). The Cronbach alpha coefficient is based on the average correlation of variables within a test.

For example, a reliability coefficient of 0.75 means that 75 percent of the variance in the observed scores (the actual scores obtained on the measure) is due to the variance in the true score. A high reliability coefficient generally indicates that the measure is highly reliable, whereas a low coefficient would generally indicate weak reliability. A Cronbach alpha value of one indicates perfect internal consistency. The formula for standardised Cronbach's α (Cronbach, 1951):

$$\alpha = \frac{N \cdot \bar{r}}{(1 + (N - 1) \cdot \bar{r})}$$

Where: N = the number of items

$\bar{r}$ = the average inter-item correlation among items

Although some authors state that reliability coefficients lower than 0.60 are deemed to be questionable, those close to 0.70 are considered acceptable (Page & Meyer, 2000:293), and greater than 0.80 as good (Page & Meyer, 2000:292). However, Nunnally (1978:295) states that a value of 0.5 is still acceptable.

1.7.5.3.5 Practical significance versus or in combination with, statistical significance

According to Neuman (1997:320) statistical significance means that results are not likely to be due to chance factors. It indicates the probability of finding relationships in the sample when there is none in the population. As probability samples involve a random process, it is always possible that

sample results will differ from a population parameter. Thus, a researcher wants to estimate the odds that sample results are due to a true population parameter or to chance factors of random sampling.

Statistical significance uses probability theory and specific statistical tests to tell a researcher whether the results (e.g. a difference between two means) are produced by random error in random sampling (Neuman, 1997:320). It cannot prove anything with absolute certainty. It states that particular outcomes are more or less probable. Statistical significance is not the same as practical significance. Results can be statistically significant but theoretically meaningless or trivial. For example, two variables can have a statistically significant association due to coincidence, with no logical connection between them (e.g. length of fingernails and ability to speak French) (Neuman, 1997:320). Statistical significance only tells what is likely (Neuman, 1997:320).

An advantage of drawing a random sample is that it enables a person to study the properties of a population with the time and money available (Ellis & Steyn, 2003:51). In such cases the statistical significance tests (e.g. t-tests) are used to show that the result (e.g. the difference between two means) is significant. The p-value is a criterion of this, giving the probability that the obtained value (or more extreme) could be obtained under the assumption that the null hypothesis (e.g. no difference between the population means) is true (Ellis & Steyn, 2003:51).

A small p-value (e.g. smaller than 0.05) is considered as sufficient evidence that the result is statistically significant. Thus, statistical significance does not necessarily imply that the result is important in practice, as these tests have a tendency to yield small p-values (indicating significance) as the sizes of the data sets increase.

In many cases researchers are forced to consider their obtained results as a sub-population of the target population due to the weak response of the planned random sample. In other cases data obtained from convenience

sampling are erroneously analysed as if it were obtained by random sampling (Ellis & Steyn, 2003:51). These data should be considered as small populations for which statistical inference and p-values are not relevant.

Statistical inference draws conclusions about the population from which a random sample was drawn, using the descriptive measures that have been calculated. Instead of only reporting descriptive statistics in these cases, effect sizes can be determined (Ellis & Steyn, 2003:51). Practical significance can be understood as a large enough difference to have an effect in practice.

The calculation of effect sizes for means is indicated in Table 1.4.

Table 1.4: Calculation of effect sizes for means

TEST	CONDITIONS	EFFECT SIZE
t	$\sigma_1 = \sigma_2$: Take s the pooled standard deviation from the samples.	$d = \frac{ \bar{x}_1 - \bar{x}_2 }{s}$
ANOVA	$\sigma_i = \sigma_j$: for all i, j : Take MSE the mean square error of analysis of variance.	$d = \frac{ \bar{x}_i - \bar{x}_j }{\sqrt{MSE}}$

Source: Ellis and Steyn (2003:2)

Cohen (1988:20-27) gives the following guidelines for the interpretation of the effect sizes:

- Small effect for $d = 0.2$.
- Medium effect for $d = 0.5$, thus a possibility exists in practice.
- Large effect for $d = 0.8$, thus a large possibility exists in practice.

1.7.6 Phase 6: Implications, conclusions and recommendations

The final phase of the research process brings the research together and provides an interpretation of the results, a summary of the critical conclusions,

and strategic recommendations based on the findings of the research (Joppe, 2006).

The layout of the conclusions and recommendations must be carefully considered to ensure that is logical and systematic. It should also demonstrate an original focus on the problem (Du Plooy, 1995:44).

Joppe (2006) argues that the analysis of the data and the interpretation of the results go hand in hand, with only those findings directly relevant to the study objectives being discussed.

The results of the survey were discussed along with the appropriate statistical analysis and illustrations in the form of tables and charts. As part of the interpretation of the results, the findings were interpreted in light of the research question, and results were also placed in the context of the literature review.

The conclusions of the research were reviewed, and from these conclusions overall conclusions for the research question itself was drawn and discussed. The reasoning followed to reach the conclusions and the data that supports the statements made were incorporated into summarised comments with respect to the overall interpretation.

Care was taken not to make concluding statements that would apply the study's results beyond the parameters established for the study under the problem definition.

No matter how complete the study was, there will always be further research required to shed more light on the research question, particularly if there is an interest in generalising the findings beyond the study's parameters.

Areas within the literature itself that have gaps that should be addressed were also identified, and therefore, a summary section regarding recommendations for further study was included.

1.8 LIMITATIONS OF THE STUDY

According to Antoncic and Hisrich (2005) the literature on corporate entrepreneurship has identified two main sets of corporate entrepreneurship antecedents: one pertains to the organisation, and the other to the external environment of the company. Whilst not negating the importance of the external environment on corporate entrepreneurship, this study is limited to the internal environment of the organisation.

Although reference was made to the external environment by interviewees, the focus of the study is on the internal environment.

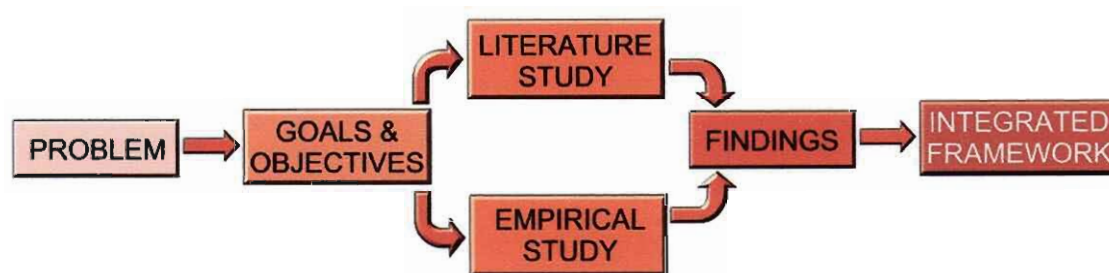
The study is also limited to middle-management as discussed in the sampling section above, and specifically limited to five mining companies in the South African mining industry. This resulted in a possible limitation in terms of the sample size in that the number of respondents totalled only 103 middle-managers from an approximate 600 middle-managers from the five companies collectively.

However, the author proposes that because of the relative low variations from the average values (the measure of consistency in the perceptions of respondents) – *ceteris paribus* – a reasonable probability exists that a larger number of respondents would have given very similar results as the results obtained from the 103 respondents.

1.9 LAYOUT OF STUDY

Figure 1.4 below summarises the layout and structure of the study.

Figure 1.4: Structure of the study



- **Entrepreneurship: Literature overview**

Chapter 2 consists of a literature study of entrepreneurship, with reference to the definition of entrepreneurship, the characteristics of an entrepreneur, and entrepreneurship as driver of economic growth.

- **Corporate Entrepreneurship: Literature overview**

Chapter 3 consists of a literature study of corporate entrepreneurship with reference to the definition of corporate entrepreneurship, the dimensions of corporate entrepreneurship, the types of corporate entrepreneurship, and the entrepreneurial process.

- **Entrepreneurial Leadership: Literature overview**

Chapter 4 consists of a literature study of entrepreneurial leadership, with reference to its definition, its characteristics, and how it relates to contemporary leadership literature.

- **Entrepreneurial climate in established organisations : Literature overview**

Chapter 5 consists of a literature study on entrepreneurial climate in established organisations, with reference to the definition of organisational climate, establishing a climate for entrepreneurship, and the characteristics of an entrepreneurial climate.

- **An overview of the South African mining industry**

Chapter 6 consists of an overview of South Africa's mining industry, with reference to a brief historic and current overview of the different sectors in the industry, i.e. gold, platinum, diamonds, coal, uranium and base metals and minerals, as well as the challenges facing the industry.

- **Empirical research**

Chapter 7 consists of empirical research to determine how middle-management of South Africa's mining industry perceives the entrepreneurial climate in their organisations.

- **Conclusions and recommendations**

Chapter 8 concludes on the state of affairs and discusses recommendations for creating a climate conducive for corporate entrepreneurship and subsequent entrepreneurial behaviour and activity to manifest.

- **An integrated framework for corporate entrepreneurship**

Chapter 9 closes the study with an integrated framework for corporate entrepreneurship to improve the entrepreneurial climate in mining companies. A number of steps for implementation are recommended, followed by achievement of the study objectives and recommendations for future research.

CHAPTER 2

ENTREPRENEURSHIP: LITERATURE OVERVIEW

2.1 INTRODUCTION

What is entrepreneurship? Despite the dramatic increase over the last 20 years in research dedicated to answering this important question, it appears that relatively little progress towards understanding the essence of the concept has been made. The current state of the literature is characterised by a proliferation of theories, definitions and taxonomies that often conflict and overlap, resulting in confusion and disagreement among researchers and practitioners about precisely what entrepreneurship is (Parker, 2003:45).

Morris and Kuratko (2002:22) also states that although the term entrepreneurship has been in use for well over 200 years, there remains considerable disagreement over its meaning. People seem to hold widely disparate views regarding who is an entrepreneur, what an entrepreneurial venture looks like, and the nature of the activities that constitute entrepreneurial behaviour. Thus, in spite of all this interest, a concise, universally accepted definition has not yet emerged (Hisrich & Peters, 2002:7).

Sightler (2001:15) furthermore states that as important and pervasive as entrepreneurship is today, there may be disagreement or misconception as to what truly constitutes entrepreneurship. He cites Pitt (1998) who suggests that entrepreneurship is in danger of becoming yet another “buzzword,” popularised yet bastardised by the popular press, consultants, and entrepreneurs themselves. Pitt observes “entrepreneurial” descriptions applied to issues and objects as diverse as competitive strategy, performance potential observed in children, and leadership.

Historically, theorising about entrepreneurship has been done across many different disciplines, including history, engineering, anthropology, economics, sociology and psychology. In the last three decades or so, Business Schools have taken centre stage in the academy for the study of entrepreneurship (Butler, 2002:3).

According to Butler (2002:3) the academic literature has developed a strong tradition of scholarship observing the phenomenon of “entrepreneurship” and creating propositions. It is important to note that this early literature does not have a “do” component for entrepreneurship.

Martin (2001:9) also emphasises that the traditional way to define entrepreneurship as something ‘mystical’, a special, innate ability to combine creativity, insight, and “out-of-the-box” thinking with a unique brand of courage, clairvoyance, inspiration, and bravery is too fatalistic.

Butler (2002:3) states that the literature can be divided into two parts. The first is concerned with the development of the ideas that had an influence on the development of market societies that depend on entrepreneurship, including the contributions of “economic theory”, which was more concerned with developing a theory of economics than about accounting for entrepreneurship.

The second is devoted to describing historical societies that developed strong economies based on new ventures. Although these traditions overlap, they stand as separate contributions to the literature (Butler, 2002:3).

2.2 DEFINING ENTREPRENEURSHIP

The word ‘entrepreneurship’ is derived from the French word “*entreprendre*” meaning “to undertake something, to seek opportunities, to fulfil needs and wants by being innovative and starting businesses” (Clark *et al.*, 1993:9; Kuratko & Hodgetts, 2004:28), or, literally translated, means “between-taker” or “go-between” (Hisrich & Peters, 2002:7). Clark *et al.* (1993:9) go on to say that entrepreneurship is the initiation of change, a creative act.

Hisrich and Peters (2002:7) believe that development of the theory of entrepreneurship parallels to a great extent the development of the term itself, and provides a summarising timeline, as reflected in table 2.1 below.

Table 2.1: Development of entrepreneurship theory and the term entrepreneur

Stems from French:	means between-taker or go-between.
Middle Ages:	actor and person in charge of large-scale production projects.
17th century:	person bearing risks of profit (loss) in a fixed-price contract with government.
1725:	Richard Cantillon-person bearing risks is different from one supplying capital.
1803:	Jean Baptiste Say-separated profits of entrepreneur from profits of capital.
1876:	Francis Walker-distinguished between those who supplied funds and received interest and those who received profit from managerial capabilities.
1934:	Joseph Schumpeter-entrepreneur is an innovator and develops untried technology.
1961:	David McClelland-entrepreneur is an energetic, moderate risk taker.
1964:	Peter Drucker-entrepreneur maximizes opportunities.
1975:	Albert Shapero-entrepreneur takes initiative, organizes some social and economic mechanisms, and accepts risks of failure.
1980:	Karl Vesper-entrepreneur seen differently by economists, psychologists, businesspersons, and politicians.
1983:	Gifford Pinchot-intrapreneur is an entrepreneur within an already established organization.
1985:	Robert Hisrich-entrepreneurship is the process of creating something different with value by devoting the necessary time and effort; assuming the accompanying financial, psychological, and social risks; and receiving the resulting rewards of monetary and personal satisfaction.

Source: Hisrich and Peters (2002:7)

Deakins and Freel (2003:3) also examined the most important theories of entrepreneurship that are accepted today, and summarised their key insights as in table 2.1.

Table 2.2: Key insights of the most important theories of entrepreneurship

Writer	Key role of entrepreneur	Additional insights
Say	Organiser of factors of production	Catalyst for economic change
Cantillon	Organiser of factors of production	Catalyst for economic change
Kirzner	Ability to spot opportunity	Entrepreneur's key ability is 'creative' alertness
Schumpeter	Innovator	Entrepreneur as 'hero' figure
Knight	Risk-taker	Profit is reward for risk-taking
Casson	Organiser of resources	Key influence of the environment
Schakle	Creativity	Uncertainty creates opportunity for profit

Source: Deakins and Freel (2003:3)

After referring to Cantillon (circa 1730), Say (1816), Frank Knight (1921), Schumpeter (1934), Penrose (1963), Leibenstein (1968, 1979), Kirzner (1979) and Gartner (1988), the *Women Entrepreneurs in Science & Technology* (2005) summarises that entrepreneurship is often viewed as a function which involves the exploitation of opportunities which exist within a market. Such exploitation is most commonly associated with the direction and/or combination of productive inputs.

Sightler (2001:20) defines entrepreneurship as the process through which individuals and teams create value by bringing together a unique collection of resources to take advantage of opportunities. It can occur in any organisational context and results in a variety of possible outcomes, including new ventures, products, services, processes, markets, and technologies.

Stevenson and Jarillo (1990:23) regards entrepreneurship as a process by which individuals – either on their own or inside organisations – pursue opportunities without regard to the resources they currently control. In very similar fashion Coulter (2003:6) describes entrepreneurship as the process whereby an individual or group of individuals use organised efforts to pursue opportunities to create value and grow by fulfilling wants and needs through innovation and uniqueness, no matter what resources the entrepreneur currently has.

Further emphasis to the process notion comes from Rwigema and Venter (2004:5) that define entrepreneurship as the process of conceptualising, organising, launching and – through innovation – nurturing a business opportunity into a potentially high growth venture in a complex, unstable environment.

Kayne (1999:3) describes entrepreneurship as the ability to amass the necessary resources to capitalise on new business opportunities. The term is frequently used to refer to the rapid growth of new and innovative businesses and is associated with individuals who create or seize business opportunities and pursue them without regard for resources under their control.

These individuals build something from practically nothing and usually reinvest earnings to expand their enterprise or to create new enterprises. Other words that characterise entrepreneurship include innovative, creative, dynamic, risk, flexible and growth oriented (Kayne, 1999:3).

Kaynes' description is also adopted by the National Governors Association (2004:6) and applied in its best practices manual. It relates closely to the Northern Ireland Government (2003:5) that agreed to consider entrepreneurship, in its widest possible sense, as the ability of an individual, possessing a range of essential skills and attributes, to make a unique, innovative and creative contribution in the world of work, whether in employment or self-employment.

From a human orientation or inclination point of view, Timmons and Spinelli (2007:79) regards entrepreneurship as a way of thinking, reasoning, and acting that is opportunity obsessed, holistic in approach, and leadership balanced. This "way of living" therefore causes the phenomenon to manifest. Entrepreneurship results in the creation, enhancement, realisation, and renewal of value, not just for the owner but for all participants and stakeholders.

At the heart of the process is the creation and/or recognition of opportunities, followed by the will and initiative to seize these opportunities. It requires a willingness to take risks (Goldscheider, 1999:11) – both personal and financial – but in a very calculated fashion in order to constantly shift the odds to your favour, balancing the risk with the potential reward (Timmons & Spinelli, 2007:79).

Anderson (2002) refers to Carton *et al.* (1998) who provide an operational definition of entrepreneurship that attempts to encompass definitions from scholars like Schumpeter into a comprehensive and adequate concept: “Entrepreneurship is the pursuit of a discontinuous opportunity involving the creation of an organisation (or sub-organisation) with the expectation of value creation to the participants.”

Kao (2003) defines entrepreneurship as doing something new (creative) and/or something different (innovative) for the purpose of creating wealth for the individual and adding value to society. In a strategy context Thompson *et al.* (2007:35) describe entrepreneurship as actively searching for opportunities to do new things or to do existing things in new ways.

Kuratko and Hodgetts (2004:30) describe entrepreneurship as a dynamic process of vision, change, and creation. It requires an application of energy and passion towards the creation and implementation of new ideas and creative solutions. It involves an opportunity, an individual, an organisational context, risk, and resources (Lambing & Kuehl, 2007:16).

Essential ingredients include the willingness to take calculated risks – in terms of time, equity, or career; the ability to formulate an effective venture team; the creative skill to marshal needed resources; and fundamental skill of building a solid business plan; and finally, the vision to recognise opportunity where others see chaos, contradiction, and confusion (Kurakto & Hodgetts 2004:30).

Morris and Kuratko (2002:21) say that entrepreneurship is more than the starting of a business. Although venture creation can certainly be an

important facet of entrepreneurship, it's not the complete picture. In fact, it's not even a requisite condition. Seeking and capitalising on opportunity, taking risks beyond security, and having the tenacity to push an innovative idea through to reality represent the essence of what entrepreneurs do.

An entrepreneurial perspective can be developed in any individual. It is a perspective that can be exhibited inside or outside an organisation, in profit or not-for-profit enterprises, and in business or non-business activities. The purpose is to turn innovative ideas into organisational realities. Entrepreneurs create the new, while replacing or destroying the old. They challenge assumptions and bend or break rules (Morris & Kuratko, 2002:21).

Entrepreneurship is regarded by Accenture (2005) as the creation of value by people and organisations working together, through the application of creativity, drive and a willingness to take what might commonly be seen as risks. In other words the creation of an innovative economic organisation (or network of organisations) for the purpose of gain under conditions of risk and uncertainty (Dollinger, 2003:5).

2.3 DEFINING ENTREPRENEUR

West Virginia University Entrepreneur Centre (2005) states that the first academic usage of the term was by economist Richard Cantillon in 1730. For Cantillon, the bearing of risk – engaging in business without an assurance of the profits that will be derived – is the distinguishing feature of an entrepreneur.

According to Willax (2003) one of the first uses of the word was in the late 1700s by Jean Baptiste Say, who described an entrepreneur in terms of behaviour. The entrepreneur is called upon to estimate, with tolerable accuracy, the importance of a specific product, the probable amount of demand, and the means of production.

Furthermore, the entrepreneur must sometimes employ a large number of people; again to buy or order raw materials, to combine the workers, find consumers, to exercise a spirit of order and economy. In the course of such operations there are obstacles to be surmounted, anxieties to be overcome, misfortunes to be repaired, and expedients to be devised (Willax, 2003).

Joseph Schumpeter emphasised that entrepreneurs are innovators who implement change in an economy by trying new combinations of resources. In the Schumpeterian view, the entrepreneur was a disruptive force in an economy. He emphasised that this process of creative destruction (the introduction of new things and the failing of old things) was the critical ingredient necessary for economic progress (West Virginia University Entrepreneurship Centre, 2005).

McFarling (2002:707) adds to this by stating that in Schumpeter's theory, the entrepreneur is responsible for introducing change into a commercially organised economic system. An innovation in this environment is not an automatic adjustment, but a break with the past. It is making this break that identifies an individual as an entrepreneur.

In contrast, the West Virginia University Entrepreneurship Centre (2005), states that Israel Kirzner viewed the entrepreneur as essentially an arbitrageur who finds previously unnoticed profit opportunities and acts on them, moving the market toward a stable equilibrium.

Entrepreneurs usually are considered to bear risk while pursuing opportunities, and often are associated with creative and innovative actions. Individuals within organizations (i.e. non-founders) can also be classified as entrepreneurs since they pursue the exploitation of opportunities (Women Entrepreneurs in Science & Technology, 2005).

Shelton and Darling (2001:45) refer to Kuratko and Hodgetts (1995:4) as defining an entrepreneur as an innovator or developer who recognises and seizes opportunities; converts those opportunities into workable and

marketable ideas; adds value through time, effort, money, or skills; assumes the risks of the competitive marketplace to implement those ideas; and realises the rewards from those efforts.

Turner (2002:31) defines an entrepreneur as a creative innovator who, acting on initiative, seeks and maximizes opportunity, takes the required risk, and energetically drives it to a worthwhile conclusion. Turner (2002:31) however emphasises the importance to clarify “worthwhile” because monetary or profitable objectives are not the main concern of an entrepreneur. It is the passion for what they believe in that motivates them to action. Successful non-profit making organisations, institutes and schools, are so because of an entrepreneurial spirit driving them.

Bollier (1999:3) stated that at the heart of entrepreneurialism are the personal creativity and enterprising initiatives that a person brings to the market. An entrepreneur is someone who tries to actualise a personal vision for redefining certain aspects of life, especially by marketing new products and services. Entrepreneurs are willing to take personal risks to fulfil their goals. They possess supreme self-confidence and optimism about the future. They show persistence and courage in the face of adversity. They tend to appreciate the deeper, long-term dynamics of a given domain (Bollier, 1999:3).

In describing the production factors that play a role in economic activity, namely natural resources, labour, capital and the entrepreneur, Smit *et al.* (1997:6) defines the entrepreneur as one who recognises economic needs and combines other production factors in order to fulfil those needs. They argue that entrepreneurship should be regarded as the most important factor of production because the entrepreneur is responsible for combining the other factors of production.

The person needs to see a gap in the market and combine the other three factors of production to fill the gap by providing a product or service (Smit *et al.*, 1997:201). In emphasising the argument, they cite that even the presence

of natural resources would not necessarily lead to increased economic growth. There must be an entrepreneur who can employ technology to utilise the natural resources (Smit *et al.*, 1997:461).

The entrepreneur introduces change, said to be pivotal to economic growth, into an economic system, and that results in increased production. Entrepreneurship conveys the notion of something special happening, something that adds more to the production function than is obtained by simply managing it (McDade & Spring, 1998:2).

An entrepreneur is a person who tries out new combinations of products, processes, markets, organisational forms, and supplies (Lambing & Kuehl, 2007:16). It is the individual (or team) that identifies the opportunity, gathers the necessary resources, creates and is ultimately responsible for the performance of the organisation (Anderson, 2002).

An entrepreneur is a person who undertakes a wealth creating and value adding process, through incubating ideas, assembling resources and making things happen. Venture founders are entrepreneurs, as are those engaged in creative and/or innovative activities; but they must not merely create wealth for themselves, but add value to society (Kao, 2003).

Hisrich and Peters (2002:7) see an entrepreneur as an individual who takes risks and starts something new - a person who habitually creates and innovates to build something of recognised value around perceived opportunities (Bolton & Thompson, 2003:49).

2.4 BRINGING THE DEFINITIONS OF “ENTREPRENEURSHIP” & “ENTREPRENEUR” TOGETHER

Hisrich and Peters (2002:10) states that although many definitions view entrepreneurs from a slightly different perspective, they all contain similar notions, such as newness, organising, creating, wealth, and risk taking. Yet, they conceive it as somewhat restrictive, since entrepreneurs are found in all

professions – education, medicine, research, law, architecture, engineering, social work, distribution and government.

Subsequently Hisrich and Peters (2002:10) define entrepreneurship as the process of creating something new with value by devoting the necessary time and effort, assuming the accompanying financial, psychic, and social risks, and receiving the resulting rewards of monetary and personal satisfaction and independence. Their definition stresses four basic aspects of being an entrepreneur regardless of the field (*ibid.*):

- Entrepreneurship involves the creation process – creating something new of value.
- Entrepreneurship requires the devotion of the necessary time and effort.
- Entrepreneurship involves assuming the necessary risks.
- Entrepreneurship involves the rewards of being an entrepreneur.

Gartner (1990:15) concludes that a universal definition has yet to emerge but suggests that a single phenomenon is referred to, although one with multiple components. The relative importance of these different components can vary according to the environmental context within which an entrepreneurial event occurs.

Morris and Kuratko (2002:22) however, state that one definition seems to incorporate all aspects of the entrepreneurial phenomenon, quoting Stevenson *et al.*, (1999) who define entrepreneurship as “the process of creating value by bringing together a unique package of resources to exploit an opportunity.” This definition also has four key components (*ibid.*):

- Entrepreneurship involves a process. It is manageable, can be broken down into steps or stages, and is ongoing. Moreover, as a process, entrepreneurship can be applied in *any* organisational context.
- Entrepreneurs create value where there was none before. They create value within organisations, and they create value in the marketplace.

- Entrepreneurs put resources together in a unique way. Unique combinations of money, people, procedures, technologies, materials, facilities, packaging, distribution, channels, and other resources represent the means by which entrepreneurs create value and differentiate their efforts.
- Entrepreneurship is opportunity driven behaviour. It is the pursuit of opportunity without regard to resources currently controlled. The unique combination of resources fits well with some unrecognised or unmet opportunity.

To add to these key terms, resulting in a more holistic picture of the entrepreneurial phenomenon, Morris and Kuratko (2002:23) refers to seven perspectives on the nature of entrepreneurship as depicted in table 2.3.

Table 2.3: Seven Perspectives on the nature of Entrepreneurship

Creation of Wealth	Entrepreneurship involves assuming the risks associated with the facilitation of production in exchange for profit.
Creation of Enterprise	Entrepreneurship entails the founding of a new business venture where none existed before.
Creation of Innovation	Entrepreneurship is concerned with unique combinations of resources that make existing methods or products obsolete.
Creation of Change	Entrepreneurship involves creating change by adjusting, adapting, and modifying one's personal repertoire, approaches, and skills to meet different opportunities available in the environment.
Creation of Employment	Entrepreneurship is concerned with employing, managing, and developing the factors of production, including the labour force.
Creation of Value	Entrepreneurship is a process of creating value for customers by exploiting untapped opportunities.
Creation of Growth	Entrepreneurship is defined as a strong and positive orientation towards growth in sales, income, assets, and employment.

Source: Morris and Kuratko (2002:23)

Timmons and Spinelli (2007:80) elaborate further on what entrepreneurs do. They view entrepreneurship as the ability to create and build a vision from

practically nothing. Fundamentally, it is a human, creative act. It is the application of energy to initiate a novel concept or build an enterprise or venture, rather than just watching or analysing. This vision requires a willingness to take calculated risks-and then to do everything possible to reduce the chances of failure.

Entrepreneurship also includes the ability to build a team with complementary skills and talents. It is the knack for sensing an opportunity where others see chaos, contradiction, and confusion. It is having the know-how to find, marshal, and control resources (often owned by others) Timmons and Spinelli (2007:80).

In an attempt to draw a concluding definition that encompasses all the definitions reviewed from the literature, the author poses the following high-level definition of entrepreneurship:

“Entrepreneurship is a life orientation that recognises opportunity and exploits it by integrating all parts of the whole and influencing the creative process to ultimately result in creation of value.”

2.5 THE MYTHS OF ENTREPRENEURSHIP

Throughout the years many myths have arisen about entrepreneurship (Kuratko & Hodgetts, 2004:30), longstanding beliefs that have developed over years and that reflect limited knowledge and research in the field (Morris & Kuratko, 2002:24). These myths enjoy recurring attention and popularity (Timmons & Spinelli, 2007:18), is often based on a narrow view and assumptions that are not accurate (Bolton & Thompson, 2003:39) that will prevail until it is dispelled with contemporary research findings (Kuratko & Hodgetts, 2004:30).

Listed below are thirteen of the most notable myths, with an explanation regarding why each is inaccurate or incomplete.

2.5.1 Entrepreneurs are born, not made

It is recognised that traits and characteristics associated with entrepreneurial behaviour are strongly influenced by environmental conditions (family, work, peer group, social) and that each of us has significant entrepreneurial potential (Morris & Kuratko, 2002:24). Like all disciplines, entrepreneurship has models, processes, and case studies that allow the topic to be studied and the knowledge acquired (Kuratko & Hodgetts, 2004:30). An entrepreneur develops by accumulating the relevant skills, know-how, experiences, and contacts over a period of years (Timmons & Spinelli, 2007:19).

2.5.2 Entrepreneurs are always inventors

While many inventors are also entrepreneurs, there are numerous entrepreneurs who do not invent anything (Morris & Kuratko, 2002:25; Bolton & Thompson, 2003:44). They do tend to engage in various kinds of innovative activity and/or capitalise on the creative ideas of others, for example in the operating process, the pricing approach, the packaging, the distribution method, or some other means of value creation that does not entail inventing a new product (Morris & Kuratko, 2002:25; Kuratko & Hodgetts, 2004:30).

2.5.3 Entrepreneurs have a specific profile

A standard entrepreneurial profile is hard to compile. The environment, the venture itself, and the entrepreneur all interact, resulting in many different types of profiles (Morris & Kuratko, 2002:25). Put another way, there are different kinds of entrepreneurs. Successful entrepreneurs are more likely to benefit from an “entrepreneurial perspective” within them than to fit a particular profile (Kuratko & Hodgetts, 2004:32).

2.5.4 All you need is luck to be an entrepreneur

Being at the right place at the right time is always an advantage. But “luck happens when preparation meets opportunity” is an equally appropriate

adage (Morris & Kuratko, 2002:25). What appears to be luck really is preparation, determination, desire, knowledge, and innovativeness (Kuratko & Hodgetts, 2004:32).

2.5.5 Anyone can be an entrepreneur

Entrepreneurs who recognise the difference between an idea and an opportunity, and who think big enough, start businesses with a better chance of succeeding (Timmons & Spinelli, 2007:19). Furthermore, entrepreneurs don't just create something that mimics what already exists, they move onto further initiatives and projects, and build new things that becomes a model others replicate (Bolton & Thompson, 2003:42).

2.5.6 All an entrepreneur needs is a good idea

It is a mistake to assume that people with ideas can automatically develop an entrepreneurial business from these ideas. Certainly ideas are required, but they have to be crafted into opportunities (Bolton & Thompson, 2003:42). Understanding the demands of the different phases of the entrepreneurial process, taking an organised approach to developing the venture, and coping with the challenges of the venture are also key (Coulter, 2003:8).

2.5.7 Entrepreneurs are extreme risk-takers and gamblers

Successful entrepreneurs take very careful, calculated risks (Timmons & Spinelli, 2007:19). They work hard through planning and preparation to mitigate or minimise the risk involved (Morris & Kuratko, 2002:26; Coulter, 2003:8). They manage risk in order to better control the destiny of their vision (Kuratko & Hodgetts, 2004:33).

2.5.8 Entrepreneurs are academic and social misfits

The belief that entrepreneurs are academically and socially ineffective may be a reaction to the fact that some business owners started successful

enterprises after dropping out of school or quitting a job (Morris & Kuratko, 2002:26). However, the successful entrepreneur wears two hats, one of visionary change agent and one of effective manager. He or she is typically adept socially, economically, and academically – viewed not as a misfit, but a professional (Kuratko & Hodgetts, 2004:31).

2.5.9 All entrepreneurs need is money

Money is one of the least important ingredients in new venture success (Timmons & Spinelli, 2007:19). Many other resources, such as a skilled and balanced team, technical and selling capabilities, distribution channels, licenses, and more, are vital for entrepreneurial success. Money is not always a guarantee that the right resources are put together in the right way at the right time (Morris & Kuratko, 2002:26). To entrepreneurs, money is a resource but never an end in itself (Kuratko & Hodgetts, 2004:32).

2.5.10 Ignorance is bliss for entrepreneurs

Today's competitive markets, demand detailed planning and preparation, identifying the strengths and weaknesses of a concept or venture, setting up clear timetables with contingencies for handling problems, and minimising these problems through careful strategy formulation are all key factors for successful entrepreneurship (Morris & Kuratko, 2002:26; Kuratko & Hodgetts, 2004:32).

2.5.11 Entrepreneurs have high failure rates

It is true that many entrepreneurs suffer a number of failures before they are successful. They follow the adage if at first you don't succeed, try, try, again." In fact, failure can teach many lessons to those willing to learn and often leads to future successes (Timmons & Spinelli, 2007:19; Morris & Kuratko, 2002:26), supporting the notion that the statistics of entrepreneurial failure rates have been misleading over the years (Kuratko & Hodgetts, 2004:32).

2.5.12 Entrepreneurs are “lone wolfs”

Owning and running the whole venture effectively puts a ceiling on growth. It is extremely difficult to grow a higher potential venture by working solo. Higher potential entrepreneurs are leaders that build great teams, an organisation, a company because of effective relationships with peers, directors, investors, suppliers, customers, and the like (Bolton & Thompson, 2003: 46; Timmons & Spinelli, 2007:20).

2.5.13 Entrepreneurs are unstructured and chaotic

Entrepreneurs are typically well-organised individuals. They tend to have a system, perhaps elaborate, perhaps not, but personally designed to keep things straight and maintain priorities. The entrepreneur's ability to meet daily and weekly obligations, to simultaneously grow the venture, and to move quickly when novel events occur is strongly affected by his or her organizing capabilities. Plans, outlines, forecasts, checklists, timetables, budgets, databases, and pert charts are examples of tools that the contemporary entrepreneur always keeps close at hand (Morris & Kuratko, 2002:27).

2.5.14 Conclusion

The conclusion is that entrepreneurship is a planned activity that can be managed as a process, involves risk, requires innovation, and can be applied in virtually any organisational context. In addition, it is an activity requiring significant dedication, perseverance, and adaptability. Virtually anyone is capable of being entrepreneurial, and many people manage to be entrepreneurial on a continuous basis (Morris & Kuratko, 2002:27).

2.6 THE CHARACTERISTICS OF AN ENTREPRENEUR

By observing both successful and unsuccessful entrepreneurs a wide range of personality traits are noticed. Studies also provide useful clues about the behaviour that is most likely to lead to business success. Conversely, those

who have failed in business also provide insight into what to avoid (Timmons & Spinelli, 2007:7).

According to the Kauffman Centre for Entrepreneurial Leadership (1999:1) several characteristics are exhibited by people who are successful in their entrepreneurial expectations. Some of these traits are so self-evident that little need to be said about them. Others require more explanation. They are not all of equal importance, and there is some overlap among them, and although the list of eighteen discussed below admittedly is incomplete, it does provide important insights into the entrepreneurial perspective Kuratko & Hodgetts, 2004:116).

2.6.1 Desire and passion

It takes passion and tremendous energy to refine an opportunity into a start-up venture and nurse it to full potential (Rwigema & Venter, 2004:60). Unquestionably, a successful entrepreneur must fervently want to be one. If someone doesn't want success passionately, he or she probably won't do the things it takes to be successful. Desire is the foundation that supports most of the other characteristics that follow (Dollinger 2003:44; Lambing & Kuehl, 2007:18).

2.6.2 Commitment, determination and perseverance

More than any other factor, total commitment and dedication to success as an entrepreneur can overcome obstacles and setbacks. Sheer determination and an unwavering commitment to succeed often win out against odds that many people would consider insurmountable. They also can compensate for personal shortcomings (Bolton & Thompson, 2003:63; Kuratko & Hodgetts, 2004:116; Rwigema & Venter, 2004:60; Timmons & Spinelli, 2007:7).

2.6.3 Need to achieve

Entrepreneurs are motivated to excel. They are self-starters who appear to others to be internally driven by a strong desire to compete, to excel against self-imposed standards, and to pursue and attain challenging goals (Deakins & Freel, 2003:15; Kuratko & Hodgetts, 2004:116; Rwigema & Venter, 2004:61; Timmons & Spinelli, 2007:13).

2.6.4 Internal locus of control

Successful entrepreneurs believe in themselves. They do not believe the success or failure of their venture will be governed by fate, luck, or similar forces (Kuratko & Hodgetts, 2004:117). They believe their accomplishments and setbacks are within their own control and influence and they can affect the outcome of their actions (Rwigema & Venter, 2004:64; Lambing & Kuehl, 2007:19). This attribute is consistent with a high-achievement motivational drive, the desire to take personal responsibility, and self-confidence (Deakins & Freel, 2003:14; Timmons & Spinelli, 2007:14).

2.6.5 Initiative

In the entrepreneurial world, nothing happens unless it is made to happen. Entrepreneurs must initiate action. They willingly put themselves in situations where they are personally responsible for the success or failure of the operation. They take the initiative in solving a problem or in filling a vacuum where no leadership exists. This is the action-oriented nature of the entrepreneur expressing itself, and the quality of decisions and initiatives is crucial in a highly competitive environment (Bolton and Thompson 2003:63; Coulter, 2003:19; Kuratko & Hodgetts, 2004:117; Rwigema & Venter, 2004:61).

2.6.6 Opportunity driven

The starting point for an entrepreneur is isolating, quantifying, and refining an opportunity from a seemingly infinite and chaotic set of ideas (Rwigema & Venter, 2004:61). Growth-minded entrepreneurs have a focus on opportunity rather than on resources, structure, or strategy. They start with the opportunity and let their understanding of it guide other important issues. They are goal oriented in their pursuit of opportunities (Kuratko & Hodgetts, 2004:117), in fact obsessed with opportunity – total immersion in the opportunity (Kaplan, 2003:13; Timmons & Spinelli, 2007:11). Entrepreneurs are therefore aware of what is going on in the market. They are attuned to it. They take their directions from the market.

2.6.7 Energy

High energy levels are common among successful entrepreneurs. The extraordinary workloads and the stressful demands entrepreneurs face place a premium on energy. Many entrepreneurs fine-tune their energy levels by carefully monitoring what they eat and drink, establishing exercise routines, and knowing when to get away for relaxation (Bolton and Thompson 2003:63; Kuratko & Hodgetts 2004:120; Timmons & Spinelli, 2007:9).

2.6.8 Creativity and innovativeness

New ventures often have a collective creativity that emerges from the joint efforts of the founders and personnel and produces unique goods and services (Kuratko, & Hodgetts 2004:120). Innovation implies continually doing new things or improving current operations in order to cope with competition. Creativity and innovation are manifested in the creation of new products and services, invention of ways to cut costs, improve products, and the search for imaginative alternatives to what competitors offer (Bolton and Thompson, 2003:63; Deakins & Freel, 2003:14; Rwigema & Venter, 2004:65; Timmons & Spinelli, 2007:13).

2.6.9 Tolerance for ambiguity

Structure and certainty are seldom found in the entrepreneurial world. An entrepreneur must be tolerant of an environment that is confusing and has few answers. Entrepreneurs face uncertainty compounded by constant changes that introduce ambiguity and stress into every aspect of the enterprise. Setbacks and surprises are inevitable; lack of organisation, structure, and order is a way of life. Yet successful entrepreneurs thrive on the fluidity and excitement of such an ambiguous existence (Kuratko & Hodgetts, 2004:119; Rwigema & Venter, 2004:64; Lambing & Kuehl, 2007:20; Timmons & Spinelli, 2007:12).

2.6.10 Tolerance for failure

Entrepreneurs use failure as a learning experience. The iterative, trial-and-error nature of becoming a successful entrepreneur makes serious setbacks and disappointments an integral part of the learning process. The most effective entrepreneurs are realistic enough to expect such difficulties. Furthermore, they do not become disappointed, discouraged, or depressed by a setback or failure (Kuratko & Hodgetts, 2004:119; Lambing & Kuehl, 2007:19).

2.6.11 Responsibility

Entrepreneurs realise that if they are to be successful, they are the only ones who can make success happen. No one else is going to do it for them. Entrepreneurs take care of their own businesses, and take accountability for their and their subordinates' performance (Bolton & Thompson, 2003:63; Rwigema & Venter, 2004:62).

2.6.12 Problem solving

Running a business consists of series of problems and dilemmas that must be solved and managed. Entrepreneurs are not intimidated by difficult situations.

In fact, their self-confidence and general optimism seem to translate into a view that the impossible just takes a little longer (Bates, 2002:3; Kuratko & Hodgetts, 2004:117; Rwigema & Venter, 2004:62; Timmons & Spinelli, 2007:12)

2.6.13 Calculated risk taking

Successful entrepreneurs are not gamblers; they take calculated risks. When they decide to participate in a venture, they do so in a very calculated, carefully thought-out manner. They do everything possible to get the odds in their favour, and they often avoid taking unnecessary risks (Timmons & Spinelli, 2007:12). These strategies include getting others to share inherent financial and business risks with them-for example, by persuading partners and investors to put up money, creditors to offer special terms, and suppliers to advance merchandise (Kuratko & Hodgetts, 2004:119).

2.6.14 Self-confidence

Although entrepreneurs often face major obstacles, their belief in their ability seldom wavers. During these down periods they maintain their confidence and let those around them know it. This helps the others sustain their own optimism and creates the level of self-confidence necessary for efficient group effort. They believe in themselves and have confidence that somehow they will manage whatever problems arise (Kurato & Hodgetts, 2004:121; Lambing & Kuehl, 2007:19).

2.6.15 Self-discipline

Entrepreneurs pursue opportunities with enormous discipline. They not only spot opportunities, they make sure they act on them (Kaplan, 2003:12). Entrepreneurs must be able to force themselves to do what must be done (Timmons & Spinelli, 2007:9); they focus on execution – specifically, adaptive execution (Kaplan, 2003:13).

2.6.16 Vision

Entrepreneurs know where they want to go. They have a vision or concept of what their company can be. In many cases this vision develops over time as the individual begins to realise what the company is and what it can become (Kuratko & Hodgetts, 2004:121). Vision, the aspirational expression of what the organisation can become, is a must (Rwigema & Venter, 2004:61).

2.6.17 Team builder

The desire for independence and autonomy does not preclude the entrepreneur's desire to build a strong entrepreneurial team. Most successful entrepreneurs have highly qualified, well-motivated teams that help handle the venture's growth and development (Kuratko & Hodgetts, 2004:121). Dynamic businesses depend upon the commitment and drive of the organisation's members, customers, and suppliers (Rwigema & Venter, 2004:63), and entrepreneurs engage the energies of everyone in their domain – both inside and outside the organisation (Bolton & Thompson, 2003:63; Kaplan, 2003:12).

2.6.18 Integrity

Integrity is the glue that binds successful personal and business relationships and makes them endure. Investors, partners, customers, and creditors alike value this attribute highly. Integrity helps build and sustain trust and confidence. Integrity, coupled with consistent moral and ethical leadership will pay dividends in commitment and ethical practice among employees as well (Kuratko & Hodgetts, 2004:119; Rwigema & Venter, 2004:65).

2.7 THE ENTREPRENEURIAL PROCESS

Timmons and Spinelli (2007:88) argue that a core, fundamental process accounts for a substantially higher success pattern among higher potential ventures, and that the central themes that dominate this highly dynamic entrepreneurial process are the following driving forces:

- The above are the controllable components of the process that can be analysed, influenced, changed and altered to positively influence the risk-to-reward equation. Diagrammatically the process is depicted in figure 2.1.

The diagram illustrates the Business Plan process. At the top, 'Communication' points down to a dashed line connecting 'OPPORTUNITY' and 'RESOURCES'. Below this is the 'Business Plan' stage, which includes 'Fits and gaps' and 'Exogenous forces'. 'Ambiguity' is associated with 'OPPORTUNITY' and 'Creativity' points to the dashed line. 'Leadership' points to the dashed line from the right. The dashed lines converge at a circle labeled 'TEAM'. Below the team is a horizontal line with 'Uncertainty' on the left and 'Capital market context' on the right. At the bottom is a triangle labeled 'FOUNDER'.

The following principles should guide the entrepreneurial process (*ibid.*):

- The entrepreneurial process is opportunity driven. Market demand is subsequently a key ingredient to measuring an opportunity.
- Resources (Finances, assets, people) must be properly managed, and not allowed to be the primary determinants of the process.
- An entrepreneurial team is the key ingredient for success. The entrepreneurial leader learns and teaches effectively, deals with adversity,

exhibits integrity, dependability and honesty, and builds an entrepreneurial culture in the organisation.

Therefore, central to the context of entrepreneurship is that it involves a process (Hisrich & Peters, 2002:39; Morris & Kuratko, 2002:28), a process that consists of distinct *phases* (Hisrich & Peters, 2002:39), *stages* (Morris & Kuratko, 2002:28; Kaplan, 2003:7), *decisions and actions* (Coulter, 2003:14), or *steps* (Rwigema & Venter, 2004:28).

After evaluating the works of Morris and Kuratko (2002:28), Hisrich and Peters (2002:39), Kaplan (2003:7), Coulter (2003:14) and Rwigema and Venter (2004:28) in their references to the entrepreneurial process, the findings were tabled as per table 2.4.

Table2.4: Common explanations of the entrepreneurial process

Hisrich and Peters	Morris and Kuratko	Coulter	Kaplan	Rwigema and Venter
Identification and evaluation of the opportunity.	Identifying an opportunity.	- Exploring the entrepreneurial context. - Identifying opportunities and possible competitive advantage.	Conducting opportunity analysis.	Identifying, measuring and refining an opportunity from multiple ideas.
Development of the business plan.	Defining a business concept.	Starting the venture, i.e. feasibility, planning, organising and launching.	Developing the plan and setting up the company.	Formulating a business plan.
Determination of the required resources.	- Assessing resource requirements. - Acquiring those resources.		- Acquiring financial partners / sources of funding. - Determining the resources required and implementing the plan.	- Marshalling the resources. - Organising and mobilising the entrepreneurial team.
Management of the resulting enterprise.	- Implementing and managing the concept. - Harvesting the concept or venture.	Managing the venture, i.e. processes, people, growth and challenges.	Scaling and harvesting the venture.	Overseeing new venture creation and growth.

Source: Collated by the Author from Hisrich and Peters (2002), Morris and Kuratko (2002), Coulter (2003), Kaplan (2003) and Rwigema and Venter (2004).

For the purposes of this study the process as provided by Hisrich and Peters (2002:39) will be used, because it in essence encapsulates the process as described by the other authors above, namely:

- Identification and evaluation of the opportunity,
- Development of the business plan,
- Determination of the required resources, and
- Management of the resulting enterprise.

Let us now explore in more detail the phases in the entrepreneurial process:

2.7.1 Identify and evaluate the opportunity

At the heart of the process is the opportunity (Timmons & Spinelli, 2007:89). An opportunity is a chance to improve an existing situation or create new possibilities (Rwigema & Venter, 2004:29), a positive external trend or change that provides unique and distinct possibilities for innovating and creating value (Coulter, 2003:15).

Opportunities can come from many sources like changing needs and tastes, demographic changes, growing urbanisation and accompanying cultural changes, improved intercultural contact, obsolescent products and services (Rwigema & Venter, 2004:29), or consumers, business associates, members in the supply-chain, or technical people (Hisrich & Peters, 2002:40).

Hisrich and Peters (2002:40) state that each opportunity must be carefully screened and evaluated, which is perhaps the most critical element of the entrepreneurial process, as it allows the entrepreneur to assess whether the specific product or service has the returns needed compared to the resources required. This evaluation process involves looking at the length of the opportunity, its real and perceived value, its risks and returns, its fit with the personal skills and goals of the entrepreneur, and its uniqueness or differential advantage in its competitive environment.

Hisrich and Peters (2002:41) go on to say that opportunity analysis is one method for evaluating an opportunity and provides the basis for making the decision of whether or not to act on the opportunity. An opportunity assessment plan includes the following: a description of the product or service, an assessment of the opportunity, an assessment of the entrepreneur and the team, specifications of all the activities and resources needed to translate the opportunity into a viable business venture, and the source of capital to finance the initial venture as well as its growth. In essence it requires answering the following questions (*ibid.*):

- What market does it fill?
- What personal observations was experienced or recorded with regard to the market need?
- What social condition underlies this market need?
- What market research data can be marshalled to describe this market need?
- What patents might be available to fulfil this need?
- What competition exists in this market? How would you describe the behaviour of this competition?
- What does the international market look like?
- What does the international competition look like?
- Where is the money to be made in this activity?

2.7.2 Developing a business plan

A good business plan must be developed in order to exploit the defined opportunity. This is a very time-consuming phase of the entrepreneurial process. A good business plan is essential to developing the opportunity and determining the resources required, obtaining those resources, and successfully managing the resulting venture (Hisrich & Peters, 2002:42).

This is the point where strategies are documented detailing how the vision and market analysis will become a sustainable competitive advantage (Kaplan

2003:8). It describes the nature of the intended business, and the way it will function; maps out where the organisation is heading by defining its goals, and specifies the intended route or strategy (Rwigema & Venter, 2004:32).

According to Rwigema and Venter (2004:32) a generic business plan includes:

- The organisation's mission, i.e. a broad aspirational statement of what an organisation hopes to become.
- Key goals.
- An overview of the key objectives (strategic and financial).
- The market environment (competition, competitive advantage and tactics, target markets etc.).
- A discussion of product, pricing, promotion, networking, and the management team.
- Financial forecasts of income, expenditure, balance sheets, and cash flow.
- An activity schedule (major and subsidiary projects and their timing).

2.7.3 Determine the resources required

A resource is any thing or quality that is useful (Dollinger, 2003:26). Resources refer to such inputs as finance (equity and cash), physical assets (buildings, equipment, machinery, vehicles, raw materials), skills, and information. It can also be intangible assets like patents, unique technology, brands and reputation (Rwigema & Venter, 2004:33).

Hisrich and Peters (2002:42) argue that this process starts with an appraisal of the entrepreneur's present resources. Any resources that are critical need to be differentiated from those that are just helpful. Care must be taken not to underestimate the amount of variety of resources needed. The downside risks associated with insufficient or inappropriate resources should also be assessed.

Hisrich and Peters (2002:42) go on to say that the next step is acquiring the needed resources in a timely manner while giving up as little control as possible. An entrepreneur should strive to maintain as large an ownership position as possible, particularly in the start-up stage. As the business develops, more funds will probably be needed to finance the growth of the venture, requiring more ownership to be relinquished. Alternative suppliers of these resources, along with their needs and desires, need to be identified. By understanding resource supplier needs, the entrepreneur can structure a deal that enables the resources to be acquired at the lowest possible cost and the least loss of control.

2.7.4 Manage the enterprise

After resources are acquired, the entrepreneur must use them to implement the business plan. The operational problems of the growing enterprise must also be examined. This involves implementing a management style and structure, as well as determining the key variables for success. A control system must be established, so that any problem areas can be quickly identified and resolved (Hisrich & Peters, 2002:42).

An entrepreneur must therefore effectively manage the venture by managing processes, managing people, and managing growth (Coulter, 2003:16).

2.7.5 Concluding remarks

The author believes whether the process is referred to as phases, stages, decisions and actions or steps, is a matter of semantics. What is evident is that it is a progressive process consisting of distinct activities, each with its own related and/or overlapping subset of activities.

Furthermore, Hisrich and Peters (2002:39) state that although these phases proceed progressively, no one stage is dealt with in isolation or is totally completed before work on other phases occurs.

Ucbasaran *et al.* (2001:61) even go as far as describing the entrepreneurial process as consisting of two broad dimensions: (1) opportunity recognition and information search, and (2) resource acquisition and business strategies.

2.8 ENTREPRENEURSHIP AS DRIVER IN THE ECONOMY

We need also take cognisance of the very important role of entrepreneurship in the economy. Timmons and Spinelli (2007:51), states that entrepreneurship is arguably the single most powerful force to create economic and social mobility, and according to Silbiger (2000:281) Schumpeter saw the entrepreneur as the crucial figure in economic life.

The Business Day (2001) cites Mike Herrington, who stated that entrepreneurship is one of the chief agents of change operating within the global economic system. It is widely accepted that the more successful companies are those that engage the most in entrepreneurial activity.

Reynolds *et al.* (2002:7) further reports that evidence continues to accumulate that the national level of entrepreneurial activity has a statistically significant association with subsequent levels of economic growth. Changes in the economic structure and market processes within a country leading to economic growth may occur more quickly when an active entrepreneurial sector is available to implement such changes (Reynolds *et al.*, 2002:24).

According to the Commission of European Communities (2003:3), entrepreneurship drives innovation, competitiveness, job creation and growth. It allows new innovative ideas to turn into successful ventures in high-tech sectors and can unlock the personal potential of disadvantaged people to create jobs for themselves and find a better place in society.

2.9 ENTREPRENEURSHIP IN A CORPORATE SETTING

Willax (2003) argues that there is no suggestion that innovative behaviour is limited to people who are devoted to creating businesses from scratch. An

entrepreneur, by definition, is innovative, a change agent who “creatively destroys” the status quo in a quest for new and better ways to satisfy consumers and create value. Although it is true that an entrepreneurial personality is needed to start a business, this kind of behaviour is also essential in an established company that is fighting to keep its competitive edge.

Today, entrepreneurship has evolved beyond the classic start-up notion to include companies and organisations of all types, in all stages. Thus, entrepreneurship can occur – and fail to occur – in new companies and old; in small companies and large; in fast and slow growing companies; in the private, non-profit, and public sectors; in all geographic points; and all stages of a nation’s development, regardless of politics (Timmons & Spinelli, 2007:79).

In every definition of entrepreneurship innovation is inevitably a core component (Thomas & Mueller, 2000:287), and innovative talent has become the hallmark of the entrepreneur. Given the rapid changes in contemporary markets, a successful enterprise is marked by a continuum of “start-over points” at which the venture is “recast” in form or function to master the challenges and opportunities of the new millennium (Willax, 2003).

Therefore, business owners can never outgrow their entrepreneurial beginnings, and managers must learn how to perpetually perform as entrepreneurs. Each must be able to continuously identify opportunity, organise talents, assume risks and make ready decisions to profitably create value for the marketplace. Because of entrepreneurial innovation – by its owner and its managers – a company will exploit new, different and more relevant resources, techniques, processes and product or service configurations (Willax, 2003).

Drucker (1985:143) states that whether the entrepreneur is an existing large institution or an individual starting his or her new venture single-handed, entrepreneurship is based on the same principles. It makes little or no

difference whether the entrepreneur is a business or a non-business public-service organisation, nor even whether the entrepreneur is a governmental or nongovernmental institution.

The rules are pretty much the same, the things that work and those that don't are pretty much the same, and so are the kinds of innovation and where to look for them (Drucker, 1985:143).

This backdrop to entrepreneurship in a corporate setting serves to build the bridge to the next chapter that focuses exclusively on corporate entrepreneurship.

2.10 SUMMARY

Entrepreneurship seems to be a highly misunderstood phenomenon. Many stereotypes and oversimplifications exist, and people hold widely disparate views. Subsequently, a concise, universally accepted definition has not yet emerged.

In an attempt to better understand the entrepreneurial phenomenon, the terms “entrepreneurship” and “entrepreneur” were discussed separately.

In terms of “entrepreneurship” it was concluded that it is the process through which individuals and teams create value by bringing together a unique collection of resources to take advantage of opportunities, to create value and grow by fulfilling wants and needs through innovation and uniqueness, no matter what resources the entrepreneur currently has.

This process can occur in any organisational context and results in a variety of possible outcomes, including new ventures, products, services, processes, markets, and technologies.

From a human orientation- or inclination perspective, entrepreneurship is a way of thinking, reasoning, and acting that is opportunity obsessed, holistic in approach, and leadership balanced.

In terms of an “entrepreneur”, it is concluded that it is a creative innovator who, acting on initiative, seeks and maximises opportunity, takes the required risk, and energetically takes it to a worthwhile conclusion, in other words one who recognises economic needs and combines other production factors in order to fulfil those needs.

The entrepreneur introduces change pivotal to economic growth into an economic system that results in increased production. In essence, bringing the two terms together, it is concluded that:

- Entrepreneurship involves a process.
- Entrepreneurs create value where there was none before.
- Entrepreneurs put resources together in a unique way.
- Entrepreneurship is opportunity driven behaviour.

Throughout the years many myths have also arisen about entrepreneurship, longstanding beliefs that have developed over years and that reflect limited knowledge and research in the field, often based on a narrow view and assumptions that are not accurate.

These myths hold very little truth. The fact is that entrepreneurship is a planned activity that can be managed as a process, involves risk, requires innovation, and can be applied in virtually any organisational context. In addition, it is an activity requiring significant dedication, perseverance, and adaptability.

Furthermore, the literature poses a wide range of personality traits and characteristics that is exhibited by people who are successful in their entrepreneurial expectations.

Important, however, is that a core, fundamental process accounts for a substantially higher success pattern among higher potential ventures, namely, identification and evaluation of the opportunity, development of the business plan, determination of the required resources, and management of the resulting enterprise.

The central themes that dominate this highly dynamic entrepreneurial process are the following driving forces:

- It is opportunity driven.
- It is driven by a lead entrepreneur and an entrepreneurial team.
- It is resource parsimonious and creative.
- It depends on the fit and balance among these.
- It is integrated and holistic.

In terms of the important role of entrepreneurship in a country's economy, evidence continues to accumulate that the national level of entrepreneurial activity has a statistically significant association with subsequent levels of economic growth.

It is also evident that entrepreneurial behaviour is not limited to people who are devoted to creating businesses from scratch. Entrepreneurship has evolved beyond the classic start-up notion to include companies and organisations of all types, in all stages.

Whether the entrepreneur is an existing large institution or an individual starting his or her new venture single-handed, entrepreneurship is based on the same principles. The rules of the game are very similar.

The next chapter explores in-depth the entrepreneurial phenomenon in a corporate setting which is the focus of this study.

CHAPTER 3

CORPORATE ENTREPRENEURSHIP:

LITERATURE OVERVIEW

3.1 INTRODUCTION

It is generally observed that innovations come from small companies or individual entrepreneurs (Sætre, 2001:12). In South Africa today, there are illustrative cases of innovative start-ups like Leaf Wireless and Lebone Litho Printers, or even giants like Dimension Data, Imperial Holdings and the Gijima Group that had humble beginnings with only a few people. This begs the question, why large and resourceful organisations did not see the opportunities that these entrepreneurs saw, and if they did why did they not act?

According to Sætre (2001:12) the large organisations of the industrial age are inherently bureaucratic. It is therefore reasonable to expect that in such organisations one would find an abundance of ideas and potential ideas that go unnoticed because there are some structural constraints to their realisation, or little or no incentive for employees to bring such ideas forth. In fact, in industrial organisations there are usually strong opposition to innovative activities. The upside of this is that there is a considerable amount of unrealised potential within such organisations (Sætre, 2001:12).

Over the last decade or two, however, there has been growing interest in the use of corporate entrepreneurship as a process for corporations to enhance the innovative abilities of their employees and, at the same time, increase corporate success through the potential creation of new corporate ventures (Antoncic & Hisrich, 2001:496; Morris & Kuratko, 2002:viii; Ferreira, 2002; Antoncic & Hisrich, 2003:7; Christensen, 2004:302).

Intensifying global competition, corporate downsizing and de-layering, rapid technological progress, and many other factors have heightened the need for

organisations to become more entrepreneurial in order to survive and prosper (Dess *et al.*, 1999:85).

Morris and Kuratko (2002:viii) also state that the pursuit of corporate entrepreneurship has arisen from a variety of pressing problems including:

- Increased global competition.
- Continual downsizing of organisations seeking greater efficiency.
- Dramatic changes, innovations, and improvements in the marketplace.
- Perceived weaknesses in the traditional methods of corporate management.
- The exodus of innovative-minded employees who are disenchanted with bureaucratic organisations.

This growing interest is supported by Thornberry (2001:526), which argues that many large companies are seeking ways of reinventing or revitalising their entrepreneurial roots. These companies often long for some of the spark, innovation, speed and risk taking that they once had, but which have slowly eroded under the weight of size, bureaucracy, complex processes and hierarchy.

According to Russell (1999:65) fostering intrapreneurial behaviours and practices has subsequently assumed prime importance in the grand strategies of many companies where creating innovation is perceived as an important means of establishing and maintaining competitive advantage as well as a method for initiating corporate renewal. Taylor (2001:140) states that there is a general trend towards entrepreneurial behaviour in large traditional businesses as they try to cope with the increasing speed of change.

Thornberry (2001:526) argues that corporate entrepreneurship can be a powerful antidote to large company staleness, lack of innovation, stagnated top-line growth, and the inertia that often overtakes the large, mature companies of the world.

It can, however, also be an oxymoron, a novel approach to new business development that often sits uncomfortably, sometimes impossibly, next to the planning, structure and careful organisation many large companies have often built so carefully over the years (Thornberry, 2001:526).

If companies are to survive and succeed, management teams in large companies need to act more like individual entrepreneurs. This was pre-empted by Drucker (1985:144) who stated that today's businesses, especially the large ones, simply will not survive in this period of rapid change and innovation unless they acquire entrepreneurial competence. Antoncic and Hisrich (2001:496) also argue that intrapreneurship is an important element in organisational and economic development.

The only competitive advantage a business can count on in an age of accelerating change is the capacity to continually reinvent itself before a change in its circumstances forces it to adapt (Hamel, 2004). Welch (2001:432) also believes that when the rate of change inside an institution becomes slower than the rate of change outside, the end is in sight.

Kitagawa (2001) states that practical know-how and ingenuity is at an all-time premium. To be able to contribute to today's knowledge economy, everybody – from individuals to companies, to the full range of industrial sectors, to entire countries – needs to build and sustain a high performance blend of skills, attitudes and behaviours. It is these that collectively drive innovation and entrepreneurialism, the keys to competitiveness and growth (Kitagawa, 2001).

3.2 DEFINING CORPORATE ENTREPRENEURSHIP

Corporate entrepreneurship is a term used to describe entrepreneurial behaviour inside established organisations, and related terms include organisational entrepreneurship, intrapreneurship, and corporate venturing (Antoncic & Hisrich, 2001:497; Morris & Kuratko, 2002:31). It refers to emergent behavioural intentions of an organisation that are related to departures from the customary (Antoncic & Hisrich, 2003:9).

The objective of corporate entrepreneurship is simply to gain competitive advantage by encouraging innovation at all levels in the organisation – corporate, division, business unit, functional or project team levels (Burns, 2004:11). This objective is supported by Guth and Ginsberg (1990:5) who argue that corporate entrepreneurship has two primary aims: the creation and pursuit of new venture opportunities and strategic renewal.

To further emphasise the competitive advantage objective, Covin and Miles (1999:50) define corporate entrepreneurship as the presence of innovation plus the presence of the objective of rejuvenating or purposefully redefining organisations, markets, or industries in order to create or sustain competitive superiority.

Morris and Kuratko (2002:31) quotes Zahra (1991) who observed that corporate entrepreneurship might be formal or informal activities aimed at creating new businesses in established companies through product and process innovations and market developments. These activities may take place at the corporate, division, business unit, functional, or project levels, with the unifying objective of improving a company's competitive position and financial performance.

A related point of view is provided by Sharma and Chrisman (1999:18) that define corporate entrepreneurship as the process whereby an individual or group of individuals, in association with an existing organisation, create a new organisation or instigate renewal or innovation within that organisation.

Thus strategic renewal (organisational renewal involving major strategic and / or structural changes), innovation (the introduction of something new to the marketplace), and corporate venturing (corporate entrepreneurial efforts that lead to the creation of new business organisations within the corporate organisation) are all important and legitimate parts of the corporate entrepreneurship process (Kuratko & Welsch, 2001:348; Morris & Kuratko, 2002:31).

Jones and Butler (1992:735) argue that corporate entrepreneurship refers to the process by which companies notice opportunities and act to creatively organise transactions between factors of production so as to create surplus value. Cohen (2002:7) believes that the core is an action-oriented mind-set, a way of thinking – about finding opportunities, figuring out how to bring them to fruition, and creating something new. This mind-set is, he argues, is the critical part.

Sathe (1989:23) views corporate entrepreneurship as a process of organisational renewal, Zahra and Covin (1999:45) as a company's commitment to innovation, and Hornsby *et al.* (2002:254) refer to other researchers (Miller and Friesen, 1982; Burgelman, 1984; Kanter, 1985; Alterowitz, 1988; Naman and Slevin, 1993) that have conceptualised corporate entrepreneurship as embodying entrepreneurial efforts that require organisational sanctions and resource commitments for the purpose of carrying out innovative activities in the form of product, process, and organisational innovations.

Maes (2003:20) argues that because independent entrepreneurship is seen as the process whereby a single individual or a group of individuals create a new organisation, acting independently of any association with an existing organisation, then corporate entrepreneurship can be considered as entrepreneurial activities being established in association with one or more existing organisations.

One of the more contemporary definitions of corporate entrepreneurship was developed by Covin and Miles (1999:48) which states that corporate entrepreneurship includes situations where (1) an established organisation enters a new business; (2) an individual or individuals champion new corporate ideas within a corporate context; and (3) an entrepreneurial philosophy permeates an entire organisation's outlook and operations (Brizek, 2003:11).

Antoncic and Hisrich (2005:518) define corporate entrepreneurship as entrepreneurship within an existing organisation, referring to emergent behavioural intentions and behaviours of an organisation, which are related to departures from the customary ways of doing business. Corporate entrepreneurship refers not only to creation of new business ventures, but also to other innovative activities and orientations such as development of new products, services, technologies, administrative techniques, strategies and competitive postures (Antoncic & Hisrich, 2005:518).

Russell and Russell (1992:639), after combining the perspective of Burgelman (1984) who defined corporate entrepreneurship as “extending the organisation's domain of competence and corresponding opportunity set through internally generated new resource combinations” and the Shumpetarian view of innovation as the creation of “new combinations of resources”, argue that the practice of corporate entrepreneurship may be seen as the improvement of organisational competencies through innovation.

Van de Ven's (1986:604) argument for a wide-ranging definition of innovation as the development and implementation of a variety of new ideas, including technical, product, process, and administrative innovation to the definition of corporate entrepreneurship further broadens the scope of corporate entrepreneurial activities. Therefore corporate entrepreneurship includes the initiation and implementation of a wide range of innovations as a means of creating and exploiting opportunities perceived in competitive environments (Russell & Russell, 1992:639).

According to Turner (2002:33) entrepreneurship within organisations involves an approach to management that seeks to maximise value from opportunity without constraint to existing models, structure or resources. It involves the whole team engaging in a process of willingly working together, risking, creating, implementing, driving and following through an innovative idea that delivers measurable value.

Entrepreneurial organisations promote entrepreneurial activity adapting structure, management and processes accordingly in order to gain the required agility, speed, creativity and drive to act profitably upon specific opportunities (Turner, 2002:33).

From a marketing strategy perspective Kotler and Armstrong (2006:534) argue that many large and mature companies get stuck in formulated marketing, pouring over numbers, scanning market research reports, and trying to fine-tune dealer relations and advertising messages. These companies sometimes lose the marketing creativity and passion that they had at the start.

Companies need to re-establish the entrepreneurial spirit and actions that made them successful in the first place. They need to encourage more initiative and “intrapreneurship” at the local level. Their brand and product managers need to get out of the office, start living with their customers, and visualise new and creative ways to add value to their customers’ lives (Kotler & Armstrong, 2006:534).

3.3 DIMENSIONS OF CORPORATE ENTREPRENEURSHIP

Miller's (1983:770) conceptualisation focuses on **three** related dimensions of organisation-level entrepreneurship: (1) proactiveness, (2) innovation, and (3) risk taking; an argument supported by Zahra *et al.* (1999:50) and Morris and Kuratko (2002:39).

Burns (2005:12), talks about the “content” of corporate entrepreneurship, and that being (1) corporate venturing, (2) innovation, and (3) proactiveness.

Antoncic and Hisrich (2001:498) describe **four** intrapreneurship dimensions: (1) new business venturing, (2) innovativeness, (3) self-renewal, and (4) proactiveness.

In addition Dess and Lumpkin (2005:147) also propose **two additional dimensions** that are critical to what they term the entrepreneurial orientation concept: competitive aggressiveness and autonomy. Collectively, they argue, these **five** dimensions – (1) innovativeness, (2) proactiveness, (3) risk-taking, (4) competitive aggressiveness, and (5) autonomy – permeate the decision-making styles and practices of a company's members. The factors often work together to enhance a company's entrepreneurial performance. Let's take a closer look at each of these dimensions.

3.3.1 Innovativeness

Dess and Lumpkin (2005:150) state that innovativeness refers to a company's efforts to find new opportunities and novel solutions. It involves creativity and experimentation that result in new products, new services, or improved technological processes, and is one of the major components of an entrepreneurial strategy (Sætre, 2001:11; Antoncic & Hisrich, 2003:16).

Innovativeness requires that companies depart from existing technologies and practices and venture beyond the current state of affairs. Inventions and new ideas need to be nurtured even when their benefits are unclear. In today's climate of rapid change, effectively producing, assimilating, and exploiting innovations can be an important avenue for achieving competitive advantages (Morris & Kuratko, 2002:40; Burns, 2005:13).

Innovations can come in many different forms. Technological innovativeness consists primarily of research and engineering efforts aimed at developing new products and processes. Product-market innovativeness includes market research, product design, and innovations in advertising and promotion. Administrative innovativeness refers to novelty in management systems, control techniques, and organisational structure (Dess & Lumpkin, 2005:150; Antoncic & Hisrich, 2003:14).

3.3.2 Risk-taking

Risk reflects the degree of uncertainty and potential loss associated with the outcomes which may follow from a given behaviour or set of behaviours (Kuratko & Welsch, 2001:211). Risk-taking refers to a company's willingness to seize a venture opportunity even though it does not know whether the venture will be successful and to act boldly without knowing the consequences (Thornberry 2001:529).

To be successful through corporate entrepreneurship, companies usually have to take on riskier alternatives, even if it means forgoing the methods or products that have worked in the past. To obtain high financial returns, companies take such risks as assuming high levels of debt, committing large amounts of company resources, introducing new products into new markets, and investing in unexplored technologies (Dess & Lumpkin, 2005:152; Burns, 2005:16).

Dess and Lumpkin (2005:152) describe three types of risk that organisations and their executives face are business risk, financial risk, and personal risk:

- **Business risk-taking** involves venturing into the unknown without knowing the probability of success. This is the risk associated with entering untested markets or committing to unproven technologies.
- **Financial risk-taking** requires that a company borrow heavily or commit a large portion of its resources in order to grow. Risk is used in this context to refer to the risk/return trade-off that is common in financial analysis.
- **Personal risk-taking** refers to the risks that an executive assumes in taking a stand in favour of a strategic course of action. Executives who take such risks stand to influence the course of their whole company and their decisions can also have significant implications for their careers.

Even though risk-taking involves taking chances, it is not gambling. The best run companies investigate the consequences of various opportunities and

create scenarios of likely outcomes and their goal is to reduce the risk of business decision-making (Morris & Kuratko, 2002:41).

3.3.3 Proactiveness

Proactiveness refers to a company's efforts to seize new opportunities – pioneering and initiative taking that is reflected in the orientations of top management (Hisrich & Peters, 2002:46; Antoncic & Hisrich, 2003:18). Proactive organisations monitor trends, identify the future needs of existing customers, and anticipate changes in demand or emerging problems that can lead to new venture opportunities (Dess & Lumpkin, 2005:150).

Proactiveness involves not only recognising changes but also a willingness to act on those insights ahead of the competition (Dess & Lumpkin, 2005:150). It is concerned with implementation, with taking responsibility and doing whatever is necessary to bring the entrepreneurial concept to fruition (Morris & Kuratko, 2002:44).

According to Morris and Kuratko (2002:44) proactiveness is about acting rather than reacting to the environment. Leaders who are proactive have their eye on the future in a search for new possibilities for growth and development. Such a forward-looking perspective is important for companies that seek to be industry leaders. Many proactive companies seek out ways to not only be future oriented but also to change the very nature of competition in their industry (Dess & Lumpkin, 2005:150).

Dess and Lumpkin (2005:151) further state that proactiveness is especially effective at creating competitive advantages because it puts competitors in the position of having to respond to successful initiatives. The benefit gained by companies that are the first to enter new markets, establish brand identity, implement administrative techniques, or adopt new operating technologies in an industry is called first mover advantage.

3.3.4 Competitive aggressiveness

Competitive aggressiveness refers to a company's propensity to challenge its competitors (Antoncic & Hisrich, 2003:18) and its efforts to outperform its industry rivals (Dess & Lumpkin, 2005:151). The real challenge for a company is to establish a competitive advantage, and the way to accomplish that is through differentiation and continuous innovation – whether it is related to the creation of new products and services, production, organisational processes or business models (Christensen, 2004:302).

As an avenue of organisation development and growth, competitive aggressiveness may involve being very assertive in leveraging the results of other entrepreneurial activities such as innovativeness or proactiveness (Dess & Lumpkin, 2005:151).

Strategic managers can use competitive aggressiveness to combat industry trends that threaten their survival or market position. Companies often need to be aggressive to ensure their advantage by capitalising on new technologies or serving new market needs. Two ways competitively aggressive companies enhance their entrepreneurial position include entering markets with drastically lower prices, and copying the business practices or techniques of successful competitors (Dess & Lumpkin, 2005:151).

Covin and Covin (1990:47) found, on the basis of their research of smaller manufacturing companies, that corporate entrepreneurship in terms of exhibiting an aggressive competitive orientation by companies in hostile environments was characteristic for high performing companies, whereas low performing companies were more passive when they faced environmental hostility.

3.3.5 Autonomy

The meaning of autonomy, as employed here, goes beyond traditional views – perceiving autonomy as “free” from structural or hierarchical constraints –

and refers to independent behavior based on “the ability and will to be self-directed in the pursuit of opportunities” (Lumpkin & Dess, 1996:140). Increased levels of autonomy – the ability to explore new ideas with relatively little interference – permit lower-level managers to propose and test more new ideas (Russell, 2003:76).

Companies with an overall entrepreneurial mission use a “top-down” approach to stimulate entrepreneurial activity where the top leaders of the organisation support programs and incentives that foster a climate of entrepreneurship. Many of the best ideas for new corporate ventures, however, come from the “bottom-up” and therefore extra effort and special incentives may be needed to develop and build support for an entrepreneurial venture (Dess *et al.*, 1999:89; Dess & Lumpkin, 2005:149).

Dess *et al.* (1999:89) argue that changes in organisational structure may be necessary and established companies with traditional structures often have to break out of such moulds in order to remain competitive. Thus, companies can use structural approaches such as system or process improvements, and organisational redesign to improve strategic position.

Consequently, for changes in organisational structure and independent projects to work, the effort must be measured and monitored. This requires a delicate balance between having the patience and budget to tolerate the explorations of autonomous groups, and having the strength to cut back efforts that are not bearing fruit. It must also be undertaken with a clear sense of purpose, namely to generate new sources of competitive advantage (Dess & Lumpkin, 2005:150).

Table 3.1 on the next page summarises the dimensions of corporate entrepreneurship.

Table 3.1: Summary of dimensions of corporate entrepreneurship

Dimension	Definition
Innovativeness	A willingness to introduce newness and novelty through experimentation and creative processes aimed at developing new products and services, as well as new processes.
Risk-taking	Making decisions and taking action without certain knowledge of probable outcomes; some undertakings may also involve making substantial resource commitments in the process of venturing forward.
Proactiveness	A forward-looking perspective characteristic of a marketplace leader that has the foresight to seize opportunities in anticipation of future demand.
Competitive aggressiveness	An intense effort to outperform industry rivals. It is characterised by a combative posture or an aggressive response aimed at improving position or overcoming a threat in a competitive marketplace.
Autonomy	Independent action by an individual or team aimed at bringing forth a business concept or vision and carrying it through to completion.

Source: Summarised and tabulated from Dess and Lumpkin (2005)

3.4 TYPES OF CORPORATE ENTREPRENEURSHIP

According to Stopford and Baden-Fuller (1994:521), there are three principle types of corporate entrepreneurship:

- The creation of a new business within an existing organisation which is usually referred to as corporate venturing or sometimes intrapreneurship.
- The transformation or renewal of existing organisations that can also be a process-driven innovation, including the adoption of new solutions to old problems.
- Frame-breaking or discontinuous change or changing the rules of competition of an industry.

Covin and Miles (1999:50) envision at least four forms of this phenomenon they labelled sustained regeneration, organisational rejuvenation, strategic renewal, and domain redefinition. As conceptualised here, these forms relate to the organisation's ability to regularly introduce new products or enter new markets, to the organisation *per se*, to the organisation's strategy for navigating its current environment, and to the organisation's creation and exploitation of new product-market arenas, respectively.

Thornberry (2001:527) argues that the four types of Corporate Entrepreneurship are: (1) Corporate Venturing, (2) Intrapreneuring, (3) Organisational Transformation, and (4) Industry Rule Breaking.

Very similar to this Birkinshaw (2003:8) identifies four strands of the literature that he calls "basic schools of thought": (1) Corporate Venturing, (2) Intrapreneurship, (3) Bring the market inside, and (4) Entrepreneurial Transformation. It can be seen that there is a great deal of overlap in these typologies, but they are helpful in understanding various approaches. Let us explore the common types of corporate entrepreneurship further.

3.4.1 Corporate venturing

Corporate venturing involves starting a business within a business, usually emanating from a core competency or process (Kuratko & Welsch, 2001:348; Thornberry, 2005:527). According to Cohen (2002:10) the concept is to create a separate entity that has its own funding, people, and markets. It can be wholly contained within the corporation, absorbed into an existing unit, or spun off as a separate company along with some insiders, or eventually sold.

Christensen (2004:307) argues that the main reason for creating corporate ventures is the isolation and nurturing of innovative ideas that cannot survive in the bureaucratic structures and formal procedures of a large company. New business ventures need to be managed separately from the mainstream business, or they will not survive long enough to deliver benefit to the sponsoring company (Birkinshaw, 2003:8).

An example is a mining company, which has a core competency in mineral refining, that turns this into a separate business and offers mineral refinery services to other companies who need processing of their mined ore minerals.

In some organisations, functions like product development are tasked with being the people responsible for new venture creation. Ventures usually involve the creation, nurturing, and development of a new business that comes from within the old business, but represents a significantly new product or market opportunity. Unlike simple line extensions, ventures require vast amounts of new learning on the part of the organisation. New, but not totally foreign competencies are required, or current competencies are leveraged in a completely new way (Thornberry, 2005:527).

3.4.2 Intrapreneuring

Intrapreneuring, a term developed by Pinchot (1985), is an attempt to take the mindset and behaviours that external entrepreneurs have, and inculcate these characteristics into their employees (Thornberry, 2005:528). Sometimes the company wants every employee to act like an entrepreneur, but a more typical approach involves the targeting of a subset of managers to act as corporate entrepreneurs. Companies usually want this cadre of corporate entrepreneurs to identify and develop spin-ups (innovations in current businesses that can lead to substantial growth opportunities) or to create an environment where more innovation and entrepreneurial behaviour is evidenced (Thornberry, 2005:528).

According to Burns (2005:12) it is concerned with individual employees and how they might be encouraged to act in an entrepreneurial way within a larger organisation. It looks at the systems, structures and cultures that inhibit this activity and how they might be circumvented or even challenged. It is concerned with often subversive tactics these corporate entrepreneurs adopt, and also considers the personalities and styles of individuals who make good corporate entrepreneurs (Birkenshaw, 2003:8).

Intrapreneuring is, therefore, about a better way to make innovation happen inside establishes organisations, i.e. the creation and brining into widespread use of a new product, service, process, or system – from the first glimmer of an idea to successful implementation and exploitation (Pinchot & Pellman, 1999:1). Training of employees in acquiring intrapreneuring skills is as important as knowing whom to hire (Pinchot, 1987:18).

3.4.3 Organisational transformation

According to Birkenshaw (2003:8) the premise behind organisational (entrepreneurial) transformation is that large companies need to adapt to an ever-changing environment if they are to survive and to do so they need to adapt their structures and cultures so as to encourage entrepreneurial activity in individual employees to result in the development of new business opportunities.

This type of entrepreneurship only fits the original Schumpeterian definition if the transformation involves innovation, a new arrangement or combination of resources, and results in the creation of sustainable economic value (Thornberry, 2005:528). Clearly, some transformations meet these requirements, while others do not. Transforming an organisation by de-layering, cost cutting, re-engineering, downsizing, and using the latest technology do not guarantee that the organisation will recognise or capture new opportunities (Thornberry, 2005:528).

In terms of encouraging entrepreneurial activity in individual employers, Burns (2005:12) observed that individual behaviour is fashioned by leadership, strategy, systems, structures and culture in the organisation.

3.4.4 Industry rule-bending

Industry rule-bending is another type of transformation but focuses on changing the rules of competitive engagement (Thornberry, 2005:529), and

Stopford and Baden-Fuller (1994:522) label this behaviour as “frame-breaking change.”

Toyota, for example, changed the rules of the game in the automobile industry by producing low cost automobiles with exceptionally high quality. As a result, United States and European auto manufacturers were forced by Toyota and other Japanese automakers to follow suit. Thus, Toyota not only transformed itself, but also helped to start a wholesale transformation of the industry (Thornberry, 2005:529).

3.4.5 Similarities in the four types

Thornberry (2005:529) argues that despite the lack of clarity around the concept of corporate entrepreneurship, corporate venturing, intrapreneuring, organisational transformation and industry rule bending share a number of common elements with one another, and with external or traditional start-up entrepreneurial ventures (*ibid.*):

- The creation of something new, which did not exist before. This something new could be a new business within a business, a product, a service, a delivery system or a new value to the customer. It could also mean the exploitation of a technology that someone else invented, but did not capitalise on.
- These new things require additional resources and or changes in the pattern of resource deployment within the organisation.
- Learning takes place in both the creation of the new thing and its implementation that results in the development of new organisational competencies and capabilities.

According to (Thornberry, 2005:529) these three commonalties are cited most often in the research. Less cited, however, are the following common threads that he argues are equally important in remaining true to the original concept of entrepreneurship:

- The new business product or service is intended to result in long-term economic value and the creation of wealth for the stockholders, owners, or society.
- The financial returns resulting from the “new thing” are predicted to be better than the returns resulting from the current deployment of resources.
- Increased risk for the organisation because the “new thing” is unproven.

Therefore corporate entrepreneurship is not about business as usual. It is about unusual businesses or unusual approaches to business. Table 3.2 below provides a summary of the types of corporate entrepreneurship.

Table 3.2: Summary of types of corporate entrepreneurship

Type	Definition
Corporate Venturing	Involves starting a business within a business, usually emanating from a core competency or process.
Intrapreneuring	An attempt to instil the mindset and behaviours that external entrepreneurs have with employees within organisations.
Organisational Transformation	Involves innovation, a new arrangement or combination of resources that result in the creation of sustainable economic value.
Industry Rule-Bending	A focus on changing the rules of competitive engagement.

3.5 THE ENTREPRENEURIAL PROCESS

Although the entrepreneurial process was discussed to an extent in the previous chapter, further elaboration on the topic is required to review its application in an existing organisational context.

Morris and Kuratko (2002:28) state that one of the most valuable contributions to the understanding of entrepreneurship is the general recognition that a process is involved. It is a process that occurs in an organisational setting, including larger, established companies.

According to Hisrich and Peters (2002:39) the process of starting a new venture is embodied in the entrepreneurial process, which involves more than just problem solving in a typical management position. An entrepreneur must find, evaluate, and develop an opportunity by overcoming the forces that resist the creation of something new.

Timmons (2003:56) argues that a core, fundamental entrepreneurial process accounts for the substantially higher success pattern among higher potential ventures, and regards the driving forces in this process as being (1) opportunity driven; (2) driven by a lead entrepreneur and an entrepreneurial team; (3) resource cost-conscious and creative; (4) dependent on the fit and balance among these; and (5) integrated and holistic.

Hisrich and Peters (2002:39) conclude that the entrepreneurial process has four distinct phases: (1) identification and evaluation of the opportunity, (2) development of the business plan, (3) determination of the required resources, and (4) management of the resulting enterprise. Although these phases proceed progressively, they say, no one stage is dealt with in isolation or is totally completed before work on other phases occurs.

Similarly, Morris and Kuratko (2002:28) state that the process generally consists of the following stages: (1) identifying an opportunity, (2) defining a business concept, (3) assessing resource requirements, (4) acquiring those resources, (5) implementing and managing the concept, and (6) harvesting the concept or venture. Although Morris and Kuratko (2002:28) add two additional steps, it can safely be incorporated in Hisrich and Peters' phases.

Ucbasaran *et al.* (2001:61) on the other hand describe the entrepreneurial process as consisting of two broad dimensions: (1) opportunity recognition and information search, and (2) resource acquisition and business strategies.

Let us now explore in more detail the phases in the entrepreneurial process:

3.5.1 Identify and evaluate the opportunity

At the heart of the process is the opportunity, and a good idea is not necessarily a good opportunity (Timmons & Spinelli, 2003:57). Opportunity identification and evaluation is a difficult task, and most good business opportunities do not suddenly appear, but rather result from an entrepreneur's alertness to possibilities, or in some case, the establishment of mechanisms that identify potential opportunities (Hisrich & Peters, 2002:39).

Whether the opportunity is identified by using input from consumers, business associates, members in the supply-chain, or technical people, each opportunity must be carefully screened and evaluated. Therefore it demands timely, accurate and relevant market information gathered qualitatively and quantitatively (Rwigema & Venter, 2004:168).

According to Hisrich and Peters (2002:41) the evaluation of the opportunity is perhaps the most critical element of the entrepreneurial process, as it allows the entrepreneur to assess whether the specific product or service has the returns needed compared to the resources required. This evaluation process involves looking at the length of the opportunity, its real and perceived value, its risks and returns, its fit with the personal skills and goals of the entrepreneur, and its uniqueness or differential advantage in its competitive environment (Hisrich & Peters, 2002:41).

Opportunity analysis, or what is frequently called an opportunity assessment plan, is one method for evaluating an opportunity. It is not a business plan. Compared to a business plan, it should be shorter; focus on the opportunity, not the entire venture; and provide the basis for making the decision of

whether or not to act on the opportunity (Hisrich & Peters, 2002:41). An opportunity assessment plan includes the following (*ibid.*):

- A description of the product or service.
- An assessment of the opportunity.
- An assessment of the entrepreneur and the team.
- Specifications of all the activities and resources needed to translate the opportunity into a viable business venture.
- The source of capital to finance the initial venture as well as its growth.

3.5.2 Developing a business plan

Morris and Kuratko (2002:275) state that planning is the management key to reducing uncertainty and the risks associated with change – a process that allows ventures to stay on track through the preparation, development, and execution stages of the entrepreneurial process.

According to Ernst and Young (2000:122) the business plan is an indispensable management tool. By completing the steps required to develop a business plan forces management to introduce discipline and a logical thought process into all the planning activities. It improves the company's ability to consistently establish and meet goals and objectives in a way that best serves the company's owners, employees and investors.

A business plan is a written representation of where the company is going, how it will get there, and what it will look like once it arrives (Ernst & Young, 2000:122). In other words, a written document that details a proposed venture that describes every aspect of the venture, i.e. the project, marketing, research and development, manufacturing, management, critical risks, financing, and milestones (Kuratko & Welsch, 2001:240; Kuratko & Hodgetts, 2001:288).

Hisrich and Peters (2002:42) confirm that a good business plan must be developed in order to exploit the defined opportunity. This is a very time-consuming phase of the entrepreneurial process, but is essential for developing the opportunity and determining the resources required, obtaining those resources, and successfully managing the resulting venture. According to Morris and Kuratko (2002:278) an effective plan will do the following:

- Describe every aspect of a particular innovative concept including the underlying economic model.
- Specify the nature of the opportunity the concept is intended to capitalise upon.
- Include a marketing plan.
- Clarify and outline financial needs.
- Identify potential obstacles and alternative solutions.
- Establish milestones for continuous and timely evaluations.
- Serve as communication tool for assessment purposes.

The business plan therefore serves as the venture's navigational instrument that guides employees, investors, lenders, suppliers, customers and the corporate entrepreneur (Rwigema & Venter, 2004: 248). It is the major tool used to guide the formation as well as the primary document needed to manage it. It is, however, an ongoing process as projections are made, implemented, measured, and updated (Kuratko & Welsch, 2001:240; Morris & Kuratko, 2002:278).

3.5.3 Determine the resources required

Resources are those basic inputs needed to conduct the business, and include such factors as capital, technology, equipment and employees. There are tangible resources like plant and equipment, cash reserves, and the company's borrowing capacity. Intangible resources include intellectual property such as patents and copyrights, as well as endowments from brand recognition and reputation (Longenecker *et al.*, 2006:55).

The resources needed for addressing the opportunity must therefore be determined. This process starts with an appraisal of the present resources. Any resources that are critical need to be differentiated from those that are just helpful. Care must be taken not to underestimate the amount of variety of resources needed. The downside risks associated with insufficient or inappropriate resources should also be assessed (Hisrich & Peters, 2002:42).

According to Morris and Kuratko (2002:184) the major method of securing the necessary resources is through cooptation or leveraging of the resources currently underutilised by the company. They refer to Starr and MacMillan (1990) that identified four distinct strategies for cooptation, namely borrowing, begging, scavenging, and amplifying:

- **Borrowing** strategies are employed to secure temporarily or periodical use of assets or other resources, with the understanding that they will eventually be returned.
- **Begging** strategies are employed to secure resources by appealing to the owner's goodwill. In this way, venture managers gain the use of the resources without needing to return them, despite the fact that the owner recognises the value of the assets.
- **Scavenging** strategies extract usage from goods that others do not intend to use or that they might actually welcome an appropriate opportunity to divest themselves of. This approach involves learning about unused or underused resources (e.g., obsolete inventory, idle equipment, or underutilised personnel).
- **Amplifying** is the capacity to lever far more value out of an asset than is perceived by the original owner of the asset.

These four strategies allow the entrepreneur to secure resources that would otherwise have to be secured by economic exchange at a much greater cost (Morris & Kuratko, 2002:186).

3.5.4 Manage the enterprise

After resources are acquired, the entrepreneur must use them to implement the business plan. The operational problems of the growing enterprise must also be examined. This involves implementing a management style and structure, as well as determining the key variables for success. A control system must be established, so that any problem areas can be quickly identified and resolved (Hisrich & Peters, 2002:42).

According to Smit and Cronjé (1999:9) the nature of management is to combine, allocate, coordinate and deploy resources or inputs in such a way that the organisation's goals are achieved as productively as possible. Rue and Byars (2000:4) describe it as work that involves coordinating and organisation's resources toward accomplishing organisational objectives. In their definitions of management Jones and George (2003:5) and Kinicki and Williams (2003:5) emphasise management's role as *efficiently* and *effectively* achieving organisational goals through the integration of the resources.

The four basic functions of traditional management are *planning*, *organising*, *leading*, and *controlling* (Smit & Cronjé, 1999:9; Morris & Kuratko, 2002:6; Jones & George, 2003:5; Kinicki & Williams, 2003:5). Cole (2004:10) refers to *motivating* in stead of leading, and Rue and Byars (2000:6) adds *staffing* to the traditional list of four.

In drawing from these authors the four basic functions are highlighted as follows:

- *Planning* is the process of setting objectives and then determining the steps needed to attain them.
- *Organising* is the process of assigning duties to personnel and coordinating employee efforts in order to ensure maximum efficiency; coordinating activities and responsibilities into an appropriate structure

- *Leadership* is the process of influencing people and channelling behaviour to direct their efforts toward the achievement of some particular goal.
- The *controlling* process consists of three steps: (1) establishment of standards, (2) comparison of results against standards, and (3) correction of deviations.

Kuratko and Welsch (2001:72) however, stress the importance for the venture's management to maintain an open, entrepreneurial frame of mind to avoid the danger of evolving into a bureaucracy that stifles innovation. Success could affect willingness to change and innovate, especially if the venture develops an aura of complacency with which the team is comfortable (Kuratko & Hodgetts, 2001:496).

In the next chapter more attention will be given to management and leadership issues in corporate entrepreneurship.

3.6 SUMMARY

There has been a growing interest in the use of corporate entrepreneurship as a process for corporations to enhance the innovative abilities of their employees and increase corporate success. Intensifying global competition, corporate downsizing and de-layering, rapid technological progress, and many other factors have heightened the need for organisations to become more entrepreneurial in order to survive and prosper.

Subsequently many large companies are seeking ways of reinventing or revitalising their entrepreneurial roots, and fostering intrapreneurial behaviours and practices has taken priority in the strategies of many companies where innovation is perceived as an important means of establishing and maintaining competitive advantage.

Corporate entrepreneurship is a term used to describe entrepreneurial behaviour inside established organisations, and related terms include orga-

nisational entrepreneurship, intrapreneurship, and corporate venturing. It refers to emergent behavioural intentions and behaviours of an organisation, which are related to departures from the customary ways of doing business.

The ultimate objective is to gain competitive advantage by encouraging innovation at all levels in the organisation, and refers not only to creation of new business ventures, but also to other innovative activities and orientations such as development of new products, services, technologies, administrative techniques, strategies and competitive postures.

Corporate entrepreneurship consists of five dimensions critical to the entrepreneurial orientation concept, namely (1) innovativeness, (2) proactiveness, (3) risk-taking, (4) competitive aggressiveness, and (5) autonomy. Collectively these dimensions permeate the decision-making styles and practices of a company's members and work together to enhance entrepreneurial performance.

In terms of the types of corporate entrepreneurship are concerned, literature identifies four types, namely (1) Corporate Venturing, (2) Intrapreneuring, (3) Organisational Transformation, and (4) Industry Rule Breaking.

One of the most valuable contributions to the understanding of entrepreneurship is the general recognition that a process is involved. It is a process that occurs in an organisational setting, including larger, established companies.

This process typically consists four distinct phases: (1) identification and evaluation of the opportunity, (2) development of the business plan, (3) determination of the required resources, and (4) management of the resulting enterprise. Although these phases run progressively, no one stage is dealt with in isolation or is totally completed before work on other phases occurs.

The chapters that follow will attempt to provide a framework for understanding the critical elements required to develop entrepreneurship within

organisations. An examination of the literature on the nature of corporate entrepreneurship further necessitates a closer look at vision and direction (leadership), and the environment (climate) that must be developed to enable an entrepreneurial orientation of the future that will help organisational leaders transform their companies through corporate entrepreneurship.

CHAPTER 4

ENTREPRENEURIAL LEADERSHIP: LITERATURE OVERVIEW

4.1 INTRODUCTION

Kreitner and Kinicki (2004:595) argue that the topic of leadership has fascinated people for centuries, and there are many definitions with as many differences. Dick and Ellis (2006:148) concur that people have been debating the nature of leadership for as long as records have been kept, certainly as far back as the Ancient Greek philosopher Homer, and Cole (2004:52) states that only in recent years has any kind of theory of leadership emerged.

According to Kreitner and Kinicki (2004:595) the disagreement on the definition of leadership is mainly because it involves a complex interaction among the leader, the followers, and the situation. For example, some researchers define leadership in terms of personality and physical traits, while others believe leadership is represented by a set of prescribed behaviour (Kreitner & Kinicki, 2004:595). Smit and Cronje (1999:278) agree that leadership is a somewhat elusive concept and is difficult to define precisely.

Kuratko and Hornsby (1998:27) state that while numerous authors advanced the notion of “visionary leadership” during the past twenty years, the concept of “entrepreneurial leadership” has emerged as the solution for the 21st century. Many companies today are realising the need for entrepreneurial leadership.

In the increasingly turbulent and competitive environment business firms face today, a type of “entrepreneurial” leader is required who is distinct from the behavioural forms of leaders (Gupta *et al.*, 2004:242). The concern and call for a new type of leadership, that is, “entrepreneurial leadership,” is understandable because of the uncharted and unprecedented territory that lies ahead for businesses in today's dynamic markets (Tarabishy *et al.*, 2005:20).

Yet, is it possible to combine two distinct concepts and research fields such as entrepreneurship and leadership and create a new integrated field called “entrepreneurial leadership”? Even if it is possible to combine such concepts, then what are the characteristics of this new phenomenon and is it the sum of both leadership and entrepreneurship characteristics and behaviours? Finally, is there a relationship between this new type of leadership being called for and the type of organisation needed to survive and compete in today's dynamic markets?

4.2 DEFINITION OF LEADERSHIP

Aristotle (384-322 BC) expressed the view that to be good leader one has first to learn the skills of “followership”, believing that he who has never learned to obey cannot be a good commander (Dick & Ellis, 2006:148).

Cook *et al.* (1997:463) regard leadership is the act of providing direction, energising others, and obtaining their voluntary commitment to the leader's vision; Rue and Byars (2000:310) define it as the ability to influence people to willingly follow one's guidance or adhere to one's decisions; Jones and George (2003:443) defines it as the process by which an individual exerts influence over other people and inspires, motivates, and directs their activities to help achieve group or organisational goals; and, Kinicki and Williams (2003:448) see leadership as the ability to influence employees to voluntarily pursue organisational goals.

Kreitner and Kinicki (2004:595) state that amidst the many different views on leadership that the common thread, however, is *social influence*, and define leadership as a social influence process in which the leader seeks the voluntary participation of subordinates in an effort to reach organisational goals. At its most general level, the vast literature on leadership literature focuses on the ability of leaders to influence a group of followers and emphasises the relations among three key factors: the leader, the followers, and the landscape. (Gupta *et al.*, 2004:242)

Smit and Cronje (1999:279) define leadership from a management perspective as the influencing and directing the behaviour of individuals and groups in such a way that they work willingly to pursue the objectives and goals of the organisation.

Maxwell (1993:1) describes leadership as influence – nothing more; nothing less – and that everything rises and falls on leadership. Maxwell (2001:58) further argues that the success of each department can never, will never, rise any higher than the level at which the leader holds the umbrella. Leadership sets the standard, i.e., the higher the standard, the more effective the leadership.

Maxwell (2001:59) also quotes British Field Marshall Bernard Montgomery who said that leadership is the capacity and the will to rally men and women to a common purpose and the character which inspires confidence; and President Harry Truman who said that a leader is a person who has the ability to get others to do what they don't want to do and like it.

Barker (1999) states that a leader is someone you choose to follow to a place you would not go by yourself, and that the role of leadership is to find, recognise and secure the future.

Leaders are those individuals who live by empowering beliefs and teach others to tap their full capabilities by shifting the beliefs that have been limiting them (Robbins, 1991:104). Leaders shape goals; leaders develop new ideas; leaders reach people on an emotional level (Silbiger, 1999:113).

In terms of what leaders do, Welch (2005:63) argues that leaders relentlessly upgrade their team, using every encounter as an opportunity to evaluate, coach, and build self-confidence; make sure people not only see the vision, they live and breathe it; exude positive energy and optimism; establish trust with candour, transparency, and credit; have the courage to make unpopular decisions and gut calls; probe and push with a curiosity that borders on scepticism, making sure their questions are answered with action; inspire risk

taking and learning by setting the example; and, leaders celebrate.

Fernald *et al.* (2005:3) state that it is not necessarily the individual possessing the most formal authority who is the leader in an organisation, large or small. The leader is anyone who exerts influence over others. Specific traits, characteristics, and personal attributes that will predict superior performance in any given role, team, and organisation can be identified and defined.

According to Cole (2004:53) leadership is something more than just an aspect of personality, tradition, opportunism or appointment. It is intimately connected with actual behaviour and attitudes towards oneself and others. Although leadership may involve empowering others, and sharing the leadership burden in many respects, it nevertheless cannot abdicate its final responsibility for a group's results. Any leader, ultimately, must accept personal responsibility for success or failure.

Cole (2004:53) subsequently regards leadership at work as a dynamic process whereby one individual in a group is not only responsible for the group's results, but actively seeks the collaboration and commitment of all the group members in achieving group goals in a particular context and against the background of a particular national culture.

Cole (2004:53) concludes that the suggestion that leadership is a dynamic process implies that there is no 'one best way' of leading – leadership is essentially about striking the right balance between the needs of people, task and goals in a given situation.

4.3 LEADING VERSUS MANAGING

Kotter (1990:103) argues that leadership is different from management, but not for the reasons most people think. Leadership isn't mystical and mysterious. It has nothing to do with having "charisma" or other exotic personality traits. It is not the province of a chosen few. Nor is leadership necessarily better than management or a replacement for it.

According to Kreitner and Kinicki (2004:596) it is important to understand the difference between leadership and management to fully grasp what leadership is all about. Broadly speaking, managers typically perform functions associated with planning, investigating, organising, and control, and leaders deal with emotional support, and endeavour to get employees to pursue a common goal. Leaders also play a key role in creating a vision and strategy for an organisation. Managers, in turn, are charged with implementing the vision and strategy. Kreitner and Kinicki (2004:596) provide the following table to summarise the key differences:

Table 4.1: Differences between Leaders and Managers

Leaders	Managers
Innovate	Administer
Develop	Maintain
Inspire	Control
Long-term view	Short-term view
Ask what and why	Ask how and when
Originate	Initiate
Challenge the status quo	Accept the status quo
Do the right things	Do things right

Source: Kreitner and Kinicki (2004:596)

Kotter (1990:103) states that leadership and management are two distinctive and complementary systems of action. Each has its own function and characteristic activities. Both are necessary for success in an increasingly complex and volatile business environment.

According to Dick and Ellis (2006:148) there is a growing distinction between management and leadership. While the traditional management view emphasises planning and control, modern leadership is more concerned with exercising influence and inspiring people rather than enforcing what we might call required behaviour.

For Kotter (1990:104) management is about coping with complexity. Its practices and procedures are largely a response to one of the most significant developments of the twentieth century: the emergence of large organisations.

Without good management, complex enterprises tend to become chaotic in ways that threaten their very existence. Good management brings a degree of order and consistency to key dimensions like the quality and profitability of products (Kotter, 1990:104).

Kotter (1990:104) continues by stating that leadership, by contrast, is about coping with change. Part of the reason it has become so important in recent years is that the business world has become more competitive and more volatile. Major changes are more and more necessary to survive and compete effectively in this new environment, more change always demands more leadership.

Kreitner and Kinicki (2004:596) propose that the distinction between leaders and managers is more than a semantic issue for four reasons:

- It is important from a hiring standpoint. Because leaders and managers perform a subset of unique functions, it is important to recruit and select people who have the required intellectual abilities, experience, and job-relevant knowledge to perform their jobs.
- Differences may affect group effectiveness. Work group performance can be increased by staffing a productive mix of leaders and managers.
- Successful organisational change is highly dependant upon effective leadership throughout an organisation.
- Distinctions between leading and managing highlight the point that leadership is not restricted to people in particular positions or roles. Anyone from the bottom to the top of the organisation can be a leader.

Coetsee (2002:59), however, argues that the traditional management approach, where management was seen as planning, organising and controlling the work of other people, is now mainly regarded as obsolete. The most important reason for this is that the traditional approach is not conducive to unlocking and effectively utilising human potential for the enhancement of creativity and to gain commitment to visions and goals.

Dick and Ellis (2006:148) subsequently state that much concern centres on the role of organisational leadership in the future, now that more flexible styles of working and new structures of organisation are replacing the old-fashioned, bureaucratic, hierarchical patterns of management.

To create a motivating climate Coetsee (2002:60) states that it is necessary to shift the emphasis to the leadership role, which is a *function* or a *task*, and not a *position*. Coetsee (2002) prefers the term “manager-leader” rather than only “leader”, and regards the differences between the manager-leader and the traditional leader as depicted in table 4.2 below.

Table 4.2: Differences between the manager-leader and the traditional manager

The Manager-leader	The Traditional Manager
Is proactive, focuses on a vision and value system	Is reactive, focuses on execution
Is opportunity-orientated	Is problem orientated
Has a long term vision, leads according to a dream, a perspective	Has a short term view – works according to a plan
Questions and challenges the status quo	Accepts and maintains the status quo
Transfers a vision, creates expectations, enthusiasm and a motivating climate	Uses policy, regulations, methods, systems and structures to get work done
Seeks opportunities, new approaches, is prepared to take risks	Keep things intact, focuses on stability, predictability
Encourages people to find better ways to do things	Wants to diminish uncertainty and wants to control
Is an innovator	Is a consolidator
Empowers, creates loyalty, respect and dedication	Uses power, expects compliance and loyalty
Empowers by transferring responsibility	Delegates cautiously
Has followers (a team)	Has subordinates (a group)
Performs a function	Occupies a position
Creates an environment in which people want to do things	Gets people to do things
Do the right things right (is effective)	Does things right (is efficient)

Source: Adapted from Coetsee (2002:61)

Kotter (1990:104) states that these different functions – coping with complexity and coping with change – shape the characteristic activities of management and leadership. Each system of action involves deciding what needs to be done, creating networks of people and relationships that can accomplish an agenda, and then trying to ensure that those people actually do the job. But each accomplishes these three tasks in different ways.

Turner (2002:26) argues that management is essential for business; as leadership is, as entrepreneurship is. But the elements involve different thought processes, different agendas and different outcomes. Leadership, however, is the common denominator for both successful management and successful entrepreneurship (Turner 2002:26).

Subsequently, to prevent any misunderstanding, the term “leadership” will be used in this study when comparing to traditional management. Let us further explore the term “entrepreneurial leadership.”

4.4 DEFINITION OF ENTREPRENEURIAL LEADERSHIP

In terms of the question whether it is possible to combine two distinct concepts and research fields such as entrepreneurship and leadership, and create a new integrated field called “entrepreneurial leadership”, literature provides helpful insight.

According to Turner (2002:33) and Kotelnikov (2005) entrepreneurial leadership involves instilling the confidence to think, behave and act with entrepreneurship in the interests of fully realising the intended purpose of the organisation to the beneficial growth of all stakeholders involved.

A major challenge is that in order to achieve these purposes, the entrepreneur must typically do so through others functioning in an organisational setting. Skills for successful leadership therefore become of major importance to the achievement of meaningful objectives in entrepreneurship (Shelton & Darling, 2001:45).

Drawing from past research (McGrath & MacMillan, 2000; Kuratko & Hornsby, 1998; DuBrin, 1995; Slevin and Covin, 1990), Gupta *et al.* (2004:242) define entrepreneurial leadership as leadership that creates visionary scenarios that are used to assemble and mobilise a ‘supporting cast’ of participants who become committed by the vision to the discovery and exploitation of strategic value creation.

This definition emphasises the challenge of mobilising the resources and gaining the commitment required for value creation that the entrepreneurial leader faces which involves creating a vision and a cast of supporters capable of enacting that vision. The two challenges of forging a vision and building a cast of competent and committed supporters are interdependent since the former is useless without the latter (Gupta *et al.*, 2004:242).

Cohen (2004:16) argues that the term “entrepreneurial leader” can refer to two different groups of people, with two distinct roles in the organisation:

- The first kind of entrepreneurial leader is familiar to most of us – the people who reside at the top of the organisation chart and who have broad responsibilities across an organisational unit, or perhaps even the entire organisation. The key roles of these leaders includes setting the organisation’s vision, and then creating the space, systems, procedures, and culture that free others – at all levels of the organisation – to take responsible initiative that can achieve the vision. These leaders must be skilled at mobilising other strong people who can share responsibility at the top; solo heroic versions of leadership no longer work very well.
- The second kind of entrepreneurial leader refers to someone at any level of the organisation who works to uncover and pursue opportunities for constructive change. These opportunities for change include finding and pursuing new products, processes, services, markets, organisational approaches, and more. They may identify a broken process that wastes resources or delays service, learn of a new procedure for building customer loyalty, use careful analysis to spot a new market segment, and then figure out how to implement a solution.

Cohen (2004:16) concludes by stating that both kinds of leaders are desperately needed in today’s organisations, and both are essential for their future.

Welch (2001:xv) refers to creating a company where people dare to try new things – where people feel assured in knowing that only the limits of their

creativity and drive, their own standards of personal excellence, will be the ceiling on how far and how fast they move – requires that a company is filled with self-confident entrepreneurs who would face reality every day (Welch, 2001:92).

Welch (2001:186) introduced the term “boundaryless” – that each employee wakes up with the goal of “Finding a Better Way Every Day.” However, Welch (2001:189) argues that one can’t be talking about reality, candour, globalisation, boundaryless, speed, and empowerment and have people who don’t embrace these values. Every one in the organisation must walk the talk. That is why employees must be “set free” to find the ideas, make the case to invest in their ideas, and grow (Welch, 2001:237).

(Cohen, 2004:20) also states that this type of renewal needs to be continuous, and that Jeff Immelt, the new CEO of General Electric is working to reinvent the company yet again. It takes entrepreneurial leadership to sustain entrepreneurial leadership.

MacMillan and Gunther McGrath (2000) state that the most important function of an entrepreneurial leader is not to find new opportunities or to identify the critical competitive insights, but rather to create an organisation that does these things as a matter of course, and argue that the entrepreneurial leader would have succeeded when:

- Everyone in the organisation takes it for granted that business success is about a continual search for new opportunities and a continual letting go of less productive activities.
- Everyone feels that he or she has not only the right but the obligation to seek out new opportunities and to make them happen.
- The hallways buzz with energy, when people come to work excited, and when they are proud to be associated with your dynamic organisation.
- The value created within the organisation translates into stakeholder wealth.

Cullum *et al.* (2002) state that for an organisation to be truly entrepreneurial, leaders need to adopt a new role. Rather than just striving to be entrepreneurial leaders, they need to focus on becoming leaders of entrepreneurs. They need to ensure that others on the management team and throughout the organisation *want to* and *know how to* act in an entrepreneurial way, and that they have the resources and support to do so.

Fernald *et al.* (2005:5) and Tarabishy *et al.* (2005:27) argue that the organisational archetype of the future will be entrepreneurial. Its leadership, strategies, and structure will reflect entrepreneurial thinking with associated characteristics, e.g., a problem-solving and action orientation.

The characteristics and behaviours that spell success in entrepreneurial firms and small businesses now are being considered as vital for success, even for large trans-national corporations (Tarabishy *et al.*, 2005:27).

4.5 ENTREPRENEURIAL LEADERSHIP CHARACTERISTICS

According to Hisrich and Peters (2002:51) certain individual characteristics have been identified that constitute a successful intrapreneur within the overall corporate environment. These include understanding the environment, being visionary and flexible, creating management options, encouraging teamwork while employing a multi-disciplined approach, encouraging open discussion, building a coalition of supporters, and persisting.

Fernald *et al.* (2005:4) furthermore comment that the individual characteristics or behaviours include vision, problem solving, decision-making, risk taking, and strategic initiatives.

In terms of what entrepreneurial leaders do, Turner (2002:21, 24) compares what he refers to as “entrepreneurial leader (e-leader)” and “manager-leader (m-leader).” Turner (2002:20) argues that in most organisations ‘leaders’ are actually managers operating under a leadership title.

The role of the entrepreneurial leader is not necessarily to be an entrepreneur. Neither is it to seek out opportunities, new innovations, utilise competitive insights, make the best of uncertainty or be agile. It is far greater. It is to be part of the dynamic responsible for creating an organisation that encourages all people to learn, develop and apply these qualities by acting in an entrepreneurial way (Turner, 2002:23).

Table 4.3: Entrepreneurial leader and manager leader comparison

E-leader	M-leader
Encourage their people to go beyond the momentary.	Knock the pioneering spirit out of people.
Give confidence to act on initiative.	Give little or no responsibility.
Foster entrepreneurship through example.	Are not role models for entrepreneurship.
Don't allow structure to hinder creativity.	Allow slow decisions to extinguish creativity.
Perceive entrepreneurs to be purposeful initiators.	Perceive entrepreneurs to be rash risk-takers.
Give innovation priority over operational efficiency.	Allow operational efficiency to have priority over innovation.
Forgive rather than insist on permission.	Dominate with blame more than stimulate with praise.
Are interested in everyone's entrepreneurial development.	Are more interested in their own entrepreneurial development.
Communicate by listening attentively.	Communicate only when they want something.
Embrace change all the time.	Do not like change because they are already too busy.

Source: Adapted from Turner (2003:21,24)

Timmons and Spinelli (2007:10) referring to the work of Grant (1992), provides an entrepreneurial leadership paradigm (Table 4.4) that indicate three clear areas that articulate the fundamental driving forces theory of entrepreneurship, namely the lead entrepreneur, the venture team and the external environment influences.

According to Timmons and Spinelli (2007:10) Grant surveyed 25 senior venture capitalists to develop the entrepreneurial leadership paradigm, and suggested that to truly understand this paradigm, it should be metaphorically associated with a troika, a Russian vehicle pulled by three horses of equal strength. Each horse represents a cluster of the success factors.

Table 4.4: The entrepreneurial leadership paradigm

The Lead Entrepreneur	
Self concept	Has a realist's attitude rather than one of invincibility.
Intellectually honest	Trustworthy, his / her word is his / her contract. Admits what and when he / she does not know.
Pace maker	Displays a high energy level and a sense of urgency.
Courage	Capable of making hard decisions: setting and beating high goals.
Communication skills	Maintains an effective dialogue with the venture team, in the marketplace, and with other venture constituents.
Team player	Competent in people management and team-building skills.
The Venture Team	
Organisational style	The lead entrepreneur and the venture team blend their skills to operate in a participative environment.
Ethical behaviour	Practices strong adherence to ethical business practices.
Faithfulness	Stretched commitments are consistently met or bettered.
Focus	Long-term venture strategies are kept in focus but tactics are varied in order to achieve them.
Performance / reward	High standards of performance are created and superior performance is rewarded fairly and equitably.
Adaptability	Responsive to rapid changes in product / technological cycles.
External Environmental Influences	
Constituent needs	Organisation needs are satisfied in parallel with those of the other publics the enterprise serves.
Prior experiences	Extensive prior experiences are effectively applied.
Mentoring	The competencies of others are sought and used.
Problem resolution	New problems are immediately solved or prioritised.
Value creation	High commitment is placed on long-term value creation for backers, customers, employees, and other stakeholders.
Still emphasis	Marketing skills are stressed over technical ones.

Source: Adapted from Timmons and Spinelli (2007:10) from Grant (1992)

Gupta *et al.* (2004:245) highlight three cross-cultural, universal perspectives of leadership that have emerged in recent years that they argue are relevant to the context of leadership capable of sustaining innovation and adaptation in high-velocity and uncertain environments: (1) Transformational leadership, (2) Team-oriented leadership theories, and (3) Value-based leadership.

In terms of the relationship between the leaders' transactional and transformational characteristics and behaviours with the organisation's entrepreneurial orientation, Tarabishy *et al.* (2005:26) argue that transformational leadership characteristics and behaviours more than transactional characteristics and behaviours may have a stronger relationship on the organisation's entrepreneurial strategic posture. Transactional

leadership motivates subordinates by rewarding high performance and reprimanding low performance (Jones & George, 2003:463).

Transformational leadership is that ability to inspire and motivate followers to achieve results greater than originally planned and for internal awards (Visser *et al.*, 2005:53). Jones and George (2003:460) describes it as leadership that makes subordinates aware of the importance of their jobs and performance to the organisation and aware of their own needs for personal growth and that motivates subordinates to work for the good of the organisation.

According to Visser *et al.* (2005:60) research findings clearly indicate that a clear relationship exists between the concepts of entrepreneur and transformational leader. It therefore follows logically that entrepreneurs should display at least some of the profile attributes associated with transformational leaders. In similar vein, transformational leaders need the ability to innovate, to pioneer new paradigms and to move beyond the boundaries of direct predictability – profile attributes that are deemed to be of key importance to entrepreneurs.

A dynamic interrelationship between these two key concepts is therefore apparent and this should be taken full cognizance of in the development of both transformational leaders and entrepreneurs (Visser *et al.*, 2005:60).

Gupta *et al.* (2004:246) conclude, specifically in the organisational context, components of transformational, team-building, and value-based leadership that are relevant for entrepreneurial leadership, are those that enable the leader to mobilise the capacity to meet the entrepreneurial challenge.

Gupta *et al.* (2004:246) state that this can only be done by a leader who can:

- Extract exceptional commitment and effort from organisational stakeholders.
- Convince them that they can accomplish goals.

- Articulate a compelling organisational vision.
- Promise their effort will lead to extraordinary outcomes.
- Persevere in the face of environmental change.

This correlates strongly with the transformational leadership characteristics and behaviours of Tarabishy *et al.* (2005:26) that argue as follows:

- **Transformational Leadership Characteristics:**

- Confident Leadership. An organisation that exhibits a strong or high entrepreneurial strategic posture is largely based upon the prevalence of confident leadership and the transformation of its staff into self-directed leaders.
- Visionary Leadership. Visionary leaders don't simply arrive at a vision and sell it to followers. The idea of vision aligns well with the organisation's entrepreneurial strategic posture, meaning that the leader can develop a clear vision and communicate it to their staff, which will allow the organisation to be more proactive, innovative, and risk-taking.

- **Transformational Leadership Behaviours:**

- Creative Leadership. The creative leadership behaviour dimension is called "creative" because it refers to the extent to which leaders create opportunities for followers to be empowered and succeed in achieving goals in which they have been empowered.
- Credible Leadership. Leaders establish trust by taking actions that are consistent both over time and with what the leader says. Trust, of course, exists in the minds and hearts of followers and is not an obvious aspect of leader behaviour.
- Principle-Centered Leadership. This is the degree to which a leader is effective in inculcating values and beliefs designed to shape an organisation's culture. The values and beliefs of the staff and leader drive them to be more innovative, risk-taking, and proactive.

Swiercz and Lydon (2002:384) examined the competencies required of successful “career entrepreneurial leaders”, which they define as individuals who initiate, develop, and manage entrepreneurial organisations from start-up to an ongoing enterprise. Analysis of the data revealed two sets of competencies comprising entrepreneurial leadership, namely functional competencies and self competencies.

- **Functional competencies** are defined as competencies that pertain to the four performance subsystems of the “FourSquare model” (Swiercz & Spencer, 1992) applied in their study. The four performance subsystems are operations, finance, marketing, and human resources (Swiercz & Lydon, 2002:384).
- **Self competencies** are defined as less tangible, non-functional competencies that pertain to the individual leader. Four main self competencies were discovered. They are intellectual integrity, promoting the company rather than the individual leader, utilizing external advisors, and creating a sustainable organisation (Swiercz & Lydon, 2002:387).

Gupta *et al.* (2004:247) suggest that entrepreneurial leaders face two interrelated challenges:

- Envisaging and creating conditions for possible opportunities that can be seized to revolutionise the status quo, given resource constraints.
- To convince both potential followers and the firm’s network of stakeholders that the transformation of the status quo is possible by assembling resources to accomplish the objectives underlying the scenario.

These challenges are interdependent since transforming the status quo cannot be conceived without an appropriate team, and the team cannot be assembled until a convincing scenario is communicated (Gupta *et al.*, 2004:247). Together with five roles they identified to address these challenges, Gupta *et al.* (2004:250) provide a theoretical framework for the construct of entrepreneurial leadership set out in table 4.5 below.

Table 4.5: Measures of entrepreneurial leadership construct

Dimension	Roles	Attributes	Explanation
Conditions	Framing the challenge (specifying highly challenging but realistic outcomes for the team to accomplish)	Performance oriented	Sets high standards of performance.
		Ambitious	Sets high goals, works hard.
		Informed	Knowledgeable, aware of information.
		Has extra insight	Intuitive.
	Absorbing uncertainty (taking the burden of responsibility for the future)	Visionary	Has a vision and imagination of the future.
		Foresight	Anticipates possible future events.
		Confidence builder	Instils others with confidence by showing confidence in them.
	Path clearing (negotiating opposition and clearing the path)	Diplomatic	Skilled at interpersonal relations, tactful.
		Effective negotiator	Is able to negotiate effectively, able to make transactions with others on favourable terms.
		Convincing	Unusual ability to persuade others of his/her viewpoint.
		Encouraging	Gives courage, confidence, or hope through reassuring and advising.
Team	Building commitment (building an inspired common purpose)	Inspirational	Inspires emotions, beliefs, values and behaviours of others, inspires others to be motivated to work hard.
		Enthusiastic	Demonstrates and imparts strong positive emotions for work.
		Team builder	Able to induce group members to work together.
		Improvement-oriented	Seeks continuous performance improvement.
	Specifying limits (building a common understanding and agreement of what can and cannot be done)	Integrator	Integrates people or things into cohesive, working whole.
		Intellectually stimulating	Encourages others to use their mind – challenges beliefs, stereotypes, and attitudes of others.
		Positive	Generally optimistic and confident.
		Decisive	Makes decisions firmly and quickly.

Source: Adapted and reworked from Gupta et al. (2004:250)

Kotelnikov (2005) subsequently argues that entrepreneurial leadership is not a position or an event, it is a process. The entrepreneurial leader takes responsibility to assist the organisation in creating such conditions so that, instead of being controlled, the organisation generates its own order and responds creatively to the environment. This role is not only more productive

for the organisation, it is liberating for the leader as well. By helping to unleash the creative potential of their organisations, entrepreneurial leaders are unleashing their own.

4.6 SUMMARY

The topic of leadership has fascinated people for centuries, and during the past twenty years, the concept of "entrepreneurial leadership" has also emerged as alternative to the traditional management approach, where management was seen as planning, organising and controlling the work of other people, mainly because it is not regarded as conducive to unlocking and effectively utilising human potential for the enhancement of creativity and to gain commitment to visions and goals.

The modern corporation is forced into seeking avenues for developing in-house entrepreneuring. To do otherwise is to wait for stagnation, loss of personnel, and decline. This new "corporate revolution" represents an appreciation for a desire to develop entrepreneurial leadership within the corporate structure. The major thrust behind entrepreneurial leadership is a revitalisation of innovation, creativity, and managerial development in corporations.

Amidst the many different views on leadership the common threat, however, is ***influence***, and it is not necessarily the individual possessing the most formal authority who is the leader in an organisation. The leader is anyone who exerts influence over others. Subsequently employees at every level of the organisation need to take initiative – to conceive, to inspire, and to initiate change – to lead.

Entrepreneurial leaders think and act in a way that is opportunity obsessed – constantly looking for unfulfilled needs, gaps in service or product, and broken processes; holistic in nature – seeking integrated solutions that do not ignore consequences for other parts of the organisation; and leadership balanced for

the purpose of value creation – not just change for change's sake, but to create measurable value for the enterprise.

Entrepreneurial leader can refer to two different groups of people, with two distinct roles in the organisation, namely (1) the people who reside at the top of the organisation chart and who have broad responsibilities across the organisation, and (2) those at all levels of the organisation who works to uncover and pursue opportunities for constructive change. Both kinds of leaders are needed in today's organisations, and both are essential for their future.

The most important function of an entrepreneurial leader is not to find new opportunities or to identify the critical competitive insights, but rather to create an organisation that does these things as a matter of course, in other words, creating an organisation that encourages all people to learn, develop and apply these qualities by acting in an entrepreneurial way. These include understanding the environment, being visionary and flexible, creating management options, encouraging teamwork while employing a multi-disciplined approach, encouraging open discussion, building a coalition of supporters, and persisting.

Entrepreneurial leadership has strong transformational characteristics and behaviours in terms of relationship with the organisation's entrepreneurial strategic posture, therefore to inspire and motivate followers to achieve results greater than originally planned.

In the organisational context, components of transformational, team-building, and value-based leadership that are relevant for entrepreneurial leadership are those that enable the leader to mobilise the capacity to meet the entrepreneurial challenge.

In terms of competencies, two distinct sets comprise entrepreneurial leadership, namely functional competencies (operations, finance, marketing, and human resources) and self competencies (intellectual integrity, promoting

the company rather than the individual leader, utilising external advisors, and creating a sustainable organisation).

There's no doubt that leaders can foster a climate and culture of entrepreneurial leadership within their organisations, but creating an organisation of entrepreneurial leaders at every level takes a focused, concerted, and long-term effort to shape the organisation's structures and processes. If the systems and processes that support the taking of initiative are not in place, then it will never take root.

The next chapter explores how an entrepreneurial climate can be established in organisations.

CHAPTER 5

ENTREPRENEURIAL CLIMATE IN ESTABLISHED ORGANISATIONS: LITERATURE OVERVIEW

5.1 INTRODUCTION

In arguing a case for the measurement of collective-level phenomena (e.g. organisational climate), Anderson and West (1996:54) state that because international changes in business environments have provoked major developments in organisation design, particularly stimulating the importance of innovation for organisational success, and that such new forms of organisation have led to a rapid growth in the use of team working, organisations lag behind these trends in terms of the pragmatic demands for valid measures of group and organisational phenomena.

Timmons and Spinelli (2007:540) argue that the organisational culture and climate, either of a new venture or of an existing organisation, are critical in how well the organisation will deal with growth. A number of studies of performance in large business organisations that used the concept of organisational climate (i.e., the perceptions of people about the kind of place it is to work in) have led to two general conclusions: (1) the climate of an organisation can have significant impact on performance, and (2) climate is created both by the expectations people bring to the organisation and the practices and attitudes of the key managers.

According to Rogg *et al.* (2001:433) there are several studies that document the importance of organisational climate as a determinant of organisational outcomes. The climate notion has relevance for new ventures, as well as for entrepreneurial efforts in large organisations. An entrepreneur's style and priorities – particularly, how he or she manages tasks and people – is well known by the people being managed and affects performance (Timmons & Spinelli, 2007:540).

This study focuses on organisational climate rather than the often associated concept of organisation culture, and it is therefore useful to give a brief explanation of the difference as presented by Burke and Litwin (1992) and cited by Kangis *et al.* (2000:532) that define climate in terms of perceptions that individuals have of how their local work unit is managed and how effectively they and their day-to-day colleagues work together on the job. The level of analysis, therefore, is the group, the work unit.

Denison (1996:644) argues that on the surface, the distinction between organisational climate and organisational culture may appear to be quite clear: Climate refers to a situation and its link to thoughts, feelings, and behaviours of organisational members. Thus, it is temporal, subjective, and often subject to direct manipulation by people with power and influence.

Denison (1996:644) states that culture, in contrast, refers to an evolved context (within which a situation may be embedded). Thus, it is rooted in history, collectively held, and sufficiently complex to resist many attempts at direct manipulation. The two perspectives have generated distinct theories, methods, and epistemologies as well as a distinct set of findings, failings, and future agendas (Denison, 1996:644).

Climate is much more in the foreground of organisational members' perceptions, whereas culture is more in the background and defined by beliefs and values. The level of analysis is the organisation. Climate is, of course, affected by culture, and people's perceptions define both, but at different levels (Kangis *et al.*, 2000:532).

Denison (1996:645) however argues that one of the most enduring differences between culture and climate stems from their respective theoretical foundations, and concludes that these two research traditions should be viewed as differences in interpretation rather than differences in the phenomenon.

5.2 ORGANISATIONAL CLIMATE DEFINED

Oosthuizen (1982:2) cites Litwin and Stringer as defining organisational climate as a set of measurable properties of the work environment, perceived directly or indirectly by the people who live and work in this environment, and is assumed to influence their motivation and behaviour. In short, the shared perception of the way things are around the organisation (Reichers & Schneider, 1990:22).

Moran and Volkwein (1992:20) defined organisational climate as a relatively enduring characteristic of an organisation which distinguishes it from other organisations and (a) embodies members' collective perceptions about their organisation with respect to such dimensions as autonomy, trust, cohesiveness, support, recognition, innovation and fairness; (b) produced by member interaction; (c) serves as a basis for interpreting the situation; (d) reflects the prevalent norms and attitudes of the organisation's culture; and (e) acts as a source of influence for shaping behaviour.

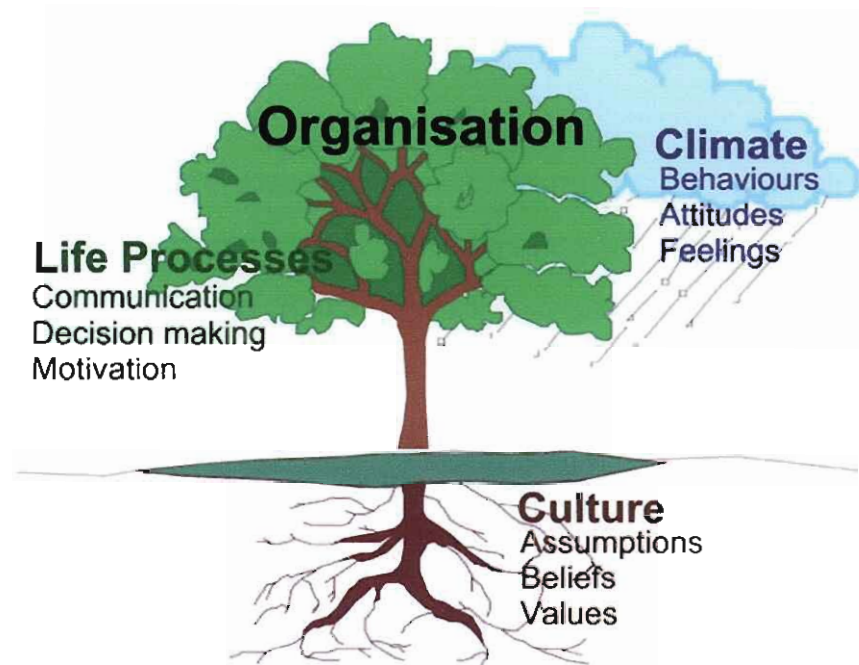
Denison (1996:624) argues that climate portrays organisational environments as being rooted in the organisation's value system, but tends to present these social environments in relatively static terms, describing them in terms of a fixed (and broadly applicable) set of dimensions. Thus, climate is often considered as relatively temporary, subject to direct control, and largely limited to those aspects of the social environment that are consciously perceived by organisational members.

Ashkanasy *et al.* (2000:8) explains that the concept of organisational climate is used to describe configurations of attributes and perceptions by organisation members that, in combination, reflect a substantial part of the context of which they are a part and within they work.

Weeks (2003) provides an interesting approach to the understanding of organisational climate by using a tree as metaphor of the organisation, the

branch network representing the hierarchy of the organisation, and the leaves the people in the organisation. Figure 5.1 below depicts this metaphor.

Figure 5.1: Tree as metaphor of the organisation



Source: Adapted from Weeks (2003)

The roots of the tree, Weeks (2003) argues, represent the culture in the organisation. They go deep and hold everything in place. The values, beliefs and corporate assumptions are the roots. Without these the organisation has no foundations and will become unstable and topple.

The second factor that affects the well-being or life of the metaphoric organisational tree is the climate. Water in the form of rain and light from the sun sustains the tree. The seasons interact. The climate obviously has an impact on how much the tree can thrive. Reduce the light or water and it begins to shrivel. Weeks (2003) states that climate represents the behaviour, attitudes and feelings of the organisation, which in turn affect its operational processes (or life) in terms of communications, problem solving, decision-making and how it learns. Not all trees are the same. Each has a different root system and each reacts to the local climate in differing ways.

Central to these elaborations on organisational climate is subsequently the issue of perception i.e., the way employees view the organisation. What the employee perceives as a whole behaviour pattern on the part of management's attitude to corporate entrepreneurship could then be a reflection of how management exercises corporate entrepreneurship.

According to Timmons and Spinelli (2007:541) evidence suggests that superior teams operate differently in terms of setting priorities, in resolving leadership issues, in what and how roles are performed by team members, in attitudes toward listening and participation, and in dealing with disagreements. Evidence also suggests that specific approaches to management can impact the climate of a growing organisation. Ferris *et al.* (1998:256) and Rogg *et al.* (2001:433) state that climate, in turn, effects employee attitudes and behaviour, and ultimately, organisational effectiveness.

Timmons and Spinelli (2007:541) further argue that organisational climate can be described along six basic dimensions:

- **Clarity:** The degree of organisational clarity in terms of being well organised, concise, and efficient in the way that tasks, procedures, and assignments are made and accomplished.
- **Standards:** The degree to which management expects and puts pressure on employees for high standards and excellent performance.
- **Commitment:** The extent to which employees feel committed to the goals and objectives of the organisation.
- **Responsibility:** The extent to which members of the organisation feels individual responsibility for accomplishing their goals without being constantly monitored and second-guessed.
- **Recognition:** The extent to which employees feel they are recognised and rewarded (non-monetarily) for a job well done, instead of only being punished for mistakes or errors.
- **Esprit de corps:** The extent to which employees feel a sense of cohesion and team spirit, of working well together.

5.3 ESTABLISHING A CLIMATE FOR ENTREPRENEURSHIP

How can the climate for intrapreneurship be established in an organisation? According Hisrich and Peters (2002:49), certain factors and leadership characteristics need to be operant in establishing an intrapreneurial environment.

Anderson and West (1996:56) state that following an exhaustive review of the research literatures on innovation and climate, a number of individual and organisational measures of these constructs were located. This led to the development of West's "Four Factor Model" of facet-specific climate for innovation. Anderson and West (1996:56) argue that this model sets out hypothesised relationships between four climatic factors, evident across existing studies, and work group innovativeness.

- **Participative safety:** How participative the team is in its decision-making procedures and how psychologically safe team members feel it is to propose new and improved ways of doing things.
- **Support for innovation:** The degree of practical support for innovation attempts contrasted against the rhetoric of professed support by senior management.
- **Vision:** How clearly defined, shared, attainable and valued are the team's objectives and vision.
- **Task orientation:** The commitment of the team to achieve the highest possible standards of task performance, including the use of constructive progress monitoring procedures (Anderson & West, 1996:59).

In building on the innovation theme as major subset of entrepreneurship Mathisen *et al.* (2004:383) explain that a great deal of research has been conducted to identify work environments and social climates that may foster or impede innovation and creativity (i.e. Amabile, Conti, Coon, Lazenby & Herron, 1996; Tesluk, Farr & Klein, 1997; West & Richards, 1999).

Mathisen *et al.* (2004:383) state that the major factors are found to be:

- The combination of a supportive and challenging environment.
- Commitment to ambitious, clearly specified, and attainable objectives or goals that are widely shared by the members of the organisation.
- Freedom and autonomy regarding the choice of tasks and how they are performed.
- Encouragement of ideas.
- Sufficient time for creating ideas.
- Appropriate feedback.
- Recognition and rewards for creative initiatives.
- A high level of risk taking and permissions towards errors.
- A non-threatening environment.
- A shared concern with excellence and high quality of performance.

According to MacMillan and McGrath (2000:303) the goal behind climate setting is to create a pervasive sense of urgency for everyone in the organisation to be working on the next new business initiative. Everyone, from senior management to the lowest level staff, must be clear that searching for entrepreneurial opportunities is urgent and is everyone's responsibility.

Echols and Neck (1998:39) argue that the more the organisation can exhibit entrepreneurial qualities and its people believe in behaving entrepreneurially, the greater the firm's ability to achieve maximum innovation or entrepreneurial success will be.

To foster such a climate, the most important thing for leaders is to behave as they would like employees to behave, and to model this behaviour consistently, predictably, and relentlessly. Leaders must be persistent in modelling the behaviour they want others to adopt – people will heed to behaviour and follow example, but they will not change what they do on the basis of words alone (MacMillan & McGrath, 2000:303).

In terms of entrepreneurial behaviour Echols and Neck (1998:40) propose three categories of behaviours necessary to create an entrepreneurial climate, namely (1) detection of opportunities, (2) opportunity facilitation, and (3) motivation to pursue opportunity. Facilitating opportunities is only possible if opportunities have first been detected, and facilitation achieves nothing unless motivation exists (Echols & Neck, 1998:41).

According to MacMillan and McGrath (2000:303) the most important behaviour on the part of the leaders involve dedicating a disproportionate share of their time, attention, and discretionary resources to creating new business models. Leaders need to be attuned to events that are occurring in the outside world and aware of the implications these have for their companies; encourage their people to be more attuned, and; ensure that people are communicating continuously across nearly every boundary of the firm, i.e. across borders, across divisions, and across functions (Moss Kanter, 2004:7).

In terms of approaches to management, Timmons and Spinelli (2007:542) state that in achieving an entrepreneurial climate, certain approaches to management are common across core management modes, i.e.:

- **Leadership:** Common is the pattern whereby a manager defines and gains agreements on who has what responsibility and authority and who does what with and to whom. Roles, tasks, responsibilities, accountabilities, and appropriate approvals are defined.
- **Consensus Building:** Leaders of most successful new ventures define authority and responsibility in a way that builds motivation and commitment to cross-departmental and corporate goals. Using a consensus approach to management requires managing and working with peers and with the subordinates of others (or with superiors) outside formal chains of command and balancing multiple viewpoints and demands.

- **Communication:** The most effective managers share information and are willing to alter individual views. Listening and participation are facilitated by such methods as circular seating arrangements, few interruptions or side conversations, and calm discussion versus many interruptions, loud or separate conversations, and so forth, in meetings.
- **Encouragement:** Successful managers build confidence by encouraging innovation and calculated risk-taking, rather than by punishing or criticizing what is less than perfect, and by expecting and encouraging others to find and correct their own errors and to solve their own problems. They are perceived by their peers and others as accessible and willing to help when needed, and they provide the necessary resources to enable others to do the job.
- **Trust.** The most effective managers are perceived as trustworthy and straightforward. They do what they say they are going to do; they are open and spontaneous; and they are perceived as being honest and direct. They have a reputation of getting results and become known as the creative problem solvers who have a knack for blending and balancing multiple views and demands.
- **Development.** Effective managers have a reputation for developing human capital (i.e., they groom and grow other effective managers by their example and their mentoring). They bring about excellence in organisations by developing entrepreneurial middle management. Linking a plan to grow human capital at the middle management and the supervisory levels with the business strategy is an essential first step.

It is the contention of Echols and Neck (1998:39) that the structure or the organisation is another primary ingredient necessary for an entrepreneurial climate. Entrepreneurial structures have disaggregated performance units with clear communication of employees' roles and responsibilities; they are supportive; they have performance-driven systems with a high level of discipline; and they have a clear mission and standards (Echols & Neck, 1998:42).

Bartlett and Goshal (1996:38) provide an example of the roles portrayed in an entrepreneurial structure, suggesting that in a flat, three-tiered organisation, front-line employees are the players and innovators; middle managers are the coaches and supporters who integrate tasks, develop the player's skills, facilitate organisational learning and help others achieve their best work; and the top leaders energise and shape the organisation's purpose and goals.

Hence, an entrepreneurial structure is a form or system that has a relationship of mutual dependence and reciprocation within an entrepreneurial climate. Climate and structure symbolically reinforce each other, and need each other to make possible the breadth and depth of commercialised innovations needed to survive environmental turbulence (Echols & Neck, 1998:43).

5.4 CHARACTERISTICS OF AN ENTREPRENEURIAL CLIMATE

When examining the literature pertaining to the characteristics that foster and promote an entrepreneurial climate, there are ***thirteen themes*** that seem to dominate prior research. These themes or factors are summarised in table 5.1 below, followed by a short description of each.

Table 5.1: Dominant themes characterising an entrepreneurial climate

Theme	References
Visionary Leadership / Entrepreneurial Leadership	• Pinchot and Pellman (1999:12) • Kuratko and Welsch (2001:349) • Hisrich and Peters (2002:52) • Turner (2002:22) • Cohen (2004:16) • Nicholson-Herbert <i>et al.</i> (2004:43)
Management Support	• Kuratko <i>et al.</i> (1993:32) • Kuratko and Welsch (2001:351) • Hisrich and Peters (2002:51) • Turner (2002:45) • Maes (2003:31) • Gaw and Liu (2004:69) • McBeth and Rimac (2004:20) • Antoncic and Hisrich (2005:12) • Kuratko <i>et al.</i> (2005:703)

Theme	References
Sponsors (Champion)	• Kuratko and Hornsby (1998:30) • Pinchot and Pellman (1999:3) • Kuratko and Welsch (2001:346) • Morris and Kuratko (2001:93) • Hisrich and Peters (2002:51) • Turner (2002:49) • Jones and George (2003:663) • Chaturvedi (2004:63) • Purewall and Seidle (2004:36)
Tolerance for Risks, Mistakes and Failure	• Kuratko and Hornsby (1998:30) • Kuratko and Welsch (2001:351) • Hisrich and Peters (2002:50) • Turner (2002:52) • Maes (2003:31) • Chaturvedi (2004:62) • Cohen (2004:18) • Gaw and Liu (2004:67) • Nicholson-Herbert <i>et al.</i> (2004:44) • Purewall and Seidle (2004:36)
Innovation and Creativity; New ideas encouraged	• Pinchot and Pellman (1999:13,20) • Kuratko and Welsch (2001:347,350,351) • Morris and Kuratko (2002:104) • Maes (2003:31) • Cohen (2004:18) • McBeth and Rimac (2004:21) • Moss Kanter (2004:8) • Nicholson-Herbert <i>et al.</i> (2004:43) • Hisrich and Peters (2005:50)
Appropriate Rewards and Reinforcement	• Kuratko <i>et al.</i> (1993:32) • Echols and Neck (1998:44) • Kuratko and Welsch (2001:355) • Hisrich and Peters (2002:50) • Morris and Kuratko (2002:244) • Turner (2002:184) • Maes (2003:31) • Cohen (2004:18) • McBeth and Rimac (2004:21) • Nicholson-Herbert <i>et al.</i> (2004:44)
Vision and Strategic Intent	• Kuratko <i>et al.</i> (1993:32) • Anderson and West (1996:59) • Pinchot and Pellman (1999:107,117) • Kuratko and Welsch (2001:349) • Hisrich and Peters (2002:47) • Cohen (2004:17) • Gaw and Liu (2004:69) • Mathisen <i>et al.</i> (2004:383)

Theme	References
Discretionary Time and Work	• Kuratko <i>et al.</i> (1993:30) • Pinchot and Pellman (1999:110) • Morris and Kuratko (2002:291) • Antoncic and Hisrich (2003:526) • Maes (2003:31) • Mathisen <i>et al.</i> (2004:383) • Kuratko <i>et al.</i> (2005:703)
Empowered Teams, Multi-disciplined Teamwork and Diversity	• Kuratko <i>et al.</i> (1993:28) • Pinchot and Pellman (1999:109) • Hisrich and Peter (2002:50) • Turner (2002:55) • Cohen (2004:18) • Gaw and Liu (2004:68) • McBeth and Rimac (2004:19) • Nicholson-Herbert <i>et al.</i> (2004:44)
Resource Availability and Accessibility	• Russell and Russell (1992:645) • Kuratko <i>et al.</i> (1993:29) • Russell (1999:72) • Kuratko and Welsch (2001:355) • Hisrich and Peter (2002:50) • Turner (2002:58) • Antoncic and Hisrich (2004:526) • Timmons and Spinelli (2007:341)
Continuous Learning and Cross-functional Learning	• Kuratko <i>et al.</i> (1993:32) • Echols and Neck (1998:40) • Kuratko and Welsch (2001:352) • Jones and George (2003:662) • McBeth and Rimac (2004) • Moss Kanter (2004:7) • Nicholson-Herbert <i>et al.</i> (2004:44) • Gurunathan <i>et al.</i> (2005:61)
Strong Customer Orientation	• Pinchot and Pellman (1999:113,133) • Kuratko and Welsch (2001:352) • Hisrich and Peters (2002:54) • Turner (2002:188) • Liu <i>et al.</i> (2002:367) • Cohen (2004:19) • Moss Kanter (2004:8) • Dess and Lumpkin (2005:150)
Flat organisational structure with open communication and strong sense of belonging.	• Russell and Russell (1992:652) • Kuratko <i>et al.</i> (1993:32) • Echols and Neck (1998:43) • Pinchot and Pellman (1999:112) • Rue and Byars (2000:13) • Cohen (2004:18) • McBeth and Rimac (2004:20)

An explanation of each theme is discussed below:

5.4.1 Visionary leadership / entrepreneurial leadership

Visionary- / entrepreneurial leadership refers to the ability of setting the organisation's vision, and then creating the space, systems, procedures, and culture that free others – at all levels of the organisation – to take responsible initiative that can achieve the vision and mobilising other strong people who can share responsibility at the top (Cohen, 2004:16).

Kuratko and Welsch (2001:349) state that it is about sharing the vision of innovation that the corporate leaders wish to achieve and employees need to know about and understand this vision. The importance of a shared vision is a critical element for a strategy that seeks high achievement. Developing this shared vision requires identification of specific objectives for corporate entrepreneuring strategies and the programs needed to achieve those objectives.

It is about courage, vision and a willingness to take charge to make it happen; to bring out, focus, and guide the organisation's entrepreneurial energy (Pinchot & Pellman, 1999:3). Nicholson-Herbert *et al.* (2004:43) argue that optimal use of the new (entrepreneurial) energy to the organisation's benefit requires visionary leadership with the ability to strike a balance between deliberately creating the kind of climate that sparks creativity and the rigour and discipline that is required to channel this towards improved competitiveness and ultimately financial performance.

By allowing creativity and innovation to thrive, the leaders of the organisation would need to have defined the vision clearly enough for it to be autonomously implemented by managers and staff (Nicholson-Herbert *et al.*, 2004:43). It is about encouraging others to develop their pioneering spirit (Turner, 2002:22) by leading from the front to model going beyond the immediate, and ensuring that structures are not restrictive (Turner, 2002:25).

According to Cohen (2004:16) it inspires employees at any level of the organisation to work to uncover and pursue opportunities for constructive change. These opportunities for change include finding and pursuing new products, processes, services, markets, organisational approaches, and more.

5.4.2 Management support

Management support is the willingness of managers to facilitate and promote entrepreneurial activity in the firm (Kuratko & Hornsby, 2001). This support can take many forms, including championing innovative ideas, providing necessary resources or expertise, or institutionalizing the entrepreneurial activity within the firm's system and processes (Hornsby *et al.*, 2002:259).

Hisrich and Peters (2002:51) state that it refers to a whole-hearted support and embrace of entrepreneurial activity by top management, both by their physical presence and by making sure that the financial resources are readily available.

Agreed support must derive from the highest level, be formulated into a strategy and then communicated throughout the organisation (Turner, 2002:45), and top management must educate employees about innovation and entrepreneurship (Kuratko & Welsch, 2001:351). Direct support from senior management and middle managers will be necessary for the intrapreneur to successfully champion an idea (Gaw & Liu, 2004:69).

When management commits to an entrepreneurial orientation, the culture of the organisation through its people must be able to support this transformation (McBeth & Rimac, 2004:20). Kuratko and Hodgetts (2004:65) argue that some of the specific conditions reflecting management support would be quick adoption of employee ideas, recognition of people who bring ideas forward, support for small experimental projects, and seed money to get projects off the ground.

5.4.3 Sponsors

Sharma and Chrisman (1999:22) state that the sponsorship dimension is related to the degree of formal authorisation for the venture and argue that in case of autonomous entrepreneurial efforts, the role of an organisational champion and sponsor is extremely important, whereas it may not be as critical in the case of formally induced efforts (Sharma & Chrisman, 1999:23).

Pinchot and Pellman (1999:3) state that a sponsor refers to someone who coaches, protects, and marshals resources for the team. Sponsors provide “air cover” and suggest strategies for winning allies rather than make enemies. Pinchot and Pellman (1999:66) further argue that in companies that manage innovation well, sponsors speed projects along by creating a protective bubble around intrapreneurial teams to let them focus on getting the job done.

Sponsorship from the highest level is required to allow the qualities of having the confidence or passion to develop an opportunity to profitable conclusion to come together in an initiative (Turner, 2002:49). Morris and Kuratko (2002:93) add by stating that sponsors are corporate managers at higher levels in the organisation willing to protect intrapreneurs by building environments of safety around them. Sponsors aid the intrapreneur in gaining access to resources and information and have a sincere belief in the intrapreneur’s vision. They also assist in keeping the entrepreneurial project “under the radar screen,” where it has less visibility and is not as likely to become a target for elimination (Morris & Kuratko, 2002:93).

According to Hisrich and Peters (2002:51) a corporate environment favourable for intrapreneurship has sponsors and champions throughout the organisation who not only support the creative activity and resulting failures but also have the planning flexibility to establish new objectives and directions as needed. Jones and George (2003:663) refer to a “project champion” and describe it as a manager who takes “ownership” of a project and provides the

leadership and vision that takes a product from the idea stage to the final customer.

5.4.4 Tolerance for risks, mistakes and failure

Employees and middle managers must be willing to take risks and show a tolerance for failure when it occurs (Kuratko & Hornsby, 1998:30). It refers to experimentation and encouragement of trial and error. A company wanting to establish an intrapreneurial spirit has to establish an environment that allows mistakes and failures in developing new innovative products (Hisrich & Peters, 2002:50).

Kuratko and Welsch (2001:351) reason that encouraging innovation requires a willingness not to only tolerate failure, but also to learn from it. By encouraging experimentation and risk taking, the company has more chances for a new-product success. The very nature of success demands trial and errors (Turner, 2002:52).

Cohen (2004:18) states that as long as employees do their homework, use sound business reasoning and try to benefit the organisation, employees shouldn't be penalised for taking risks on new things, they should be supported and applauded. Nicholson-Herbert *et al.* (2004:44) subsequently state that focus should be given to structures that support research and development and allow individuals to take risks and experiment with new ideas.

5.4.5 Innovation and creativity; new ideas encouraged

According to Kuratko and Welsch (2001:347) continuous innovation and an ability to compete effectively in international markets are among the skills that are expected to increasingly influence corporate performance in the twenty-first century's global economy.

Kuratko and Welsch (2001:350) continue by stating that for a corporation seeking to establish an intrapreneurial strategy is to encourage innovation among employees as the key element in its strategy. This element is a critical component of contemporary competitive strategies.

It is about creating the space for stimulating ideas to bubble up from individuals. This implies that individuals who are required to innovate should not be bogged down by routine work and tied down by bureaucracy. Ideas can be further enriched by social interaction and facilitated conversations within teams (Nicholson-Herbert *et al.*, 2004:43).

Morris and Kuratko (2002:104) argue that creativity is the soul of entrepreneurship. It is required in spotting the patterns and trends that define an opportunity. It is needed to develop innovative business concepts. Most importantly, the corporate entrepreneur has to be highly creative in getting a sponsor, building and using a network, obtaining management buy-in for the concept, forming a team, coming up with resources, and overcoming the many obstacles that will be thrown into his/her path.

Creativity can be defined as the application of a person's mental ability and curiosity to discover something new. It is the act of relating previously unrelated things, thus the capacity to develop new ideas, concepts, and processes (Morris & Kuratko, 2002:104).

Pinchot and Pellman (1999:13) reason that many organisations have difficulty managing innovation because they insist on an orderly world in which results turn out as planned. This doesn't work because innovation requires the exploration of unknown territory. Success in innovation depends not on the certainty of being right, but on rapid learning and fast response to what has been learned.

It takes more than one or two climate makers to create an environment that brings forth sponsors and intrapreneurs. It takes a widely shared belief in

innovation and a sincere determination to keep it alive (Pinchot & Pellman, 1999:20).

5.4.6 Appropriate rewards and reinforcement

Rewards represent a very potent tool to influence employee behaviour on the job, especially the set of rewards over which management has direct control (Morris & Kuratko, 2002:244). McBeth and Rimac (2004:21) state that one cannot expect creativity and innovation while measuring and rewarding the opposite. Traditional reward and evaluation systems are short-term-oriented and, consequently, encourage safe, predictable behaviour. Reward philosophy controls the degree of sustained commitment that management can expect from individuals.

Hisrich and Peters (2002:51) concur that the intrapreneur needs to be appropriately rewarded for all the energy, effort, and risk taking expended in the creation of the new venture. These rewards should be based on the attainment of established performance goals. An equity position in the new venture is one of the best methods for motivating and eliciting the amount of activity and effort needed for success.

Although intrapreneurs are highly intrinsically motivated and desire freedom and access to corporate resources (collective knowledge, experience, and tools) and learning experiences, they are also goal-oriented and seek rewards, feedback, and recognition. The appropriate reward system for these individuals is value and team-based, without upper limits. Specific rewards should be individualised and presented as options, allowing people to choose the rewards that resonate most with them (McBeth & Rimac 2004:21).

Kuratko *et al.* (1993:28) state that in order to implement entrepreneurial thinking, today's managers need to recognise newly developing strategies, assess the corporation's climate for readiness, and reinforce behaviour with effective rewards.

Several elements are critical in establishing the necessary climate. These include: the presence of explicit goals; a system of feedback and positive reinforcement; an emphasis on individual responsibility; and rewards based upon results (Kuratko *et al.*, 1993:32).

Encouraging the right people to act in the right roles with an entrepreneurial attitude to create value from opportunity must be founded on a reward system that is meaningful and motivating (Turner, 2002:184). Jones and George (2004:665) believe that organisations must reward intrapreneurs equitably if they wish to prevent them from leaving and becoming outside entrepreneurs who might form a new venture that competes directly against them.

Turner (2002:186) argues that the fundamental reward for entrepreneurial behaviour is the same as the motivator for instilling and developing it, namely ownership. Entrepreneurial leaders freely and frequently reward and recognise their employees in many ways, encouraging them to take even more initiative (Cohen, 2004:18).

5.4.7 Vision and strategic intent

According to Pinchot and Pellman (1999:25) corporate entrepreneurship is most effective when it aligns with the strategic intent of the organisation. For this reason, it is best to begin an intrapreneuring program by widely disseminating a clear idea of what you hope the organisation will accomplish.

Kuratko and Welsch (2001:349) concur that the first step in planning an intrapreneurship strategy for the enterprise is sharing the vision of innovation that the corporate leaders wish to achieve. As corporate entrepreneuring results from the creative talents of people within the organisation, employees need to know about and understand this vision.

Company leaders need to articulate an inspiring future, in which the organisation makes an important difference for customers or community, and then use that vision repeatedly to guide decisions, inspire commitment, and

motivate action (Cohen, 2004:17). Pinchot and Pellman (1999:25) state that strategic intent that exceeds what seems possible with existing resources inherently calls for innovation. Such a vision or intent demands organisational transformation.

Gaw and Liu (2004:69) further add that most important to the promotion of intrapreneurship will be the alignment of the firm's culture to a new vision of innovation. Support from senior management along with buy-in from functional managers will be critical to successful intrapreneurship. A new vision that stresses the importance of innovation to the success of the company will need to be communicated to all employees.

Employees are more effectively empowered if they are given a clear vision of the future and where the company is trying to go. The need for innovation is then apparent to them, and they know how to direct their efforts (Pinchot & Pellman, 1999:107).

Pinchot and Pellman (1999:117) follow by stating that it is not enough that leaders know where their organisation should be going. For the vision to have effect, the people of the organisation must be moved by the vision. They must understand what they can do to bring it to realisation.

Since corporate entrepreneuring unleashes the creative talents of people in the organisation, employees need to understand this vision from the perspective of top management (Kuratko *et al.*, 1993:32)

5.4.8 Discretionary time and work

New ideas require exploration before their value can be demonstrated to others. Innovative organisations give people freedom to use some of their time to explore new ideas and hunches without having to ask for permission (Pinchot & Pellman, 1999:110).

Kuratko and Hornsby (2001) state that if no time can be pried loose to try something new, very little intrapreneuring will take place, i.e., amount of time spent working on new ideas, and amount of time spent outside of normal channels to pursue an idea.

Kuratko and Hodgetts (2004:65) argue that employees have discretion to the extent that they are able to make decisions about performing their own work in the way they believe is most effective. Organisations should allow employees to make decisions about their work process – allow employees the freedom and autonomy regarding the choice of tasks and how they are performed (Jones & George, 2004:296; Mathisen *et al.*, 2004:383).

Kuratko *et al.* (2005:703) also emphasise the importance of top management's commitment to provide decision-making latitude and freedom from excessive oversight, and to delegate authority and responsibility.

5.4.9 Empowered teams, multi-disciplined teamwork and diversity

McBeth and Rimac (2004:19) argue that given the accelerated pace of change, complete development and commercialisation requires the competencies and knowledge of a team, and above all, new intrapreneurs who recognise the value of collective effort.

Entrepreneurial organisations create cross-disciplinary teams to improve innovation, and they empower them to make decisions (Pinchot & Pellman, 1999:109). The success of teams stem from the open discussion that is a natural element of them and their ability to look at the same issues from different perspectives.

Turner (2002:55) state that each member brings strengths that complement those of others generating an interdependence that crosses divisional boundaries. It is essential that these multidiscipline teams, with their diversity of thinking receive full encouragement from their organisations. It is the outcome of their diverse thinking that will enable the organisation to

understand, and respond more effectively to both customers and market opportunities.

Highlighting the importance of diversity, Jones and George (2004:482) state that it helps ensure the team will have all the background and resources it needs to make good decisions, and also helps against “groupthink.”

Thus, as per Gaw and Liu (2004:68) an important aspect of entrepreneurial activity is the ability to understand the various functional elements that make a process or product. To be successful at focused innovation, firms need to develop intrapreneurs and who can draw upon cross-functional teams consisting of members with functional expertise.

Cohen (2004:18) also add that small units with cross-functional teams are much more flexible and can act more quickly than large units; cross-functional teams draw on the experience and knowledge of employees from throughout the organisation, bringing new ideas, new perspectives, new experiences – and, often, new attitudes – along with them.

5.4.10 Resource availability and accessibility

Resources of the firm need to be available and easily accessible (Hisrich & Peters, 2002:50) and intrapreneurs need discretionary resources to explore and develop new ideas (Kuratko *et al.*, 1993:29). Resources include people, finances, assets and a business plan (Timmons & Spinelli, 2007:341) or in other words, organisational resources are broadly defined to include money, time, people, equipment, and competencies (Russell, 1999:72).

Organisational support in terms of resource availability has been identified as an important driver of entrepreneurial activities of established firms (Antoncic & Hisrich, 2004:526) and most managers agree that the term entrepreneur refers to entrepreneurial activities that receive organisational sanction and resource commitments for the purpose of innovative results (Kuratko *et al.*, 1993:29). Subsequently managers must perceive the availability of resources

for innovative activities to encourage experimentation and risk taking (Hornsby *et al.*, 2002:251).

Organisational support systems that provide resources, autonomy, and emotional support to intrapreneurs must be present (Russell, 1999:72) thereby giving individuals with attractive strategic proposals the latitude and resources to try them out, thus helping renew an organisation's capacity for innovation and growth (Thompson *et al.*, 2007:48).

Russell and Russell (1992:72) argue that in a climate conducive to entrepreneurial activity, managers have more autonomy and more control over resources, enabling them to initiate and test a greater number of creative new ideas that eventually result in a larger number of innovations, and facilitate innovation by allowing participants access to power, resources, and information needed to initiate and develop new ideas.

5.4.11 Continuous learning and cross-functional learning

According to Jones and George (2003:662) a learning organisation encourages all employees to identify opportunities and solve problems, thus enabling the organisation to continuously experiment, improve, and increase its ability to provide customers with new and improved goods and services. The higher the level of intrapreneurship is, the higher will be the levels of learning and innovation (Jones & George, 2003:663).

At the same time, broad assignments and education encouraging initiative and experimentation will improve performance. People who move across functions, geographies, products and lines of business are exposed to many different perspectives and experiences, which makes them far more likely to be innovative compared to those who spend long stretches of their careers in one spot. The chance to learn about responsible initiative outside of one's area, with people from different parts of the organisation, supports the ability to see new possibilities (Cohen, 2004:18).

McBeth and Rimac (2004:18) state that future professionals will have to balance the tension between subject mastery and innovation and creativity, demonstrated through integrative thinking and the creation of self-enabling and self-correcting models. Since intellectual cross-pollination fosters creativity, and the widest possible variety of knowledge is gained through collaboration and networking, the most intensive and valuable learning will take place in multidisciplinary teams. This style of integrative learning will become the model for both individual and organisational learning in the new century (McBeth & Rimac, 2004:18).

Gurunathan *et al.* (2004:61) also claim that teamwork, collaboration and a knowledge-sharing culture are other prerequisites for developing a corporate entrepreneurial spirit. Organisations promoting entrepreneurial culture should have formal structures to promote the above values. They should not be strictly hierarchical and functional but should also have avenues of cross-functional and horizontal set-up. They should have knowledge management systems in place.

Nicholson-Herbert *et al.* (2004:44) argue that the very nature of corporate entrepreneurship requires individuals who constantly improve and develop themselves, and it is to this that South African corporations, and indeed corporations all over the world, should be paying attention. Allowing these individuals' opportunities for personal growth can foster a culture of constant unease with the status quo which gives rise to mindsets that are obsessed with continuous improvement and staying ahead of the game.

Furthermore, this can contribute significantly to employee commitment to the organisation. Retaining innovative staff members is less costly than employing and developing new individuals (Nicholson-Herbert *et al.*, 2004:44).

5.4.12 Strong customer orientation

Focusing on how to better serve customers, drive organisations towards productive innovation. Focus on internal politics tends toward conservatism,

misdirected projects, and failure to exploit genuinely superior technology (Pinchot & Pellman, 1999:113). A focus on customers redirects people's attention from pleasing management and defending turf to collaborating on ways to get the customers what they need at a price and quality that will win their business (Pinchot & Pellman, 1999:133).

Customer orientation is a set of beliefs that customer needs and satisfaction are the priority of an organisation (Deshpandé *et al.*, 2000:354). It focuses on dynamic interactions between the organisation and customers as well as competitors in the market and its internal stakeholders (Liu *et al.*, 2002:367).

Turner (2002:188) states that entrepreneurial organisations invest their time, energy and imagination in listening to, and understanding customers. Irrespective of the size or age of an organisation today, future success and growth is relative to being entrepreneurial and establishing a customer ethos. A customer-focussed ethos involves imagining what the future holds, perceiving how market tends to shift, anticipating what the demand will be and proactively raising the awareness of customers, thereby actually creating and becoming the future (Dess & Lumpkin, 2005:150).

Ultimately, a company exists to serve its customers. Finding ways for those not usually in direct contact with customers to hear directly from them – bringing the voice of the customer inside the organisation – can shake loose resistance to needed change, and serve as a stimulus to developing new products and services (Cohen, 2004:19).

Organisations need to develop ways to get closer to the customer (Hisrich & Peters, 2002:54), and stay close to the customer (Kuratko & Welsch, 2001:352), i.e., transforming customers' experience with the business through deep and unique insights into their needs (Harris, 2004:14).

5.4.13 Flat organisational structure with open communication and strong sense of belonging

According to Accenture (2005) companies are under increasing pressure to act on a global scale and yet maintain nimble and flexible structures that can react quickly to the changing environment. This means creating the feel of a small organisation without sacrificing the benefits of size.

McBeth and Rimac (2004:20) reason that the organisational structure is the underlying framework that determines how quickly and to what extent the organisation will be able to change. Ideally, entrepreneurial organisations should be decentralised, flexible, and experiential (providing opportunities to learn by doing and experimenting). The optimal structure is flat, people-centred, team-based, and dominated by informal networks and a strong support for employees' desire for independence.

New ideas generally don't fit rigid organisational structures. Therefore innovators have to cross boundaries to get help and support (Pinchot & Pellman, 199:112). The absence of barriers to communication is essential (Rue & Byars, 2000:13).

Pinchot and Pellman (1999:112) further state that in companies with a strong organisational community, people take care of each other and help each other out. They think in terms of the whole rather than just the agenda in their areas. Organisational community provides a base of support for innovators and a force to direct freedom toward worthwhile goals.

According to Cohen (2004:18) reduced hierarchy, flatter organisations, and reduced segmentation of units all contribute to increasing employee initiative. Each of these organisational structures results in leaders who are responsible for a broader range of work activities, while giving them increased authority to make decisions within their areas of influence. Freed of the constraints of hierarchy and artificial boundaries among functions, these people act more entrepreneurially.

Hisrich and Peters (2002:47) concur that instead of a hierarchical structure, an intrapreneurial climate has a flat organisational structure with networking, teamwork, sponsors, and mentors abounding.

5.5 SUMMARY

The climate in an existing organisation is critical in how well the organisation will deal with growth. The climate of an organisation can therefore have significant impact on performance, and is created both by the expectations people bring to the organisation and the practices and attitudes of the key managers.

By applying the definition of organisational climate as provided by Moran and Volkwein (1992:20) a definition of entrepreneurial climate in established organisations is proposed as the relatively enduring entrepreneurial characteristic of an organisation which distinguishes it from other organisations and (a) embodies members' collective perceptions about their organisation with respect to the characteristics conducive for an entrepreneurial climate, i.e.,

- i. Visionary Leadership / Entrepreneurial Leadership;
- ii. Management Support;
- iii. Sponsors (Champion);
- iv. Tolerance for Risks, Mistakes and Failure;
- v. Innovation and Creativity – New ideas encouraged;
- vi. Appropriate Rewards and Reinforcement;
- vii. Vision and Strategic Intent;
- viii. Discretionary Time and Work;
- ix. Empowered Teams and Multi-disciplined Teamwork and Diversity;
- x. Resource Availability and Accessibility;
- xi. Continuous Learning and Cross-functional Learning;
- xii. Strong Customer Orientation; and,
- xiii. Flat organisational structure with open communication and strong sense of belonging.

(b) as a result of member interaction; (c) serves as a basis for interpreting the situation; (d) reflects the prevalent norms and attitudes of the organisation's culture; and (e) acts as a source of influence for shaping entrepreneurial behaviour.

Sustained entrepreneurial behaviour is subsequently strongly related to perception of the existence of the thirteen organisational characteristics as described above. A major thrust behind corporate entrepreneurship is, therefore, to foster a climate for the revitalisation of innovation, creativity, and managerial development in companies.

As it is evident that corporate entrepreneurship possesses the critical components needed for the future growth and productivity of organisations, a key leadership function is to promote, establish and maintain an entrepreneurial climate in order to develop entrepreneurial thinking and activity in today's organisations. This is essential for creating and managing an entrepreneurial architecture – the network of relations within, and around, an organisation, its employees, suppliers, customers and stakeholders.

This brings us to the nagging question pertaining to this study is: "What is the current entrepreneurial climate in the South African Mining Industry?"

Before we can, however, address the question, it is necessary to first take a closer look at the South African Mining Industry, and the next chapter provides an overview of the origin, history, developments, status, economic contribution, and challenges of the industry.

CHAPTER 6

AN OVERVIEW OF THE SOUTH AFRICAN MINING INDUSTRY

6.1 INTRODUCTION

South Africa's mineral reserves are unique in the Western world. The extent and variety of its mineral products, many of strategic importance, and the sheer size of the mineral industry's research programmes make South Africa one of the mining giants (Chamber of Mines of South Africa, 2005).

After a century of mining activity in South Africa, the country remains one of the most geologically blessed regions in the world (South Africa Yearbook, 2006:461). South Africa has more than half of the world's reserves of manganese, chromium and platinum group metals. It has 40 percent or more of the world's vanadium, gold and vermiculite reserves. The country's mineral legacy is reflected in robust production statistics, a full roster of new mining investments, a dynamic mining supplies and services sector, and globally prominent firms. It has also made an imprint on the macro economy (Malherbe, 2000:5).

Apart from being the world's largest producer of gold, platinum, manganese, chromium and vanadium, South Africa is one of the world's biggest producers and exporters of steam coal, the feedstock for 34 percent of the world's electricity (Malherbe, 2000:5).

Apart from geological resources and output, South Africa remains the nerve-centre of some of the largest mining companies in the world (Malherbe, 2000:8):

- Anglo American is a world leader in gold and platinum, and has significant interests in copper, steam coal and a number of other minerals.
- De Beers is the most important diamond company in the world.

- Billiton is a major participant in the world's base metals and aluminium smelting industries.

In recent years, a number of smaller entrepreneurial South African companies have also emerged out of the restructuring of the local industry. These and other already established smaller companies, typically using more flexible and nimble management methods, have been instrumental in saving a large number of marginal operations and making them feasible entities (South Africa Yearbook, 2006:460; South African Mining Development Association, 2006).

South Africa has, as befits a country with a strong minerals cluster, a very strong - and unsung - mining supplies and services industry operating worldwide. It is also one of the few fast-moving technology spheres where a significant number of South African companies are at the frontier of innovation. South African firms are active in the specialised mining supply industry. AECI and Sasol are leading suppliers of mining explosives. Boart International is a world leader in abrasives. Two South African firms, SRK and Bateman, are among the most important mining consultancies in the world. South African firms like Grinaker-LTA and Cementation Mining play a major role in specialist contract mining in Africa (Malherbe, 2000:8).

According to the Chamber of Mines of South Africa (2005) expansion has been so rapid that for many years the manpower requirements have outstripped the available labour resources, especially in the more highly skilled categories. Increasing mineral exports will generate investment capital for new ventures for greater local processing of minerals and the manufacture of finished products.

Mining continues to be South Africa's single most important earner of foreign exchange (Malherbe, 2000:8), and minerals will remain South Africa's major source of foreign exchange earnings and there is no doubt that mining will dictate the pace of economic development for many years to come (Chamber of Mines of South Africa, 2005).

6.2 OVERVIEW OF GOLD MINING IN SOUTH AFRICA

South Africa, with a production of about 60 percent of the gold mined in the world today, is the world's largest producer. Many South Africans depend on gold, which is the country's main export and the nation's largest single industry and second largest employer (after the agricultural sector), for their livelihood (Chamber of Mines of South Africa, 2005).

6.2.1 Brief historical overview

The first significant discoveries of gold in South Africa were made in the Mpumalanga Province in the 1870's. They gave rise to "gold rushes", particularly to the Pilgrim's Rest and Barberton areas. Although gold is still mined near Barbeton today, the deposits of the metal in these two areas ultimately proved small in relation to those of the gold bearing Witwatersrand reefs (Chamber of Mines of South Africa, 2005).

An outcrop of these was first discovered in 1885 by an Australian handyman/pro prospector, George Harrison, on the Oosthuizen farm, "Langlaagte", on what are the western outskirts of present day Johannesburg (Chamber of Mines of South Africa, 2005).

The discovery of the Witwatersrand Goldfields in 1886 led to the development of South Africa's world-class gold mining industry, which has dominated the global gold mining industry for 120 years (Virtual Metals Research and Consulting Limited, 2006:26).

The full extent of these reefs has emerged only gradually over the years. At present they are being mined over an arc which is about 500 kilometres in length and extends from beyond Virginia in the Free State Province, through Klerksdorp in the North West Province, Carletonville, Krugersdorp and Johannesburg (Gauteng Province) to Kinross in Mpumalanga Province. They constitute by far the largest known deposits of gold in the world and are still

the source of considerably more than half of the annual world production of newly mined gold (Chamber of Mines of South Africa, 2005).

The most productive mines are situated in the 'West Wits' and Free State sections of the arc (the "shoreline" of the Witwatersrand Basin), where there are a number of mines each producing more than 20 tons of gold per annum – 96 percent of South Africa's gold output (South Africa Yearbook, 2006:461).

6.2.2 The miners of South Africa's gold

Mining costs are constantly increasing and today, depending on size and depth, it could cost as much as R5 billion to bring a new mine into full production. Larger mines may employ upwards of 20 000 employees. This means that the financing and operation of South Africa gold mines is normally beyond the resources of small companies (Chamber of Mines of South Africa, 2005).

6.2.3 How gold is mined in South Africa

Modern prospecting culminates in the boring (drilling) of holes into the earth at selected spots in order to locate the gold reef precisely. These holes (boreholes) may be no more than centimetres in diameter and extend to depths of many thousands of metres (Chamber of Mines of South Africa, 2005).

When payable deposits are found, a mine is developed. After headgear and other equipment have been installed, a shaft is sunk to reach the areas of gold-bearing rock. Tunnels (called "cross-cuts" are then driven at various levels from this shaft, until they strike the inclined plane of the gold bearing reef. These "cross-cuts" are excavated by drilling patterns of holes at various angles into the "face" of the tunnel. These holes are then filled with explosives and the rock is blasted out (Chamber of Mines of South Africa, 2005).

When the cross-cuts reach the reef (the gold bearing conglomerate), other tunnels are developed along the plane of the reef. This is called 'reef development' and exposes the payable ore for mining. The reef is mined by a process of drilling and blasting known as 'stoping'. Barren rock and reef are transported to tipping stations, dropped down a rock chute (ore pass), and hoisted up the shaft. The barren rock is sent to waste dumps and the gold-bearing ore is sent to the reduction works for processing and the recovery of gold (Chamber of Mines of South Africa, 2005).

On average, about six tons of ore have to be blasted, conveyed to the shaft, hoisted to the surface and then crushed and milled to the thickness of face powder to produce one troy ounce (31,1 gram) of gold (Chamber of Mines of South Africa, 2005).

6.2.4 The marketing of South African gold

All the South African gold mines forward the bars of crude bullion which they produce to the Rand Refinery. The Refinery processes these bars and produces from them the 400 ounce 'good delivery' bars of at least 99,5 percent gold content (and is able, on demand, to produce bars with a purity of 99,99 percent). These bars are stamped with a serial number, the Refinery's stamp and their percentage purity (Chamber of Mines of South Africa, 2005).

With the exception of the gold which is used for the minting of gold coins (e.g. Krugerrands) and small amounts sold to the South African Mint for supply to local jewellery manufacturers and other industrial users, virtually all of the Rand Refinery's production is sold to the South African Reserve Bank. The Bank, in turn, sells South African gold bullion on the international gold markets. The major gold market is in Zurich with other important centres in London, New York and Hong Kong (Chamber of Mines of South Africa, 2005).

The big companies that process precious metals are important purchasers of gold on the world's gold markets. They supply gold, either as such or in alloyed form, and often semi-fabricated, to jewellery manufacturers, other

industrial users and investors in their areas. They also channel gold throughout most nations in the Middle and Far East and South America. In this manner, gold has become an internationally traded product accepted and demanded everywhere in the world (Chamber of Mines of South Africa, 2005).

6.2.5 The importance of gold to South Africa's economy

The South African mining industry has been the mainstay of the South African economy for over a century (Calverley & Murray, 2005:109). Gold and diamonds are the two highly valued commodities which were largely instrumental in the development of the country's infrastructure and the establishment of secondary industry during the first half of the twentieth century (Chamber of Mines of South Africa, 2005).

With the stabilisation in world mine production and central bank sales, the prospect of any major sources of new supply of gold have diminished. The continued focus on productivity and consolidation in the South African gold mining industry will result in a decline in production - although replacement tonnage from new mines will slow the rate of decline. The fact that South Africa has become the cheapest major producer of gold on a total cost an ounce basis will be an important factor contributing to the prospects for the industry in the years ahead (Chamber of Mines of South Africa, 2005).

Although the relative importance of gold mining has fluctuated over the last decade with the performance of the gold price, gold mining still contributes just under 2 percent directly to GDP in 2004. (Virtual Metals Research and Consulting Limited, 2006:33). Taking into consideration the indirect contribution to the economy and the multiplier effects, gold mining's total contribution to GDP is closer to 4.4 percent. These multiplier effects include (*ibid.*):

- Backward linkages, which arise from the purchase of goods and services by the gold mining industry which stimulate industrial production and the

provision of services (e.g. gold mines consume 15 percent of all electricity generated in South Africa).

- Forward linkages, arising from the use of mineral products in other domestic industries, such as jewellery fabrication and production of refined gold.
- Social multipliers which arise from the role of mining in the development of human resources and infrastructure such as schools, colleges, clinics, roads, and housing.
- Subsistence multipliers - between seven and 10 people rely on each mineworker for their daily survival.
- The primary incomes multiplier which arises from household expenditures of primary incomes derived from mining.
- The employment multiplier, which arises from the employment created in other industries as a result of gold mining. This multiplier includes the benefits of the provision of employment for workers from deep rural communities and the transfer of funds back to these areas.
- The income terms-of-trade multiplier which arises from the positive impact that gold export earnings have on the balance of payments, foreign reserves, monetary policy and ultimately upon the general level of business activity in the country.
- The capital formation multiplier which arises from mining's influence in attracting foreign capital to the country (via the Johannesburg Stock Exchange or via direct investment), and in domestic capital formation.

6.2.6 Gold mining's contribution to foreign exchange

Gold was South Africa's largest export for a number of years, but has now been replaced by platinum. Gold mining, while being a very high net generator of foreign exchange, is also a very low net user of foreign exchange. Much of the materials used in gold mining are sourced from the domestic economy (which also shows that much of the mining technology has been developed locally) (Chamber of Mines of South Africa, 2005).

The gold mining industry will therefore continue to play a substantial role in the export earnings of South Africa, impacting on the current account of the balance of payments, on monetary policy and thus impacting on the general level of business activity in the country (Chamber of Mines of South Africa, 2005).

6.2.7 Gold mining's contribution to employment

As at June 2004, the gold mining industry was still the largest employer within South Africa's mining sector, with 41 percent of all employees, or 187 039 people. Over the past 20 years, this number has fallen, with mine closures, restructuring and mergers contributing to the decline in employment levels. In 1987, the industry employed 537 000 people (Virtual Metals Research and Consulting Limited, 2006:35).

Much of the decline can be attributed to natural attrition as the industry has moved from a mass employer of limited, contract, unskilled labour, to an employer of more permanent, mostly semi-skilled to skilled labour. This reflects the industry's commitment to the development of human capital and the provision of career paths with adequate training. Whilst the rate of decline in employee numbers slowed after the large fall during the 1997/98 gold price crisis, the decrease is expected to continue (Chamber of Mines of South Africa, 2005).

6.2.8 Special characteristics of gold mining in South Africa

The development of the technical capacity to mine deep-level gold ore bodies has seen South Africa become a world leader in deep-level mining technology. This has led to gold mining becoming even more capital intensive. This is because of the massive capital required for ventilation, cooling, hoisting, underground tunnelling and surface processing plants, and the need to have the mines operated by large numbers of workers, particularly with respect to hard rock mining. In the case of gold mining the depth of operations

has increased to levels of four kilometres below the surface in some cases (Chamber of Mines of South Africa, 2005).

6.2.9 Gold mining companies

According to Virtual Metals Research and Consulting Limited (2006:28) there are five large, publicly listed gold mining companies in South Africa:

- AngloGold Ashanti Limited.
- Gold Fields of South Africa Limited.
- Harmony Gold Mining Company Limited.
- DRDGOLD Limited.
- Western Areas Limited.

6.3 OVERVIEW OF DIAMOND MINING IN SOUTH AFRICA

Diamonds were formed millions of years ago deep in the mantle of the earth, about 150 kilometres below the surface. Molten magma in the mantle was forced upward through fissures to the earth's crust to burst out as volcanoes. Free carbon particles in the mantle, which were caught in the upward volcanic stream were subjected to heat and pressure so intense that the particles were crystallised into diamonds – the diamondiferous magma becoming known as 'blueground' or kimberlite. Further outpourings of kimberlitic magma occurred and when the magma eventually cooled, the diamonds remained trapped in the solidifying magma pipes (Chamber of Mines of South Africa, 2005).

6.3.1 Brief historical overview

The first diamond to be discovered in South Africa was found in 1866 on a farm near Hopetown, south of Kimberley. This was followed by the finding of kimberlite bearing pipes and further discoveries of alluvial diamond fields in the drainage system of the Vaal River in Lichtenburg and Namaqualand, and

eventually even on the shores of the Atlantic Ocean off the west coast (Chamber of Mines of South Africa, 2005).

Between 1870 and 1891 no less than six kimberlite pipes were discovered in Kimberley, while the Koffiefontein pipe, 130 kilometres south of Kimberley, was discovered in 1880. The Premier, the biggest pipe in South Africa and, geologically, by far the oldest, was discovered at Cullinan near Pretoria in 1902. The world's largest gem diamond, the 3 106 carat Cullinan, was found here in 1905. Several other small but payable deposits were discovered elsewhere in the country in the early years of the century, though most of these have been worked out and abandoned (Chamber of Mines of South Africa, 2005).

At Kleinzee, south of Port Nolloth in Namaqualand, diamonds were found in marine terraces in 1925. These diamonds were brought down by the Buffels River system in an ancient bed a few kilometres from its present course. A year later, another deposit was found at Alexander Bay on the South African side of the Orange River mouth to the north of which, in Namibia, Consolidated Diamond Mines (now Namdeb Diamond Corporation) was mining diamond bearing marine terraces along the whole coastline to Lüderitz. Diamond deposits were found in 1927 around Lichtenburg in the North West Province, though today these are virtually exhausted (Chamber of Mines of South Africa, 2005).

A more recent discovery was made in 1961 when Allister Fincham discovered the Finsch pipe, which proved to be one of the largest on the continent, Finsch, in the Northern Cape, came into production in October 1965 (Chamber of Mines of South Africa, 2005).

In the early '80s a diamond bearing pipe was discovered at Venetia in the far north of the country close to the Limpopo River. In late 1989, De Beers Consolidated Mines Limited announced the go-ahead for the Venetia diamond mine at an estimated cost of more than R1 billion. The company is developing an opencast mine to treat 3.3 million tons of ore and produce 4 million carats

of medium quality diamonds a year and will have an estimated economic life of about 20 years (Chamber of Mines of South Africa, 2005).

6.3.2. Mining of diamonds

In South Africa, volcanic kimberlite pipes are mined as both underground and opencast operations. The Kimberley mines and Premier are underground operations; Koffiefontein and Finsch, formerly mined by opencast methods, are now worked as underground mines. Venetia is an opencast mine. A variety of mining methods are employed ranging from blasting and then hauling the ore away by huge trucks in open-pit mines, to open-benching, block-caring, open-sloping and panel-retreat operations underground (Chamber of Mines of South Africa, 2005).

On the Atlantic coastline in Namaqualand, beach or marine alluvial diamond deposits are worked by surface sand-stripping methods, by gravel and pothole exploitation methods in shallow water, and by suction dredging in deeper water to considerable distances off the coast (Chamber of Mines of South Africa, 2005).

6.3.3 Production and sales of diamonds

South African diamond production in 2004 was just over 14 million carats out of world production of around 150 million carats. Apart from a small number of private-sector workings and state diggings, diamond mining in South Africa is primarily in the hands of De Beers (Department of Minerals and Energy, 2005:25).

De Beers' London-based Diamond Trading Company (DTC), which handles most of the world's trade in rough diamonds, achieved record diamond sales worth \$5,7 billion in 2004 (\$3,2 billion for first half of 2005), while sales at retail level worldwide climbed to around \$64 billion (De Beers Group Annual Review, 2004; Department of Minerals and Energy, 2005:25).

Only 15 to 20 percent of the world's diamond production is gem quality; the rest is destined for industrial use. Natural-diamond 'industrials' – "boart" - (along with synthetic diamonds) are required for their hardness in cutting; sawing; wire-drawing; drilling purposes, mainly in the masonry, mining and oil businesses; and for grinding and polishing in the engineering industry. In many applications diamonds are indispensable; without them many high-technology industries simply would not exist (Chamber of Mines of South Africa, 2005).

6.3.4 Diamond Mining Companies in South Africa

According to the Department of Minerals and Energy (2005:26) there are three main diamond companies in South Africa, namely:

- De Beers Consolidated Mines.
- Trans Hex Group Limited.
- Alexkor Limited.

6.4 OVERVIEW OF PLATINUM MINING IN SOUTH AFRICA

The Bushveld Igneous Complex (BIC), which extends for 400 kilometres in the Limpopo Province, contains the world's largest known deposits of platinum group metals (PGMs) - platinum, palladium, rhodium, ruthenium, iridium and osmium. It is a large igneous (volcanic) intrusion through the earth's crust which having been tilted and eroded new outcrops to surface around what appears to be the edge of a great geological basin (Cawthorn, 1999:481).

The BIC system is divided into an eastern and western lobe with a further northern extension: it is believed that all three sections of the system were formed around the same time – about 2 billion years ago – and are remarkably similar. Vast quantities of molten rock from the earth's mantle were brought to surface through long vertical cracks in the earth's crust creating the geological intrusion known as the BIC. The effects of these

injections of molten rock over time, combined with the crystallisation of different minerals at different temperatures, resulted in the formation of a structure rather like a layered cake consisting of distinct mineral strata, including three PGM-bearing reefs (Cawthorn, 1999:482).

6.4.1 Reserves

The unique BIC contains estimated PGM reserves of 62 816 tons, about 55,7 percent of the world total. So far, the Merensky Reef has been the source of most of South Africa's PGMs. It is estimated to contain some 17 000 tons of PGM, reserves. In the western BIC, where the major platinum mines are situated, the reef occurs in a narrow, 25-centimetre-wide PGM rich band bounded by two thin chromite layers. This pattern falls away in other areas resulting in the reefs diverging between the chromite bands until it is many metres wide. The Merensky Reef is characterised by its high PGM grades and the high ratio of platinum to the other PGMs, especially those of major importance like palladium and rhodium (Cawthorn, 1999:486).

The UG2 Reef, which is more consistent throughout the BIC, is rich in chromite, but lacks the Merensky's gold, copper and nickel by-products, though its PGM reserves may be almost twice as large as those of the Merensky Reef. It is estimated that increasing exploitation of the UG2 Reef will lift its contribution to South Africa's platinum output. The Crocodile River mine was the first devoted entirely to exploiting UG2 ore (Cawthorn, 1999:486).

In the northern extension of the BIC the Platreef is found. Whereas the platinum palladium ratio in the Merensky and UG2 reefs is close to three to one, the two metals are found in equal measure in the Platreef deposits (Cawthorn, 1999:486).

6.4.2 Production

PGM production increased by 7,4 percent to 286,2 tons in 2004 from 266,5 tons in 2003. Production of platinum and palladium increased to 159,9 tons and 78 tons, respectively, while production of rhodium fell by 0,4 percent to 16,7 tons (Department of Minerals and Energy, 2005:35). This increased revenue by 35,7 percent to US\$5,17 billion (South African Yearbook, 2005:462).

6.4.3 Mining platinum

The mining of platinum ores is similar to gold mining inasmuch as the orebody is a thin, tabular reef covering an extensive area. This enables a progressive method of mining - the reef is drilled and blasted to advance the face, support being installed for local control of the hanging wall. As in gold mines, platinum mining is incorporating the increased use of mechanisation and trackless-mining methods in stopes little more than one metre high (Chamber of Mines of South Africa, 2005).

Platinum mining, however, differs from gold mining in several ways. Unlike gold reefs, which are sedimentary deposits resulting from the settling of granular particles on the bed of an inland lake and subjected to great pressure, platinum reefs are igneous rocks. They were intruded into the Bushveld area as molten volcanic magmata rising from below the earth's crust, later cooling and solidifying. This phenomenon created a strata control environment differing markedly from that of gold mines (Chamber of Mines of South Africa, 2005).

Platinum mining is also affected by a further geological feature - the occurrence of parboils in the plane of the reef. Varying in diameter from some 30 to 500 metres, and causing rapid sinking or rising of the reef, these potholes disrupt stoning operations, often requiring the re-establishment of stone faces (Chamber of Mines of South Africa, 2005).

6.4.4 Precious metals refining

Precious metals refining processes have developed considerably in recent years and improved separation and refining procedures have become available for all of the precious metals. These commonly involve operations such as solvent extraction or ion exchange. They are being introduced either to replace procedures in the classical process or as part of completely new refining processes. Advantages such as improved precious metals recovery, lower refining costs and shorter processing times are being claimed (Ashworth *et al.*, 1999:501).

6.4.5 PGMs - The major demand sectors

The extraordinary physical properties of the platinum group make its metals almost indispensable in a wide range of industrial applications.

6.4.5.1 Autocatalysts

Motor vehicle exhaust systems are fitted with catalytic converters to reduce the polluting effects of exhaust emissions. The converter's main component is a ceramic honeycomb, the surface of which is coated with platinum and rhodium, to which palladium is sometimes added. The main form of autocatalyst is a three way converter, so called because as engine exhausts pass through the converter at around 300°C, these precious metals convert nitrogen oxide, unburnt hydrocarbons and deadly carbon monoxide into harmless nitrogen, water and carbon dioxide (Chamber of Mines of South Africa, 2005; Implats Annual Report, 2005:11).

Today, demand for PGMs from the automotive industry is significant and growing, underpinned by ever-more stringent legislation in the USA and Europe and burgeoning auto markets in China and India (Implats Annual Report, 2005:11).

6.4.5.2 Jewellery

Jewellery has been a key driver of overall platinum demand over the past decade. Given platinum's high degree of purity, the jewellery does not fade or tarnish and it is non-allergenic. The platinum jewellery market first took off in Japan and has in recent years become increasingly significant in China. Aside from its aesthetic qualities, platinum's strength, hardness and density make it a safe setting for diamonds and other precious stones. Being nonallergenic and oxidation resistant also makes it an ideal medium for jewellery (Implats Annual Report, 2005:11).

6.4.5.3 Investment

Platinum has established itself as a legitimate, complementary holding to gold and silver. As growing evidence of this Johnson Matthey (UK marketing agents), as well as the Chinese, Australian, Canadian and former USSR governments, all launched platinum coins and medallions onto the market, with the Canadian Maple Leaf, the Isle of Man Noble and the Australian Koala dominating the legal tender coin investment sector (Chamber of Mines of South Africa, 2005).

6.4.5.4 Industry

Platinum and palladium have a multitude of uses in industry. In the chemical industry, the largest consumer of PGMs is for platinum-based catalysts, which in recent years have included rhodium as well, for the commercial production of nitric acid, an essential ingredient in nitrogen fertiliser. Another major source of demand, for platinum and especially palladium, is in dental applications. These metals are combined with gold and silver to produce alloys suitable for dental inlays, crowns and bridges (Implats Annual Report, 2005:11).

In the electronics industry, a major use of palladium is in the coatings in multi-layer ceramic capacitors (MLCC) which store electric energy in the form of an electrostatic field. These devices are used in broadcasting equipment, mobile telephones, computers, electronic lighting and high-voltage circuits among others. Palladium is also used in the connectors in hybrid integrated circuits

and inside computers while magnetic platinum-cobalt alloys are vital components of computer hard disks, enabling a substantial increase in their storage capacity (Implats Annual Report, 2005:11).

PGMs combine to make platinum and palladium alloys of exceptional hardness and durability, making them the best coating for industrial crucibles which are required to withstand extremely high temperatures in the manufacture of chemicals and synthetics. Their purity is also important in these processes as they do not lead to contamination. In particular, platinum alloyed with rhodium is used in the crucibles for the production of high-quality glass such as liquid crystal display glass as well as fibreglass (Implats Annual Report, 2005:11).

The petroleum industry also makes use of PGMs and their unique properties. Platinum is used in a process to upgrade the octane content of gasoline called catalytic reforming. Palladium is used in hydrocracking, a process to increase the yield of gasoline, and in isomerisation, a lesser used but more specific version of reforming (Implats Annual Report, 2005:11).

Other areas of growth for platinum include catalysts for air pollution control, water purification and electrodes for cathodic protection against erosion. Finally, motor manufacturers are introducing platinum-tipped spark plugs that offer longer life and improved combustion and fuel efficiency (Chamber of Mines of South Africa, 2005).

6.4.5.5 Medicine

Palladium is rapidly supplanting gold in dentistry. Platinum is also used in the treatment of certain types of cancer. In the future PGMs may play a role in fighting viral, bacterial and parasitic infections; they may also come to be used as diagnostic tools (Chamber of Mines of South Africa, 2005).

6.4.5.6 Fuel cells

The clean and efficient fuel cell of the future, in which platinum catalysts are used to convert the chemical energy of a fuel into electrical energy, has for

some time been seen as the next new major demand sector in the industrial area. Two problems plague further moves to achieve wide commercialisation of fuel-cell systems which utilise a platinum catalyst. Firstly, the current high capital cost of the pro-production units makes them uncompetitive: secondly, proof of reliability can only be achieved through demonstration of the generating plants. It is forecast that there will be an increasing call for these types of cell in specialist applications, such as in the aerospace, defence and leisure industries (Chamber of Mines of South Africa, 2005).

6.4.6 Platinum mining companies

According to the Department of Minerals and Energy (2005:35) there are five main platinum producers in South Africa, namely:

- Anglo American Platinum Corporation Limited.
- Impala Platinum Holdings Limited.
- Lonmin Platinum Limited.
- Barplats.
- African Rainbow Minerals.

6.5 OVERVIEW OF COAL MINING IN SOUTH AFRICA

After being man's main source of heat for centuries, and of energy in the industrial age, coal suffered a major decline when the oil industry displaced it and the world opted for liquid fuel. Gaseous fuels, initially the by-product of oil, also grew in importance; again, coal suffered. Oil became the substitute for coal and defeated coal in most of its traditional markets. Oil not only dominated the world's transport scene; it came to have widespread use in domestic and industrial heating and for power generation. In short, in many countries, oil became the prime source of energy (Chamber of Mines of South Africa, 2005).

That situation still prevails: on a global basis, oil and gas are still the most widely-used fuels. But since the oil price explosions of the 1970s, which restored coal as the dominant fuel for power stations and cement works, coal has steadily come back into favour (Chamber of Mines of South Africa, 2005).

6.5.1 Geology and reserves

Coal is formed when peat - the residue of decomposed vegetation - is subjected to pressure and temperature over a long time period. Generally, the greater the pressure and temperature, the higher the coal rank or maturity: from peat to lignite to bituminous to anthracite (Chamber of Mines of South Africa, 2005).

Coal reserves in South Africa are found in sediments of Permian age which overlie a large area of the country. They generally occur as fairly thick, flat, shallow-lying coal seams. In the Witbank area of Mpumalanga, which contains extensive coal reserves and is the country's most productive coalfield, five major coal seams occur at intervals within a sedimentary sequence deposited during a 35-million year geological time period (Chamber of Mines of South Africa, 2005).

6.5.2 Occurrence and production

The coalfields in the country are spread over an area of 700 kilometres from north to south and 500 kilometres from east to west. Generally the rank or carbon content of the coals increases eastwards while the number of seams and their thickness decrease. Thus, Mpumalanga and Limpopo Province coals are usually classified as bituminous, occurring in seams up to several metres thick, while KwaZulu-Natal coals are often anthracitic and are found in relatively thin seams (Chamber of Mines of South Africa, 2005).

The recoverable coal reserves in South Africa amount to about 55 billion tons; equivalent to nearly 11 percent of the world's total (this figure excludes low-grade, high-ash content coal which could add as much as 25 percent to the

country's total reserves). Most of South Africa's coal is of a bituminous thermal grade; only two percent is anthracite, and 1,6 percent coal of metallurgical quality. At current production levels, coal reserves are estimated at 200 years (Chamber of Mines of South Africa, 2005).

South Africa is the third biggest coal producer in the world. South African collieries range in size from small operations with output limited to a few thousand tons of coal per year, to Secunda, the world's largest underground coal mining complex, which has an annual production of about 35 million tons. Almost 90 percent of the country's saleable coal is mined in Mpumalanga (Chamber of Mines of South Africa, 2005).

6.5.3 Mining methods

Around 40 percent of coal comes from opencast operations, some of which have recovery rates approaching 90 percent. Coal lying less than 70 metres below the surface is extracted from a progressive series of parallel, long, narrow trenches. Overburden rock and soil lying above the coal seams is blasted and scraped out of the currently mined trench and tipped into the mined out void of the previous trench. Walking draglines with large scraper buckets slung beneath long, crane-type boom arms carry out the stripping operation. The exposed underlying coal seams are drilled and blasted loose and hauled out of the pit by heavy duty trucks (Chamber of Mines of South Africa, 2005).

Three different mining methods are used in underground mines:

The most common technique, accounting for just under half of total production, is the "bord and pillar" method. Bord and pillar mining is ideal for relatively shallow deposits where overlying rock pressure is low. Seams are mined leaving in situ coal pillars, which are big enough to support the roof indefinitely, and a chequer-board pattern of mined-out 'rooms'. This method currently permits around 65 percent of the available coal to be extracted (Chamber of Mines of South Africa, 2005).

In rib-pillar extraction, a continuous miner machine cuts a roadway up to 1,5 kilometres in length through the coal and 5 metres in from the edge of the area to be mined. This leaves a 5 metre-wide band of coal in the form of a long, isolated rib pillar along one side of the tunnel. With the aid of timber or hydraulic props to hold up the now unstable roof, the continuous miner cuts away the rib pillar in a series of curved cutting sweeps. The machine repeats the cycle by mining into the remaining coal area, again cutting a tunnel and leaving a rib pillar (Chamber of Mines of South Africa, 2005).

The other total extraction method employed is longwall mining. Longwalls are usually several hundred metres long and essentially consist of a corridor in which one wall and the roof are formed by steel supports capable of resisting hundreds of tons of pressure from the subsiding mine roof above. The second side of the corridor is formed of coal and is the actual face from which coal is cut. A mechanical coal cutter, bearing two large revolving shearing drums with steel picks, runs the whole length of the coal face on rafts. This cuts into the coal and widens the corridor during each sweep, thus advancing the coal face. The hewn coal falls on to a conveyor and is drawn out of the longwall face (Charnber of Mines of South Africa, 2005).

6.5.4 Domestic uses

Coal is South Africa's primary energy source and has been a major stimulus to economic growth and a significant factor in the country's industrialisation. It provides 88 percent of commercial energy needs and plays a vital role in meeting liquid-fuel requirements. The South African coal mining industry is fortunate to be supported by a large domestic market as well as having a strong international position. Domestic sales are dominated by electricity generation (53 percent), synfuels and petro-chemicals (33 percent), with metallurgical and other users accounting for the remaining 12 percent (Chamber of Mines of South Africa, 2005).

About 40 percent of all bituminous coal produced in South Africa is used in the generation of electricity, making this industry the largest single user of coal in the country (Chamber of Mines of South Africa, 2005).

With power generation demand likely to go on rising there is the inevitable question of how long South Africa's coal reserves will last. Assuming growth rates of between 3 and 5 percent, the coal used by 2030 - when estimates suggest electricity demand is likely to peak at 75 000 megawatts - together with coal dedicated to future use by power stations either operating or under construction in 40 years, time, amounts to a staggering 30 billion tons, about half of the country's reserves. By that time today's power stations will have reached the end of their useful lives and consumed most of the coal reserves of the dedicated collieries (Chamber of Mines of South Africa, 2005).

Inevitably, alternative methods of generating electricity will need to be phased in alongside South Africa's coal-fired programme. More nuclear power stations are likely to come on stream in the early years of the 21st century and by the year 2030 fast-breeder reactors will probably take up the base-load of electricity production. In the meantime Eskom has demonstrated with its Lethabo power station, which at times uses coal with an ash content as high as 40 percent, that low grade coal can be used in power generation, so adding up to 25 percent to the total of the country's proven coal reserves (Chamber of Mines of South Africa, 2005).

The second most important coal user in the home market is Sasol - the only successful commercial oil-from-coal plant in the world. Sasol uses the Fischer-Tropsch indirect liquefaction method, which has the added benefit of being able to process high-ash content coal - to convert coal into petrol and diesel fuels, and provides raw materials for the petro-chemical industries and other important by-products such as fertiliser (Chamber of Mines of South Africa, 2005).

Other significant domestic users are Mittal Steel's metallurgical plants (the steel industry requires coking coal to be prepared in coke ovens to provide

metallurgical coke capable of reducing and melting iron ore to liquid iron in blast furnaces), the cement industry and large municipalities (Chamber of Mines of South Africa, 2005).

Of the 246 megatons coal sold during 2004 72,5 percent was sold inland (178,4 megatons), worth R13,6 billion. The electricity sector consumed 110 megatons, the synthetic fuels sector used 41 megatons, plus 5 megatons utilised as feedstock for chemicals, whereas the industrial sector, including mining, consumed 9 megatons, the metallurgical industry used 7 megatons and merchants bought 7 million tons (Department of Minerals and Energy, 2005:46).

6.5.5 Exports

South Africa is the world's second largest coal exporting country and the fourth largest producer. In 2004, South African coal was exported to 34 countries; 82 percent to the European Community of which Spain, Great Britain, Italy, Germany and France were the largest customers. Once again, South Africa's coal exports to Europe increased whereas exports to Asia decreased. There is still the possibility that South African steam coal exports to Asia might return to former levels due to a sudden increase in demand for our export coal by countries in the region, especially India (Department of Minerals and Energy, 2005:46). Of the 246 megatons coal sold during 2004 about 27,5 percent was exported, worth R14,5 billion (Department of Minerals and Energy, 2005:46).

6.5.6 Coal Mining Companies in South Africa

According to Department of Minerals and Energy (2005:46) the major coal producers in South Africa, accounting for 91 percent of saleable coal production are the following:

- Anglo American Coal Corporation Ltd.

- BHP Billiton (Ingwe Collieries Ltd).
- Sasol Mining (Pty) Ltd.
- Eyesizwe Coal (Pty) Ltd.
- Kumba Resources Ltd.
- Xstrata Coal Ltd.

6.6 OVERVIEW OF BASE METALS & MINERALS MINING IN SOUTH AFRICA

6.6.1 Andalusite

South Africa, with more than 50 million tons of alumino-silicates, contains around 40 percent of the world's known reserves of these minerals and accounts for nearly half of the western world's production. A natural silicate of aluminium, andalusite is the material used in refractory bricks which line blast furnaces. In South Africa andalusite is mined in Mpumalanga near Lydenburg and in Namaqualand south of the Orange River (Chamber of Mines of South Africa, 2005).

Apart from a tiny deposit in France, South Africa has the only andalusite reserves in the world. Like platinum, manganese, chrome, vanadium and cobalt, among others, andalusite is regarded by the United States as a 'strategic' mineral. Furthermore, as French andalusite has a different particle size, there is no material available which can be substituted for South African (coarse grade) andalusite; as a result, the United States is reliant on South Africa for its entire imports of andalusite (Chamber of Mines of South Africa, 2005).

Local and export sales volumes of andalusite increased by 6 025 tons and 37 643 tons respectively leading to an increase in total sales value of R56 million in 2004 (Department of Minerals and Energy, 2005:121).

6.6.2 Antimony

South Africa is a significant producer of high-grade antimony concentrates, accounting for 3,3 percent of the world's production (Department of Minerals and Energy, 2005:69).

Most of the concentrate is beneficiated into antimony trioxide, a vital ingredient in flame-retardant industrial products while the main (though declining) use of antimony metal is in the storage-battery industry. Antimony is also essential in producing solder, bearings, space-probe components, lubricants, vulcanising agents, medical preparations and tracer bullets (Chamber of Mines of South Africa, 2005).

6.6.3 Asbestos

South Africa possesses only about 10 percent of the world's asbestos fibre reserves and produces around nine percent of its output. The use of asbestos is now mainly restricted to the 'safe' core businesses of building materials and piping in water-reticulation systems. In spite of its restricted use the international market remains healthy (Chamber of Mines of South Africa, 2005).

6.6.4 Chromium

World chromite ore reserves are largely concentrated in Southern Africa. No less than 84 percent of the total is associated with the Bushveld Complex of South Africa and the Great Dyke of Zimbabwe. Together they supply 47 percent of world ore output, although they only account for 11 percent of global ore export. Both countries concentrate on adding value to the ore, and therefore export predominantly beneficiated products especially ferrochrome (Department of Minerals and Energy, 2005:101).

The United States imports three quarters of its chromium and 60 percent of its ferrochrome from South Africa (Chamber of Mines of South Africa, 2005).

More than 85 percent of all chromium produced is destined for the production of stainless steels and the closely related heat-resistant steels. Chromium, together with other metals such as copper, nickel, titanium and vanadium, is added to iron to produce steels with greatly increased strength and rust- and corrosion-resistance. Ferrochrome is an essential ingredient of stainless steel (Chamber of Mines of South Africa, 2005).

Other applications include the chromium plating of metal surfaces, photography and pyrotechnics. Another main use for chromium and its compounds is in refractories, which account for 14 percent of production. Because of their high melting point, stability and chemical neutrality, chromite sands and refractory bricks containing chromite are used for casting moulds and furnace linings (Chamber of Mines of South Africa, 2005).

6.6.5 Cobalt

In South Africa, cobalt is found as a minor element in the base-metal sulphides of the Merensky Reef of the Bushveld Igneous Complex (BIC) from which platinum group metals are extracted; it is also found in a number of chromite layers of the BIC (Chamber of Mines of South Africa, 2005).

Cobalt is an important constituent of rechargeable Li-ion batteries which during the last few years have been replacing Nickel Metal Hydride (NI-MH) batteries in mobile phones, portable PCs and portable electronic devices (Department of Minerals and Energy, 2005:74). Another more long-term growth sector is in gas-to-liquid technology where cobalt is used as a catalyst in the process that converts natural gas into easily transportable liquid products (Department of Minerals and Energy, 2005:75).

6.6.6 Copper

South Africa's copper occurrences stretch from Phalaborwa and Musina, through the Bushveld Igneous Complex (BIC) and the northern and north-western Cape to Namaqualand. Six of the occurrences support major mining operations, where copper in the BIC is being recovered as a by-product of the platinum industry (Chamber of Mines of South Africa, 2005).

Although slowly being superseded by fibre optics in its main application - the generation and transmission of electricity and information - copper still has widespread use in the manufacture of electrical wire and cable, in the automotive and construction industries, as well as in alloys and tubing for a host of applications (Chamber of Mines of South Africa, 2005).

6.6.7 Fluorspar

South Africa's fluorspar (natural calcium fluoride) reserves exceed 30 million tons. It has the third largest reserves in the world and accounts for around 30 percent of the western world's and about 10 percent of all known reserves (Chamber of Mines of South Africa, 2005).

Fluorspar is the commercial name for the mineral fluorite (calcium fluoride), which when pure consists of 51,1 percent calcium and 48,9 percent fluorine. Commercial fluorspar is graded according to quality and specification into acid grade, metallurgical grade and ceramic grade. Approximately one half of world production is used in the production of hydrofluoric acid, a key intermediate in the production of a wide range of organic and inorganic fluorine based chemicals (Department of Minerals and Energy, 2005:136).

Approximately one third is of metallurgical grade and used as a flux in steelmaking to reduce slag viscosity, reduce melting point and remove impurities from steel. Metallurgical grade fluorspar is also used in the production of aluminium, as a component of the molten bath in the electrolytic reduction of alumina to aluminium metal. Ceramic grade fluorspar is used in

the glass and ceramic industries. Smaller quantities are used in the manufacture of magnesium and calcium metal and welding rod coating (Department of Minerals and Energy, 2005:136).

6.6.8 Granite

Granite and norite (black granite) account for 98 percent of dimension stone production in South Africa. 90 percent of all rough blocks sold are exported without further beneficiation. The red granites and black/grey norites of the Bushveld Igneous Complex form the backbone of the South African dimension stone industry (Chamber of Mines of South Africa, 2005).

Dimension stone is a term applied to naturally-occurring rock that may be cut, shaped or selected for use in blocks, slabs, sheets or other construction units of specific shapes or sizes. It is commonly used for the cladding of buildings, curbing, paving, flagging and revetting for its architectural or engineering properties; also in memorials, particularly tombstones. The construction sector accounts for over 80 percent of world consumption, with the funerary, monumental industry accounting for 15 percent, and various special applications for around 3 percent (Department of Minerals and Energy, 2005:133).

6.6.9 Iron ore

South Africa's total reserves of iron ore amount to 9 300 megatons, or nine percent, the sixth largest in the world (Chamber of Mines of South Africa, 2005). Local iron ore production was 39,3 megatons in 2004 mainly as a result of increasing demand for fine Sishen ore from Chinese mills. Consequently, export sales of 24,75 megatons, with the Pacific Rim countries accounting for almost 65 percent of export volumes. Local consumption was 12,43 megatons, reflecting a stronger domestic market during the year, while local sales value was R1 145,6 million, and revenue from export sales revenue went up 9,9 percent despite the strong rand (Department of Minerals and Energy, 2005:106).

The principal deposits are located in the Northern Cape at Sishen, from where export ore is transported via a purpose built rail link to Saldanha Bay on the Atlantic Ocean 800 kilometres away. Other high grade haematite deposits occur near Sishen at Thabazimbi on the northern rim of the Bushveld Igneous Complex (BIC) and elsewhere on the BIC (Chamber of Mines of South Africa, 2005).

Iron is largely used in the form of alloys with other metals in the production of a variety of steels from cast iron to stainless steels. Added value in the context of iron arises from a higher production of ferro-alloys and speciality steels, made by the alloying of iron with other metals found in abundance locally (Chamber of Mines of South Africa, 2005).

Growth in the iron ore industry is expected to continue in 2005 with China as the growth engine driving both the steel and iron ore businesses; in fact China's huge appetite for imported ore is likely to be the dominant factor determining future short-to medium term growth trends in global iron ore seaborne trade (Department of Minerals and Energy Department of Minerals and Energy, 2005:107).

6.6.10 Lead

South Africa possesses around three million tons of lead deposits (Chamber of Mines of South Africa, 2005) and its lead mine production was 37,5 kilotons in 2004 (Department of Minerals and Energy, 2005:80).

By far the biggest use for lead is in car batteries, which consume at least half of the world's annual production. The continuing expansion of the motor industry with the consequent demand for replacement batteries has underpinned the steady growth in demand for lead, though its use in fuel additives is declining as consumption of 'unleaded' petrol continues to increase around the world (Chamber of Mines of South Africa, 2005).

6.6.11 Manganese

With reserves totalling in excess of 4 000 megatons, 80 percent of the world's known manganese ore deposits are located in the Northern Cape and the North West province (Chamber of Mines of South Africa, 2005).

High grade metallurgical manganese ore is generally smelted and refined to produce ferromanganese, an alloy used in the processing of steel. With much of the manganese alloy production in other countries originating from South African ore, manganese is classified as a 'strategic' metal by the United States and relies on South Africa for around 30 percent of its total manganese content in all forms including 25 percent of its ferromanganese intake (Chamber of Mines of South Africa, 2005).

The metal is also used as an alloying agent to strengthen aluminium and is added to copper to form a wide range of manganese bronzes. Manganese dioxide is a powerful oxidising agent with a variety of chemical applications, including use in dry cell batteries and in acid leaching to recover uranium and zinc from their ores (Chamber of Mines of South Africa, 2005).

The buoyant world steel market resulted in manganese ore demand eclipsing supply during the second and the last quarters of 2004 driving spot prices of the commodity up sharply. Suppliers responded by increasing production capacity to satisfy the surging demand, particularly from China, which has increased its imports of both low and high-grade manganese ore (Department of Minerals and Energy, 2005:110).

6.6.12 Nickel

More than 12 megatons of nickel, representing 8,5 percent of the world's nickel reserves, are located in South Africa's Bushveld Igneous Complex where the nickel bearing horizons occur over a total length of about 250 kilometres. South Africa's nickel is derived mainly as a by product from platinum mining (Chamber of Mines of South Africa, 2005).

Nickel is vital to the steel industry and especially the stainless steel industry, which is the metal's biggest market. It has played a key role, too, in the development of the chemical, aerospace and armaments industries. The metal's greatest value lies in the alloys it can form with other elements, where it adds strength and corrosion resistance over a wide range of temperatures (Chamber of Mines of South Africa, 2005).

Some 67 percent of the primary nickel produced each year is consumed in the production of stainless steel. Demand for nickel, therefore, depends mainly on the health of the stainless steel industry, which in turn is tied to the performance of the global economy (Department of Minerals and Energy, 2005:83).

A new source of demand for nickel is the application of nickel-metal hydride (NiMH) batteries to power gasoline-electric hybrid vehicles (Department of Minerals and Energy, 2005:84).

6.6.13 Silver

Silver is an important constituent of gold and platinum ores in South Africa and also occurs in the ores of the base metals (zinc, lead, and copper) (Chamber of Mines of South Africa, 2005).

South Africa's silver mine production continued to decline in 2004 and totalled 71 643 kilograms, which was marginally down on the 2003 output of 79 782 kilograms. Silver production occurred as a by-product of 17 gold mines, one lead-zinc mine, one copper mine and two platinum-group metal mines (Department of Minerals and Energy, 2005:39).

Silver is used for coinage, photographic materials, brazing materials, and as a catalyst. Pure silver, like gold, can be rolled into foil, drawn into fine wire, and beaten to leaf. However, as silver is too soft in its refined state to stand up under constant wear, it is usually alloyed with copper before it is made into any consumable such as coins, jewellery and tableware. Silver compounds

are used to coat films and in silver plating. The metal's high electrical and thermal conductivity and superior oxidation resistance have led to its widespread use in electrical and electronic applications. Other applications of the metal include the manufacture of silver paints, while silver batteries find special uses in aircraft and various types of military equipment (Chamber of Mines of South Africa, 2005).

6.6.14 Titanium

South Africa's reserves of titanium contained in ilmenite, as well as rutile and leucoxene, are concentrated mainly in extensive titanium-bearing deposits in black sands in the Richard's Bay and St Lucia areas of northern KwaZulu Natal. The Richard's Bay titanium reserves are the fourth largest in the world (Chamber of Mines of South Africa, 2005).

During the last two decades or so the importance of titanlure - one of the toughest, lightest and most corrosion resistant materials known to man - has steadily increased throughout the world. Titanlure has become one of the most highly rated of all metals. Titanlure alloys are used in the manufacture of aerospace components, guided missiles, military hardware, camera bodies, tube condensers and turbine blades with increased usage in the nuclear industry, chemical plants medicine and marine parts (Chamber of Mines of South Africa, 2005).

Ilmenite and rutile are rich in titanium dioxide, which is most commonly used to add opacity to paints, paper, plastics, fibres, floor coverings and enamels - to name but a few - while the pigment industry is the world,s largest user of titanlure dioxide (Chamber of Mines of South Africa, 2005).

6.6.15 Uranium

Uranium is the fuel used by nuclear power reactors to generate electricity by the process of nuclear fission. According to the International Atomic Energy Agency (IAEA), in 2004, there were 438 such reactors operating in 31

countries accounting for 16 percent of the world's electricity. The World Nuclear Association estimated that these reactors with a combined capacity of about 364 GWe (Gigawatts of electricity) required 66 658 tons uranium in 2004 (Department of Minerals and Energy, 2005:39).

The dominant feature of the uranium market is that uranium consumption continues to exceed mine production by a significant margin. This deficit is filled from several secondary sources, including government and other civilian inventories, reprocessed spent fuel, and the blending down of highly enriched uranium (HEU) from nuclear weapons (Chamber of Mines of South Africa, 2005).

South African output, mainly produced as a by-product of gold and copper mining, continued to decline because of the exhaustion of higher-grade ores (Chamber of Mines of South Africa, 2005).

Many experts believe that in the future nations will have little alternative but to use more nuclear power - in part owing to the need to reduce the usage of fossil fuels in order to curb the 'greenhouse' effect (Chamber of Mines of South Africa, 2005).

6.6.16 Vanadium

South Africa's Bushveld Igneous Complex contains more than 5 million tons of vanadium ore reserves, which represents about half of Western world reserves and one-third of the global total. South Africa is the major player in the vanadium market and, because of the accessibility of high-grade vanadium-bearing deposits and the expansion of capacity, and it is likely to remain so (Chamber of Mines of South Africa, 2005).

Vanadium is an important alloying element which confers specific properties on a range of different steels. Two thirds of vanadium production is derived from bi- or co-product sources. Approximately 90 percent of the total vanadium output is used in the form of ferrovanadium by steel makers, with

most of the balance consumed in titanium alloys, other non ferrous metals and as a catalyst in chemical applications (Department of Minerals and Energy, 2005:118).

Growth in demand for vanadium has been slightly higher than that of steel although there have been few new applications for many years. Most of the growth has been through an increase in vanadium content used in special steels. The short-term outlook for vanadium is promising, given the strong demand anticipated from China (Department of Minerals and Energy, 2005:119).

6.6.17 Vermiculite

With vermiculite ore reserves at nearly 80 million tons, South Africa has the second largest reserves of the metal, representing about 40 percent of the world total. Vermiculite, a partially decomposed mica with the unique characteristic of expanding some 30 times in volume when heated, is widely used in fire proofing and acoustical plasters, for heat insulation, as a growing medium in horticulture, agriculture and hydroponics and in other applications where its light weight and other industrial properties can be utilised (Chamber of Mines of South Africa, 2005).

South Africa ranks first in terms of output of vermiculite, and South African vermiculite is replacing asbestos in brake linings, while being used as an absorbent for industrial spill clean-up operation. A key contributor to maintaining this large market share is the quality of South African vermiculite (Department of Minerals and Energy, 2005:161).

6.6.18 Zinc

South Africa, with around 15 million tons of zinc reserves, contains about 3,5 percent of global deposits of the metal. Large, economically viable deposits of mixed sulphides are found in three areas of the Northern Cape in the Black Mountain/Gamsberg area, around Prieska, and near Poring in the north of the

province. Black Mountain/Gamsberg is the biggest and highest grade zinc deposit in southern Africa (Chamber of Mines of South Africa, 2005).

Zinc's main application is in the protection of iron and other metals from corrosion, it is also used in three main semi fabricating areas, namely galvanising, the manufacture of zinc based casting alloys and in brass. Current high zinc prices are partly the result of a consumer switch towards quality - for instance, the increased use in car bodies of galvanised steel which has greater resistance to rust than ordinary mild steel. There is also growing demand for galvanised steel from the mining industry. Zinc chromate is used extensively as an undercoating; while zinc oxide is utilised in rubber production, paints, ceramics, floor coverings and pharmaceuticals (Chamber of Mines of South Africa, 2005).

6.6.19 Zirconium

Zirconium is spread widely through the earth's crust, being present in several mineral forms, although only two are of current commercial significance: namely, zircon sand containing zirconium as the silicate, and baddeleyite as a form of zirconium oxide (Chamber of Mines of South Africa, 2005).

South Africa contains 14,3 megatons, 22 percent of the world's known reserves and accounts for 24 percent of output. Both zircon and baddeleyite are utilised in the form of sand or micronised powders, the major applications being in foundries and refractories. Other uses include abrasives, ceramics, alloys, chemicals and leather tanning. Zirconium metal is renowned for its excellent corrosion resistance and is employed as a component for alloys in chemical processing plants and in aerospace engineering. It is also used for fuel cladding in nuclear reactors. Finally, high technology zirconium ceramics are being tested for hot section service in the future generation of uncooled internal-combustion engines (Chamber of Mines of South Africa, 2005).

6.7 MINING INDUSTRY ECONOMIC SNAPSHOT

According to the Chamber of Mines of South Africa (2005:14) two big issues affecting mining in 2004 were the continued strength in the Rand exchange rate and the negative impact of rising input costs. Despite this the industry continues to be a key foundation for growth and development. Mining benefits the economy directly and has important multiplier effects. The mining sector:

- Accounted for 6,6 percent of gross domestic product (GDP) in 2004, the same level as 2003. The industry grew by 4,2 percent in 2004 mainly as a result of the 15,9 percent increase in platinum group metals' (pgm) production combined with good growth in diamonds (up 11,9 percent), coal (up 6,2 percent) and iron ore (up 3,6 percent). The nongold mining sector grew by 7,6 percent. Unfortunately the mature gold sector continued to be at the forefront of the negative impacts of the rand and rising input costs with production falling by 7,2 percent. Indirect multiplier effects take the overall contribution of mining GDP closer to 16 percent. These multipliers include backward linkages (e.g. transport, professional services), forward linkages (e.g. power generation) and the induced effect via mining generated incomes on consumption.
- Directly accounted for 9,9 percent of total fixed investment and for 14 percent of total private sector investment. Mining fixed investment grew by 3,7 percent to R22,3-billion in 2004 as the impact of multi-year capital projects were evident. Unfortunately the impact of the strong Rand and rising input cost pressures undermined the viability of both existing mines and new projects thus dampening investment growth. The industry has approved capital projects of about R90- billion for 2004 to 2008.
- Continues to act as a magnet for investment and dominated the Johannesburg Securities Exchange, accounting for 35,3 percent or R534-billion of the market capitalisation of the JSE for 2004.
- Contributed R90,3-billion to exports, representing 29,3 percent of South Africa's total merchandise exports in 2004. If beneficiated minerals are added to primary exports (such as ferro-alloys, steel, chemicals from coal),

then the minerals cluster accounts for more than 50 percent of total merchandise exports.

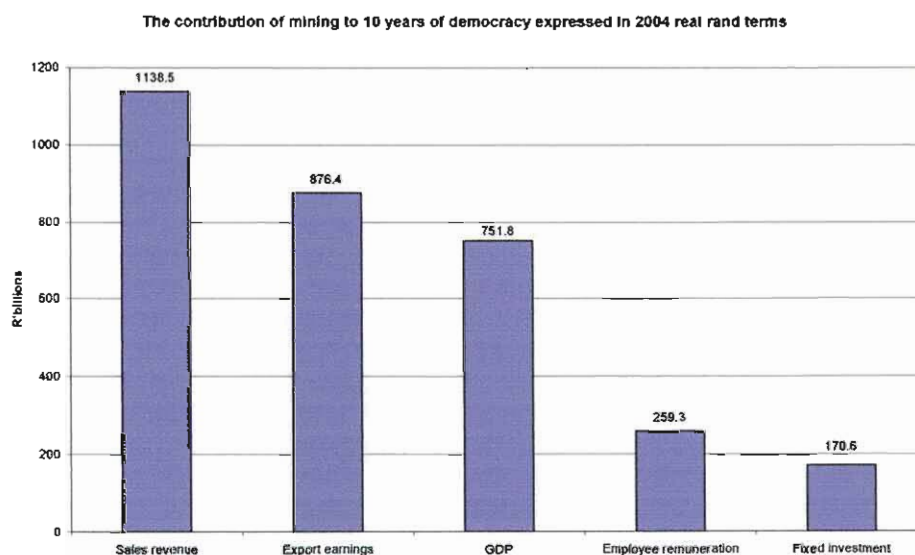
- Moved 98,9 million tons of bulk commodity ores for export in 2003 and was the dominant user of South Africa's railways and ports. The bulk commodity exports represent 53 percent of Transnet's volume of transport in 2003.
- Directly employed an average of 457 371 workers in 2004. On an indirect basis it is estimated that another 200 000 workers are employed in associated industries that either supply products to, or use products from the mining industry. As many as another 500 000 jobs are created in the consumption industries because of the 'induced effect' of mining. Almost six million people are directly dependent for their daily subsistence on mine employees.
- Accounted for 7 percent of people employed in the non-agricultural formal sector and 9 percent of the total private sector non-agricultural employment in 2004. If the multiplier and induced effects are used, the contribution to employment rises to about 25 percent of total non-agricultural formal sector employment.
- Paid R34,3 billion in wages and benefits to employees, which accounted for about 7 percent of the total remuneration paid to private sector employees in 2004. This contributed substantially to domestic demand in the economy.
- Paid about R6,9-billion in direct taxes and R4,1-billion in other taxes in 2003. Direct taxes paid by the sector accounted for about 10 percent of total corporate taxes received by government. The direct and indirect taxation contribution of mining to total government revenues was about 3,6 percent in 2003.
- Supports vital supply and demand relationships with banking and financial, construction, engineering, manufacturing, transport and processing sectors.
- Was the world's largest producer of pgm, gold, chromium, ferrochrome, vanadium, manganese and vermiculite. The industry was also a major supplier of aluminium (world rank 8), antimony (3), coal (6)

ferromanganese (3), fluorospar (3), iron ore (9), nickel (11), silicon (7), titanium minerals (2), uranium (9), zirconium (2) and alumina silicates (2) mined about 60 minerals of which the vast majority were exported to over 100 countries.

- Accounted for a significant amount of the supply and demand for energy in South Africa. The industry consumed 32 620 848 megawatt hours. Through its coal mining sector it provided around 110 million tons of coal for electricity generation, which accounted for about 90 percent of the electricity generated in the country in 2004. Synthetic fuels consumed almost 41.1 million tons of coal, which also accounted for 35 percent of liquid fuel production.
- Is responsible for significant infrastructure development. For example, 3 000 km of railway line, three ports and a large amount of bulk handling infrastructure at other ports.
- Is often the sole provider of certain social infrastructure, including clinics, schools and social facilities.

A synopsis of the mining industry's contribution to South Africa's economy over the 10 year period 1995 to 2004 is shown in figure 6.1 below.

Figure 6.1: The contribution of mining to 10 years of democracy expressed in 2004 real rand terms



Source: Chamber of Mines of South Africa, (2005:3)

6.8 CHALLENGES FACING THE SOUTH AFRICAN MINING INDUSTRY

According to the Chamber of Mines of South Africa (2005), the most fundamental challenge facing the South African mining industry is the productivity of labour and capital and their impact on the cost of mining and extracting minerals. For most minerals, South African producers are “price takers”, as the prices are set on international markets.

To remain competitive, particularly with many low-cost emergent world producers, South Africa’s mining industry has to focus on productivity and cost trends. Operating margins have to remain, or become competitive to attract investment into the industry, and to sustain existing operations. For the industry to remain competitive, it must be provided with an operating and investment environment that does not disadvantage it in relation to other mining countries (Chamber of Mines of South Africa, 2005).

6.9 SUMMARY

For more than a century, South Africa’s mineral industry, largely supported by gold, diamond, coal and platinum production, has made an important contribution to the national economy. It has provided the impetus for the development of an extensive and efficient physical infrastructure and has contributed greatly to the establishment of the country’s secondary industries. The mineral industry is a well-established and resourceful sector of the economy, has a high degree of technical expertise and the ability to mobilize capital for new development. Mining is South Africa’s largest industry sector, followed by manufacturing (Department of Mineral and Energy Affairs, 2004:1).

The world-class South African mining sector is a cornerstone of the country’s economy. South Africa is the world’s biggest producer of gold and platinum and one of the leading producers of base metals and coal. Mineral commodities are exported to 80 countries. South Africa is a treasure trove with mineral deposits only matched by some countries of the former Soviet

Union. The industry makes a significant contribution to economic activity, the development of sustainable job opportunities and foreign exchange earnings. Major companies are increasingly moving their primary listings to New York and London in the wave of globalisation, ranging from the direct acquisition of mining companies to partnerships with smaller exploration companies (South Africa Information Gateway, 2005).

There are however, great challenges that face the South African Mining Industry as echoed by Chamber of Mines, i.e., the productivity of labour and capital and their impact on the cost of mining and extracting minerals.

The global arena has become more competitive and in order to expand and adapt to changing world conditions that influence demand for its products, the South African Mining Industry cannot afford to become complacent due to its current seemingly strong position if it wishes to continue to be an important player in the global mining industry.

At this point it is important to recall the findings of GEM 2003 pertaining to the measure of entrepreneurial activity within established firms indicating that South Africa ranked 36th out of 40 countries – last amongst the developing countries included in the survey (Orford *et al.*, 2003).

It appears that the population of established businesses in South Africa is less likely to be innovative and growth-oriented and if correct, the GEM findings may be part of the explanation of why South Africa persistently experiences economic growth rates below those in many developing countries. The clear implication for policy is that much greater attention must be paid to building an entrepreneurial society (Orford *et al.*, 2003).

Being centre stage in the South African economy, the mining industry should therefore exploit the corporate entrepreneurial phenomenon, embark on innovation and entrepreneurship in its current setting and spend some of their resources in developing new ventures and new products.

Mining companies, can definitely be entrepreneurial in the positive sense of creating real economic value for everyone's benefit through the development of new products and services, and exploiting corporate entrepreneurship would therefore be in national interest, not only because the mining industry account for much of the nation's economic output and jobs, but also because mining companies and independent entrepreneurs complement and compete with one another. Having both enhances a nation's competitiveness, and, consumers and the economy are the beneficiaries.

But is the climate in South Africa's mining industry conducive for corporate entrepreneurship? What is the status quo in South Africa's mining industry as far as corporate entrepreneurship is concerned? Is it true that mining companies are in general bureaucratic and inhospitable to creativity and innovation? In the following chapter an attempt will be made to provide the answers to these questions.

CHAPTER 7

EMPIRICAL RESEARCH

7.1 INTRODUCTION

According to Butler (2002:4) science has been defined as a systematic procedure for explaining phenomena that is empirical in nature. Empirical simply means things that one can observe and measure. Phenomena are events, occurrences that appear in patterns in nature, processes, events, and groups of people, behaviours, beliefs, opinions, emotions, feelings and thoughts (Butler, 2002:4).

The purpose of the science of something is to explain the something; this explanation is based on a set on interrelated statements that produce a theory. A theory sets out to provide an understanding about a phenomenon, paying special attention to the conditions under which it occurs, and when this is done prediction is possible (Butler, 2002:4).

Subsequently, this chapter explains the findings of the systematic process followed to examine whether the organisational climatic conditions in the mining industry are conducive for the entrepreneurial phenomenon to manifest.

Achieving the objective to determine the entrepreneurial climate of the mining industry in South Africa was, however, a cumbersome and challenging prospect due to the following reasons:

- The diverse number of sectors within the mining industry.
- The widely distributed locations of mining operations across South Africa.
- Securing audience with Chief Executive Officers (CEOs).
- Securing permission to conduct the survey.
- The wide distribution of respondents across South Africa.

7.2 PROCESS AND SEQUENCE OF EVENTS

Notwithstanding the challenging prospect, the following process and sequence of events were followed in an attempt to meet the objective:

- The major players in each sector of the mining industry were identified.
- E-mail communication was referred to the offices of the CEO's of the major companies (See annexure A).
- Appointments with CEO's who responded favourably was set up.
- Interviews were conducted with CEO's using the interview protocol as seen in annexure B, and recording the interviews.
- Each interview was then transcribed to written format (See annexure C for summary of transcribed interviews).
- After reference from the CEO to an official to assist with distribution of questionnaires was obtained, contact was made with the delegated official.
- The questionnaire (See annexure D) was sent electronically to the delegated official who in turn distributed it electronically to middle-managers in their employ.
- After completion of the questionnaires respondents returned completed questionnaires to the author.
- All data was then populated into a database from where the statistical analysis was done.

7.3 MINING COMPANIES THAT PARTICIPATED

The mining companies selected to take part in this study were De Beers, Goldfields, Implats, Kumba Resources and SRX Uranium¹. Each one of these companies is a significant player in its sector of operation, i.e.:

- De Beers in the diamond sector.
- Gold Fields in the gold mining sector.
- Implats in the platinum mining sector.

- Kumba in the coal, iron ore, base metals and industrial metals mining sectors.
- SRX Uranium 1 in the uranium mining sector.

A further consideration was ease of access and entrance in terms of securing an audience with the CEO for an interview, as well as for conducting the climate survey.

7.3.1 De Beers (Diamonds)

Since its inception in 1888, De Beers has been a major and influential player in the diamond industry. In its early years, the company produced over 90% of the world's diamonds, and was the only major supplier of diamonds (De Beers, 2006).

From the beginning of the 20th century, rival producers began to emerge and present competition to De Beers, although De Beers remained (and remains to this day), the largest supplier of rough diamonds in the world (De Beers, 2006).

In the closing years of the last century, a number of factors, including the globalising economy and fierce competition from the luxury goods sector, led De Beers to abandon its more supply-driven than customer-focused approach to business strategy, which De Beers felt had become inefficient, uncompetitive and unattractive for many reasons (De Beers, 2006).

Instead, De Beers introduced a new strategy for the 21st century: an efficient and robust sales strategy, capable of identifying those diamond businesses best placed to efficiently handle the goods De Beers has to offer and add value to them throughout the process of bringing them “from the mine, to the finger”; accompanied by a suite of innovative programmes and initiatives designed to reinvigorate the industry and to grow demand for diamond jewellery in order to compete, more successfully with luxury goods competition (De Beers, 2006).

In 2001, De Beers went private. After a successful buyout offer approved by 93 percent of the shareholders, De Beers de-listed from the JSE where their shares had been trading for 108 years (De Beers, 2006).

7.3.2 Gold Fields (Gold)

Gold Fields Limited is one of the world's largest unhedged producers of gold, providing investors with maximum leverage to the gold price. The company was formed in 1998 with the amalgamation of the gold assets of Gold Fields of South Africa Limited and Gencor Limited (Gold Fields, 2006).

Gold Fields has attributable production of 4,2 million ounces per annum, mineral reserves of 64,8 million ounces and mineral resources of 174,5 million ounces. The company employs some 43 942 people including contractors across its operations and is listed in the JSE Securities Exchange South Africa (primary listing), New York Stock Exchange, London Stock Exchange, Euronext in Paris and Brussels as well as the SWX Swiss Exchange (Gold Fields, 2006).

The South African operations comprise the wholly owned Driefontein, Kloof and Beatrix mines, and the international operations comprise the Ghanaian and Australian mines as well as development projects in Peru and in Finland (Gold Fields, 2006).

Gold Fields has an extensive precious metals exploration programme, with projects in Africa, Australasia, Europe and South America. Regional exploration offices are situated in Accra, Denver, Johannesburg, Oxford, Perth and Santiago (Gold Fields, 2006).

7.3.3 Implats (Platinum)

Implats produced 1,85 million ounces of platinum and 3,55 million ounces of platinum group metals (PGMs) in the 2005 financial year, making it a most significant platinum producer globally. The group's operations on the Bushveld

Complex in South Africa and the Great Dyke in Zimbabwe give it an attributable reserve and resource base of 215 million ounces of platinum. Implats employs approximately 31 000 people across its operations (Implats, 2006).

Impala Platinum Holdings Limited (Implats) is in the business of mining, refining and the marketing of the platinum group metals (PGMs), especially platinum, as well as nickel, copper and cobalt. Implats is also involved in the secondary sourcing of material through Impala Refining Services (IRS) which enables it to capitalise on the group's competitive advantages in processing and refining (Implats, 2006).

The group's operations on the Bushveld Complex in South Africa (Impala Platinum, Marula Platinum and Two Rivers) and the Great Dyke in Zimbabwe (Zimplats and Mimosa) give it a significant base of attributable reserve and resource ounces of platinum. Implats also has investments in Aquarius Platinum Limited and its subsidiary Aquarius Platinum (South Africa) Limited which have PGM operations in southern Africa. There are also offshore exploration projects in Australia, Brazil and the United States (Implats, 2006).

Implats' primary listing is on the JSE Limited (JSE) with a secondary listing on the London Stock Exchange. The company has a sponsored level 1 ADR program in the United States (Implats, 2006).

7.3.4 Kumba Resources (Coal and iron ore)

Kumba Resources Limited, formerly known as Iscor Mining until it split from its steel producing parent, Iscor Limited in 2001, boasts a portfolio of world class assets spanning three continents rich in mineral resources: Africa, Asia and Australia (Kumba Resources, 2006).

Headquartered in Pretoria, South Africa, Kumba Resources is focused around four key commodities: iron ore (accounting for about 49 percent of revenue),

coal (22 percent), base metals (9 percent) and, the newest, growing contributor, heavy minerals (19 percent) (Kumba Resources, 2006).

Iron ore – in the 2004 financial year the Sishen and Thabazimbi mines produced over 30,1 megatons of lumpy and fine iron ore, of which 20,9 megatons was exported. Sishen is one of the largest single open-pit mines in the world, known for its high grade and consistent product quality. The 861 kilometre rail system that links Sishen to the dedicated deep-water port and bulk-loading facility at Saldanha is one of the most efficient in the world and has advanced logistical systems for handling and loading iron ore (Kumba Resources, 2006).

Coal – collectively, Grooteegeluk, Leeuwpan and Tshikondeni mines produced over 19,4 megatons of thermal, metallurgical and coking coal in 2004, most of which (thermal) is consumed by the national power utility, Eskom. Grooteegeluk is one of the lowest-cost and most efficient mining operations in the world. The mine also operates the world's largest coal beneficiation plant (Kumba Resources, 2006).

Heavy minerals – the Ticor SA heavy minerals project near Empangeni in KwaZulu-Natal province uses innovative techniques and a new mining method in this highly-specialised industry to make Kumba and its Australian subsidiary, Ticor Limited, a significant titanium producer. The smelter complex at Empangeni, comprising two furnaces, is currently being commissioned and at full production will produce 250 kilotons per annum of titanium dioxide slag and 140 kilotons per annum of low manganese pig iron. Ticor Limited's Tiwest joint venture in Western Australia, in which it has a 50 percent interest, produces 90 kilotons per annum of titanium dioxide, 720 kilotons per annum of heavy minerals concentrate and 450 kilotons per annum of ilmenite (Kumba Resources, 2006).

Base metals – the Rosh Pinah lead/zinc mine in southern Namibia and Zincor refinery near Springs in Gauteng province constitute one of the few integrated zinc mining and refinery operations in the world. The Zincor

electrolytic refinery is a low-cost producer of zinc metal. In addition to South Africa and Namibia, this business unit also has an interest in the expansion of the Chifeng zinc refinery in China (Kumba Resources, 2006).

Industrial minerals – a dedicated plant in Pretoria manufactures high-quality atomised ferrosilicon which plays a strategic role in the beneficiation process of iron ore. The Glen Douglas dolomite mine near Meyerton in Gauteng province provides a range of products to steelworks and other consumers (Kumba Resources, 2006).

Important closing comments: It is important to note the empowerment transaction involving Kumba, Anglo American plc, the Industrial Development Corporation and Eyesizwe Mining (Proprietary) Limited that is currently in progress.

The landmark transaction will see Kumba split into two empowered entities which will both be listed on the JSE - Kumba Iron Ore Limited and Exxaro Resources Limited. Kumba Iron Ore will be the JSE's first pure iron ore play and Exxaro will be South Africa's flagship empowerment company (Kumba Resources, 2006).

According to a Kumba Resources (2006) press release the transaction is subject to the fulfilment of certain conditions that include the approval by Kumba shareholders of the transaction. A general meeting of shareholders to approve the transaction will take place on 2 November 2006. Kumba Iron Ore will list on the JSE on 20 November 2006 and Kumba will re-list as Exxaro on 27 November 2006.

7.3.5 SRX Uranium One (Uranium)

SRX Uranium One Inc. is an international uranium and gold exploration and mining company with offices in Toronto, Johannesburg and Adelaide (SRX Uranium One, 2006).

SRX Uranium One Inc. is engaged in the exploration and development of uranium and gold resource properties in South Africa, Australia and Canada. Uranium One is the result of a December 2005 merger between Aflease Gold and Uranium Resources of South Africa and Southern Cross Resources Inc (SRX Uranium One, 2006).

The Corporation's principal assets are the Dominion Uranium Project in South Africa, the Honeymoon Uranium Project in Australia and, through its majority-owned subsidiary, Aflease Gold Limited, the Modder East Gold Project in South Africa. Through a joint venture with Pitchstone Exploration Ltd., the Corporation is also engaged in the acquisition and development of uranium exploration properties in the Athabasca Basin in Saskatchewan, Canada. Uranium One is listed on the Toronto and Johannesburg stock exchanges (trading symbol "SXR") (SRX Uranium One, 2006).

The Corporation is an emerging mid-tier exploration and mine development company progressing towards its objectives of commencing uranium production at the Dominion Project in 2007 and bringing the Honeymoon Project to a production decision in mid 2006. The Corporation's strategic objectives are to expand its operations from exploration and development to production, to generate cash flow to sustain further exploration and acquisitions, to grow both organically and through acquisitions, and to maximize shareholder returns through capital appreciation (SRX Uranium One, 2006).

7.4 CHIEF EXECUTIVE OFFICERS INTERVIEWS

In order to understand the views, opinions and experiences of leaders in the mining industry in terms of the entrepreneurial phenomenon in a corporate setting, interviews were conducted with five prominent Chief Executive Officers (CEOs) from the gold-, platinum-, diamond-, coal-, iron ore-, and uranium sectors of the mining industry. The five CEO's are:

- Jonathan Oppenheimer (Managing Director, De Beers SA).

- Ian Cockerill (CEO Goldfields).
- Keith Rumble (CEO Implats).
- Dr. Con Fauconnier (CEO Kumba Resources).
- Neal Froneman (CEO SRX Uranium 1).

For this purpose, an interview protocol was designed in order to gain insight into their views, opinions and experiences pertaining corporate entrepreneurship. See annexure B for the interview protocol.

Appointments were made with CEOs and face-to-face interviews were conducted, using the interview protocol as guideline. Interviews were recorded and then transcribed to paper format. Only the key findings pertaining to the study follows below. The interviews summary matrix may be viewed in annexure C to this study. The statement / question appear in blocks, followed by the key findings.

7.4.1 Is corporate entrepreneurship an antidote?

Can corporate entrepreneurship be an antidote to large company staleness, lack of innovation, stagnated top-line growth, and the inertia that often overtakes the large, mature companies of the world?

The common response was that corporate entrepreneurship can indeed be a way of addressing lack of innovation and slow growth. Reservations were however expressed in terms of ease of application due to increased corporate governance and regulatory restrictions. Nevertheless, it should be pursued as a business process to empower people to be accountable and deliver in their domain, and the creation of a management system that is not overly bureaucratic – an enabled environment where people can apply their talent and encourages “constructive decent” through mature and self-confident managers. Corporate entrepreneurship can therefore prevent stagnation, as well as reengineer and revitalise a company.

7.4.2 Is corporate entrepreneurship an oxymoron?

There are those who believe that corporate entrepreneurship can also be an oxymoron, a novel approach to new business development that often sits uncomfortably, sometimes impossibly, next to the planning, structure and careful organisation.

The common opinion was that corporate entrepreneurship is not an oxymoron, but rather an imperative for growth. In essence it should form part of the overall strategy, and if executed through proper process and in a structured way will lead to a dynamic organisation.

Mining companies need to be able to react quickly to stimulus from the external environment, to market conditions and to opportunities. The fundamental of business is to be entrepreneurial and therefore corporate entrepreneurship can't be an oxymoron. Entrepreneurship also implies instituting innovative ideas – delivering the idea – and that requires processes, otherwise there is no stability.

7.4.3 Are potential ideas going unnoticed?

Is reasonable to expect that in large mining companies one would find a plethora of ideas and potential ideas that go unnoticed because there are some structural impediments to their realisation, or little or no incentive for employees to bring such ideas forth?

Interviewees agreed that the mining industry is not particularly good in harnessing the ideas of its employees. Creating the right environment and unblocking the obstructions in processes for people to participate in management is essential for talent to emerge and ideas to surface. Mechanisms or processes are needed to bring forth ideas and prevent people seeking alternative expression or intellectual capital migrating from companies.

All five participating companies are actively pursuing improvement of the situation, but agree that the ideal state has not been reached.

7.4.4 Can the industry's performance be improved?

The South African mining industry is one of the most important contributors to the growth and development of the economy. Although the contribution is significant, can the industry's performance be improved upon?

It was commonly agreed that the industry's performance could be improved, but a number of critical constraints were highlighted, namely:

- Gold is a mature industry in a secular downward trend under pressure in the absence of new discoveries and opening up of new mines.
- The negative impact that Government's planned economy initiatives like Black Economic Empowerment (BEE) and the new minerals legislation has on the investment environment.
- The mining industry has become too centralised, and the consequence is that decision making by all levels of management is not as efficient as it should be.

In the following areas interviewees agreed that the mining industry has good growth opportunities:

- Establishing new mines on ore reserves that haven't got mines on them yet.
- Increased demand from metals from countries like India and China.
- South Africa is the dominant platinum producer and the market is expanding.
- The coal and iron ore sectors are strong, and there are attempts to build these sectors to meet increased global demand.
- Where mining companies can benefit they should, because that adds to the earning ability of the mineral wealth that this country is endowed with, in other words, to make maximum use of mined minerals and not

take a ton of ore and send it to somebody overseas and he turns it into something else.

Care must however be taken not to have an over-reliance on the mining sector to stimulate South Africa's economy. Fortunately the country is moving away from being predominantly resource-based to more of a diversified economy, which is ultimately healthier for the country.

7.4.5 How should the industry's challenges be addressed?

According to the Chamber of Mines of South Africa (2005), the most fundamental challenge facing the South African mining industry is the productivity of labour and capital and their impact on the cost of mining and extracting minerals. How, in practical terms, should these challenges be addressed?

There are factors that can't be influenced like the exchange rate and the gold price. However, interviewees agreed that areas that could be influenced include the following:

- Influence on the cost side and on efficiency and productivity.
- Technological innovation to reduce the amount of human effort that goes into mining, e.g. drilling and blasting.
- Innovative work practices to influence productivity.
- Increased efforts in training, education and development of people, especially the basics of reading and writing.
- Greater accountability by holding individuals in the operational domain responsible and accountable for performance of their domains.
- Opportunity identification and exploitation. Unexplored reserves as well as known reserves that haven't got mines on them yet.
- Improve the management of mining activities, e.g. applying six sigma management practices.

In terms of what Government could do, interviewees agree that the following areas need urgent address:

- Improve the regulatory framework and the administrative support of the mining industry.
- Improve the labour laws that are too liberal on the one side and too rigid on the other side.
- Improve the bureaucracy and “red tape” constraints in terms of mineral rights conversion, i.e. conversion of exploration licences and mining licences.

7.4.6 How prevalent are the dimensions of corporate entrepreneurship?

Research identifies 5 Dimensions of Corporate Entrepreneurship, namely Innovativeness, Risk-taking, Proactiveness, Competitive Aggressiveness, and Autonomy. How prevalent are these dimensions in the mining industry?

There are evidently successes and failures in these aspects in the mining industry, i.e. these dimensions are prevalent in some mining companies and less prevalent in others.

- **Innovativeness:** In the traditional gold industry there has been very little innovation in mining methodology for nearly 40 years, although there has been some innovation in metallurgical processing. Innovation has to come with the ability to innovate, which is a function of education, and the opportunity to act in innovative ways, and the availability of resources. Bureaucratic structures impede innovation
- **Risk-taking:** In general the mining industry is a long-life, fairly conservative industry slow to react. Furthermore, the bigger a mining company gets, the more difficult it gets to take risks because it does not match the risk profile. However, if there are no risks, there are no rewards; subsequently risks have to be taken, but managed properly.
- **Proactiveness:** Very much relating to each specific company, and depends on the leadership at any specific point and time.

- **Competitive aggressiveness:** Probably the mining industry's biggest attribute is competitive aggressiveness, although perhaps not so visible in the public domain. Mining companies that want to be the leader, sets goals and objectives accordingly.
- **Autonomy:** In large companies autonomy is not very prevalent unless a company has a very broad shareholder base. It becomes increasingly difficult the bigger a company gets. Large conglomerates constrain autonomy, and a culture of entrepreneurship flowing down through the company depends to a great extent to the leadership.

7.4.7 Is entrepreneurial leadership possible in the mining industry?

One author states that the most important function of an entrepreneurial leader is not to find new opportunities or to identify the critical competitive insights, but rather to create an organisation that does these things as a matter of course. Is this possible to achieve a mining environment?

Although there were semantic differences relating to the term “entrepreneurial leadership”, interviewees agreed that creating an entrepreneurial organisation is achievable through enablement, empowerment and support for innovative thinking that starts at board level. The leader’s main function is to free up people by removing the hurdles that prevent people from being entrepreneurial. It’s about creating an environment where everybody’s looking for new opportunities or better ways of doing things. It’s about tolerance for failure, a willingness to do things differently and a willingness to put seed money towards innovation. It’s about making sure people has the opportunity; that they have access to resources; are recognised for their achievements; and that they have management’s support.

It’s also about creating a culture of personal ownership. Personal ownership implies personal accountability, and personal accountability requires personal recognition. Creating such an environment creates value in itself, but also creates the opportunity to be competitively advantaged – able to out-compete peers.

7.4.8 Could mining companies adopt the leadership approach of General Electric?

This kind of leadership was seemingly epitomised by Jack Welch. His objective was to put a small-company spirit into a big-company body where people feel assured in knowing that only the limits of their creativity and drive, their own standards of personal excellence, will be the ceiling on how far and how fast they move. Could mining companies adopt similar approaches, or does the type of company restrict a leader in creating such an organisation?

There was agreement that mining companies could (should) adopt a similar approach. There is no reason why it couldn't be done in a mining company. The leader's ability to mobilise performance around that ethos is however a key determinant. Furthermore, striking that type of balance in a big company subjected to all the normal governance issues is not easy. Nevertheless, the leader should minimise bureaucratic impact by unlocking operational management's capacity to manage, and creating the space for individuals to act, thereby driving towards operational excellence which in turn provides a growth channel and competitive advantage.

7.4.9 What is the role of leadership in organisational climate?

If the climate in an existing organisation is critical in how well the organisation will deal with growth, and if the climate of an organisation can therefore have significant impact on performance, and is created both by the expectations people bring to the organisation and the practices and attitudes of the key managers, what role does leadership play in establishing this type of climate?

Interviewees agreed that the role of leadership in creating the climate in an organisation is fundamental, and subsequently in line with the theme of corporate entrepreneurship, a climate conducive for entrepreneurial behaviour. The most important job of the leader is to bring out the best in other people in the organisation, and that rules, regulations and the leader's

attitude does not stifle them. The leader must recognise the worth of the people in the company, and create the climate for them to act innovatively.

The leader must be sensitive to nuances that may lead to the generation of negative energy, and when it appears, counteract with positive energy. It's a matter of focus: setting objectives; following through; monitoring; rewarding; unblocking the system; and enablement. People want to grow. It's about teamwork and participation, making resources available and rewarding innovative behaviour.

7.5 ENTREPRENEURIAL CLIMATE SURVEY

It would be too costly and time consuming for each and every individual employed in the mining industry in South Africa to complete the questionnaire. Other problems also include literacy, level of education and basic understanding of what is to be achieved. It was subsequently decided to target only middle-management. This decision was also based on the importance of middle-management's unique position in an organisation.

Middle-management usually describes those responsible for the execution and interpretation of policies, and normally responsible for the operation of divisions or departments. It is that layer of management in an organisation whose primary job responsibility is to monitor activities of subordinates and to generate reports for upper management.

Huy (2001:72) states that when it comes to envisioning and implementing change, middle-managers stand in a unique organisational position. They're close to day-to-day operations, customers, and frontline employees – closer than senior managers are – so they know better than anyone where the problems are. But they're also far enough away from frontline work that they can see the big picture, which allows them to see new possibilities, both for solving problems and for encouraging growth.

Huy, (2001:72) further argues that, taken as a group, middle-managers are more diverse than their senior counterparts are in, for instance, functional area, work experience, geography, gender, and ethnic background. As a result, their insights are more diverse. Middle-management is thus fertile ground for creative ideas about how to grow and change a business (Huy, 2001:72).

Kuratko and Hornsby (2001:5) state that the perception of middle-managers on different aspects of the firm's corporate organisation as well as the formal strategy that the organisation develops is important to the facilitation of internal entrepreneurship. Certain critical organisational factors must also exist and be perceived by middle-managers to develop entrepreneurial behaviours and pursue entrepreneurial activities.

Kanter (2004:152) argues that middle-managers can make a pivotal contribution to innovation and change in large organisations. Top leaders' general directives to open a new market, improve quality, or cut costs mean nothing without efficient middle-managers just below officer level able to design the systems, carry out the plans, and redirect their staffs' activities accordingly.

Furthermore, because middle-managers have their fingers on the pulse of operations, they can also conceive, suggest, and set in motion new ideas that top managers may not have thought of (Kanter, 2004:152).

With the assistance of delegated officials at the different mining companies, the survey questionnaire was sent to approximately 600 middle-managers. Of those who received the questionnaire 129 responded favourably (notwithstanding several follow-ups). Of the 129 completed questionnaires received, 103 (Annexure E) could be used and 26 (Annexure F) had to be discarded due to corrupt data.

(Refer to chapter 1 section 1.8 for motivating the number of respondents as acceptable in the context of this study.)

7.5.1 The survey questionnaire

The author named the questionnaire “Entrepreneurial Climate Questionnaire” (See annexure C), and consists of three parts, namely:

- **Part 1: Biographical information** – For purposes of determining possible correlations between biographical information and opinions expressed in the survey, respondents had to supply their employer, department, age group and gender.
- **Part 2: Self- and superior-assessment** – This part served as introduction to stimulate thought, and respondents had to assess themselves and their superiors on a scale of 1 to 4 in terms of typical entrepreneurial characteristics. It also served to gain understanding of respondents’ entrepreneurial inclination.
- **Part 3: Climate questionnaire** – For the purpose of determining the entrepreneurial climate in the organisation.

7.5.2 Part 1: Biographical information

Part 1 of the survey questionnaire consisted of biographical information where respondents had to indicate the company they work for, the department they work in, the age group they fall in, and their gender.

Respondents by employer are depicted in figure 7.1; by department in figure 7.2; by age group in figure 7.3, and; by gender in figure 7.4.

Figure 7.1: Respondents by employer

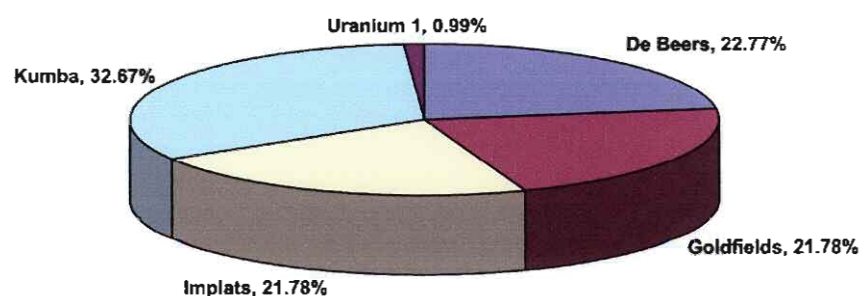
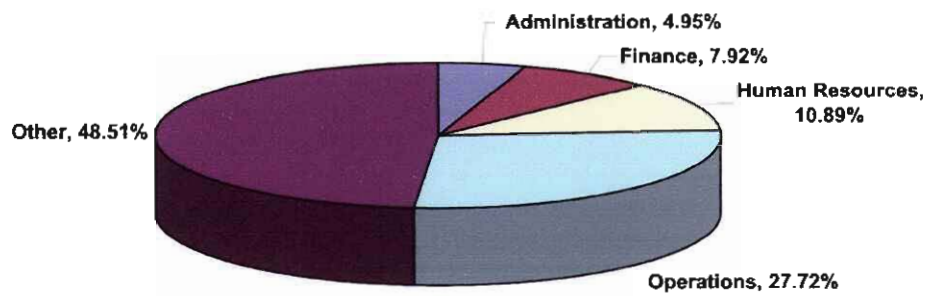


Figure 7.2: Respondents by department



True to a mining environment, the majority of respondents came from operational functions. "Other" is the combination of smaller functionality groupings, e.g. safety, ventilation, survey and sampling.

Figure 7.3: Respondents by age group

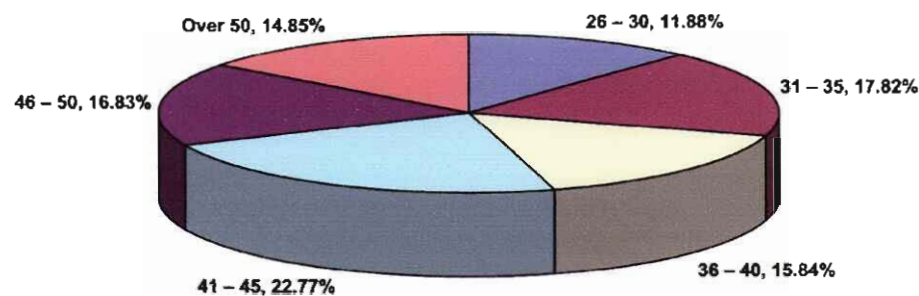
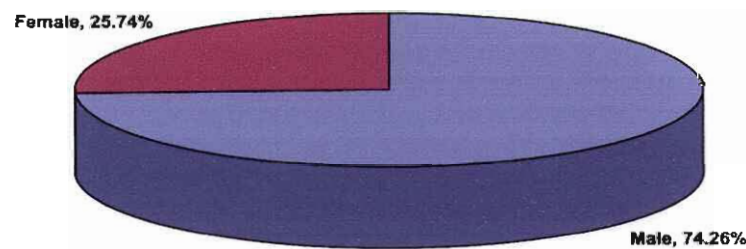


Figure 7.4: Respondents by gender



7.5.3 Part 2: Self- and Superior-assessment

Part 2 of the questionnaire served the following purpose:

- To sensitise respondents and stimulate thought for the climate assessment.

- For respondents to evaluate the strength of his/her entrepreneurial characteristics/competencies.
- For respondents to evaluate the strength of his/her superior's entrepreneurial characteristics/competencies.

Respondents had to evaluate the strength of their entrepreneurial competencies by indicating the number that best represents how well each of the characteristics applies to them, using a scale from 1 to 4, where 1 shows the competency is weak and 4 shows the competency is strong.

Respondents then had to evaluate the strength of their superiors' entrepreneurial competencies by indicating the number that best represents how well each of the characteristics applies to their superiors, using a scale from 1 to 4, where 1 shows the competency is weak and 4 shows the competency is strong.

The 20 characteristics/competencies respondents had to evaluate were taken from the Kauffman Centre for Entrepreneurial Leadership "FastTrac" Planning Workbook (1999:2) self-assessment exercise, the majority of which were also discussed under characteristics of an entrepreneur in chapter 2.

The findings of part 2 of the survey is depicted in table 7.1 on the next page.

Table 7.1: Self- and Superior-assessment for entrepreneurial characteristics findings

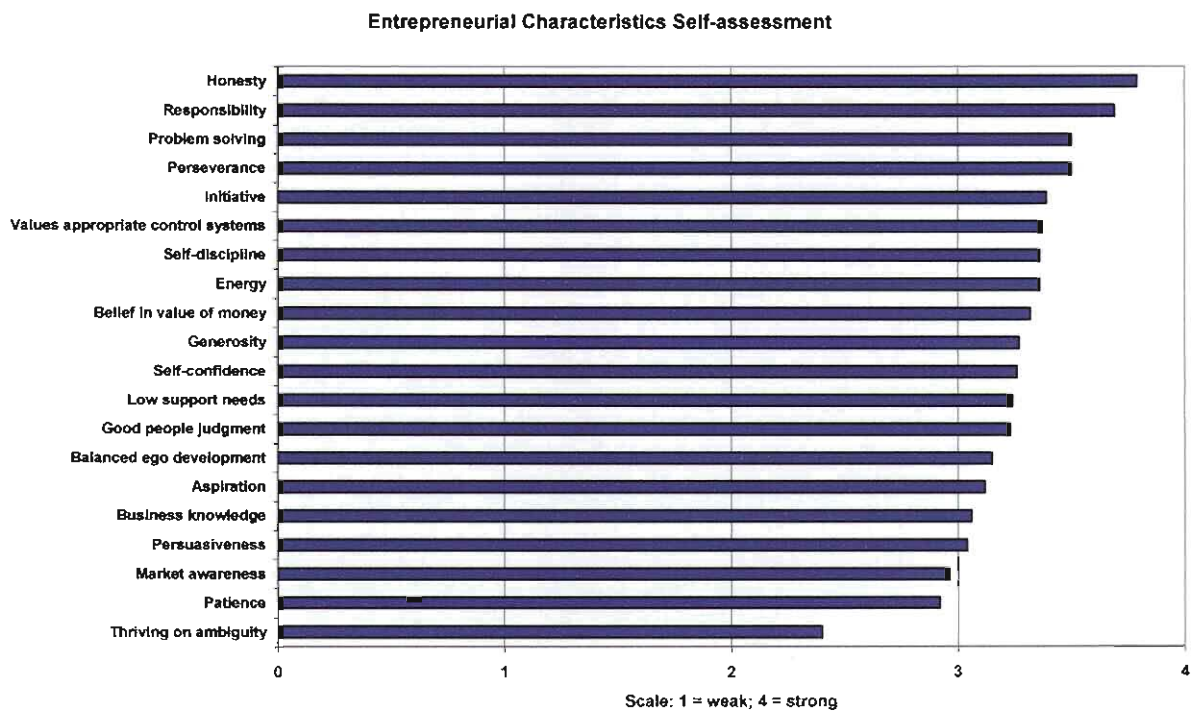
No	Competency / Characteristic	Self-assessment		Superior-assessment	
		Mean	STD	Mean	STD
1	Aspiration	3.12	0.69	3.32	0.65
2	Initiative	3.39	0.66	3.34	0.73
3	Energy	3.36	0.64	3.24	0.72
4	Low support needs	3.24	0.74	3.05	0.86
5	Thriving on ambiguity	2.40	0.88	2.66	0.91
6	Perseverance	3.50	0.59	3.26	0.69
7	Responsibility	3.69	0.53	3.50	0.69
8	Problem solving	3.50	0.61	3.37	0.74
9	Persuasiveness	3.04	0.70	3.23	0.77
10	Self-discipline	3.36	0.58	3.36	0.79
11	Belief in value of money	3.32	0.66	3.44	0.61
12	Self-confidence	3.26	0.72	3.41	0.76

No	Competency / Characteristic	Self-assessment		Superior-assessment	
		Mean	STD	Mean	STD
13	Balanced ego development	3.15	0.64	3.13	0.73
14	Market awareness	2.96	0.70	3.55	0.61
15	Generosity	3.27	0.66	2.99	0.86
16	Honesty	3.79	0.48	3.33	0.86
17	Good people judgment	3.23	0.72	3.02	0.84
18	Patience	2.92	0.82	2.90	0.91
19	Business knowledge	3.06	0.59	3.58	0.59
20	Values appropriate control systems	3.37	0.64	3.35	0.66

7.4.3.1 Self-assessment findings

The findings of the self-assessment is depicted in figure 7.5 below and ranked in order from highest to lowest score.

Figure 7.5: Self-assessment for entrepreneurial characteristics (In order of highest to lowest score)



In general, it can be viewed that middle-managers have the ability to behave in an entrepreneurial way because the majority of characteristics fall within the acceptable range of 3 to 4. This is not to imply that all is well and that an attitude of complacency should prevail. Ultimately, the goal should be to be rated “strong” (4) in all the characteristics or competencies.

Characteristics in the top quartile are honesty, responsibility, perseverance and problem solving. Characteristics in the bottom quartile, that pose some concern for entrepreneurial behaviour to manifest in the organisation, are business knowledge, persuasiveness, market awareness, patience and tolerance for ambiguity.

The low-scoring competencies deserve further explanation to get an understanding of their importance for entrepreneurial behaviour to manifest in a corporate setting.

Business knowledge: Lack of business knowledge could well lead to failures in corporate entrepreneurial endeavours. There is a tremendous body of knowledge to be acquired in any endeavour in a corporate setting, and an intrapreneur must have the ability to holistically integrate the different business functions i.e. money, markets, machines, material, methods, man and information. For example, disaster is certain for people who do not know how to establish needed control systems. The intrapreneur should know how to control costs, control inventories, control cash, and control people. Good businesses are controlled economic activities.

Persuasiveness: Successful intrapreneurs are usually persuasive people. They must persuade others in the organisation to do all sorts of things for them, such as making resources available, provide information, join their team and work for them. An intrapreneur must be able to persuade people to do what he or she wants them to do. If a person is not adept at the art, then he or she should make certain to have someone on the team who is. Negotiation is a key element of persuasion and intrapreneurs must persuade the other party to make the deals they want – the deals they need. They must sell their ideas to the other person.

Market awareness: Intrapreneurs are aware of what is going on in the market. They are attuned to it. They take their directions from the market. Some people claim that perhaps an entrepreneur's most significant discriminating characteristic is his or her sensitivity to market opportunities. It

is true that many people can be surrounded with tremendous market opportunities yet fail to perceive their existence. One mark of intrapreneurs is that at every turn they see an opportunity to create value.

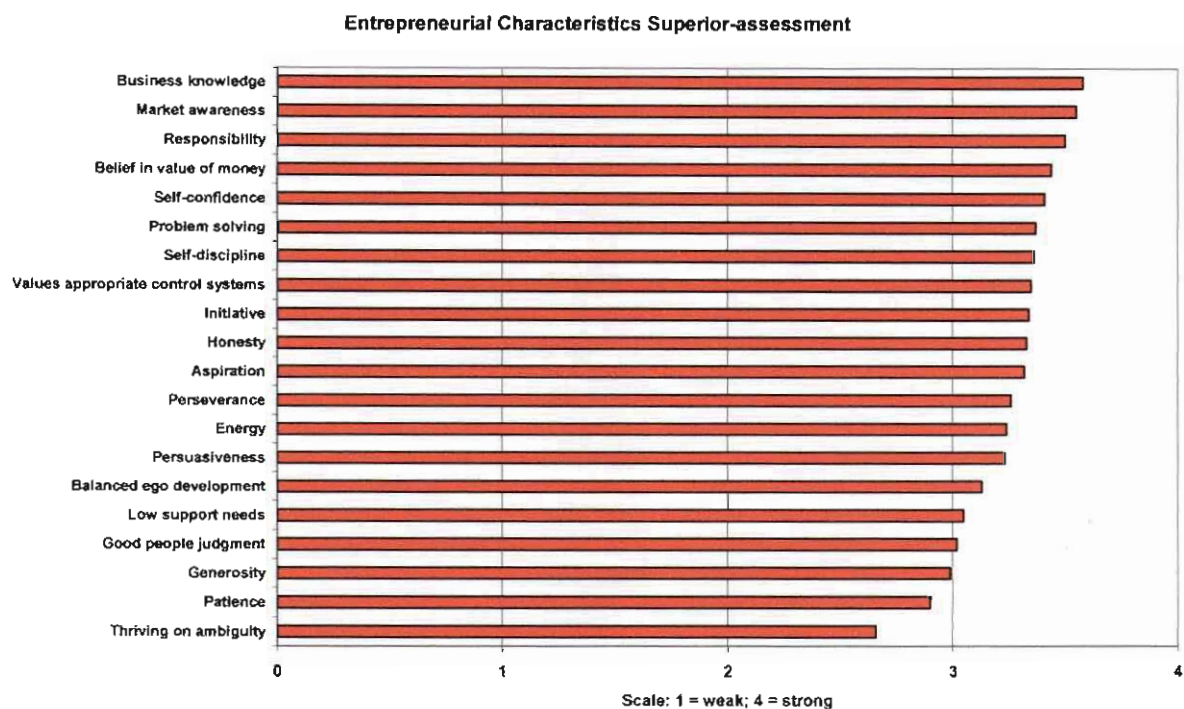
Patience and *tolerance for ambiguity* will be discussed in the comparison between self- and superior assessment, as these two characteristics scored the lowest on both assessments – a correlating deficiency in both areas.

Although marginal development is required in some areas, more radical development is required in others, especially those competencies in the lowest quartile.

7.4.3.2 Superior-assessment findings

The findings of the superior-assessment is depicted in figure 7.6 below and ranked from highest score to lowest score.

Figure 7.6: Superior-assessment for entrepreneurial characteristics (In order of highest to lowest score)



In general, it can be viewed that middle-managers' superiors also have the ability to behave in an entrepreneurial way because the majority of characteristics also fall within the acceptable range of 3 to 4. Again, it is emphasised that this is not to imply that all is well and that an attitude of complacency should prevail. Ultimately, the goal should be to be rated "strong" (4) in all the characteristics or competencies.

Characteristics in the top quartile are business knowledge, market awareness, responsibility, belief in value of money and self-confidence. At first glance one is tempted to offset the superiors' high scores on business knowledge and market awareness against the middle-managers' low scores in those two competencies, in other words that the superiors perceived ability to be good in those areas make up for the middle-managers perceived inability in those areas. Such an approach would underwrite a reactive position of middle-managers to think, act and behave in an entrepreneurial way, because that would imply dependence on the superior in pursuance of intrapreneurial activities.

Characteristics in the bottom quartile, that pose some concern for entrepreneurial behaviour to manifest in the organisation, are good people judgment, low support needs, generosity, patience, and tolerance for ambiguity.

The low-scoring competencies deserve further explanation to get an understanding of their importance for entrepreneurial behaviour to manifest in a corporate setting.

Good people judgement: It is difficult to be successful in an intrapreneurial venture without help. We need other people – fellow employees, subordinates and superiors. Yet, many failures can result from misjudging other people. People often do not live up to expectations, and the ability to select the right people is a very valuable skill. Characteristics in people that are irrelevant to the tasks they are supposed to do should be ignored. Focus should be on skills, not on appearances. Above all, put a high premium on integrity.

Regardless of a person's skills, if integrity is lacking, little good will come from the association.

Low support needs: When people work for the typical large corporation, they are surrounded with others to support their activities. They have secretaries, researchers, accountants, and all sorts of staff to assist them in their "normal" job functions. Intrapreneurs must more than often cope with little support due to the nature and extent of the project parameters that might be beyond the scope of the "normal" day to day operations. An inability to drive the project with little support may lead to "throwing in the towel" and subsequently jeopardise success.

Generosity: In an attempt to secure success in an intrapreneurial venture, intrapreneurs might be tempted to take short-run actions that could sacrifice long-run success. Greed can take on many forms, e.g. not sharing the success with the rest of the team; taking all the recognition for oneself; "walking over others."

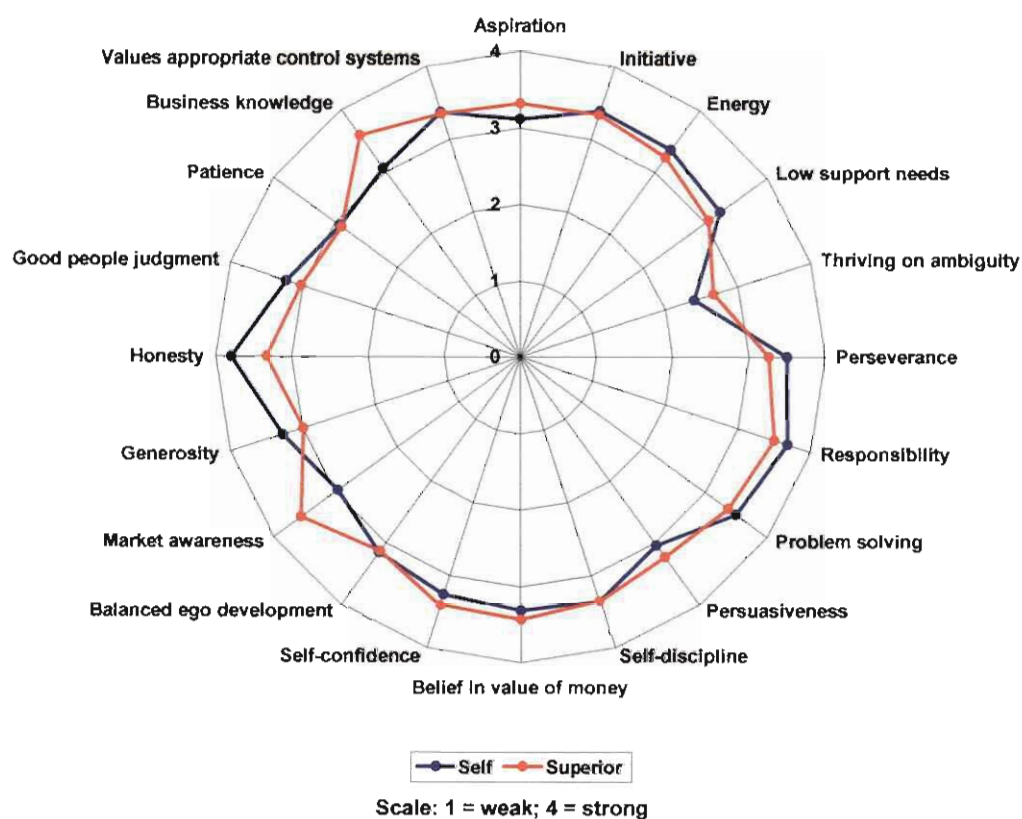
Intrapreneurs must share their successes with their teams. They must give recognition and reward those who helped to achieve success. They must be willing to share resources, give their time and talents to help others reach their goals, and be willing to share knowledge and information to other teams.

Patience and tolerance for ambiguity will be discussed in the comparison between self- and superior assessment, as these two characteristics scored the lowest on both assessments – a correlating deficiency in both areas.

7.4.3.3 Comparison between self- and superior assessment

In order to determine how middle-managers' perceptions of themselves compared to their perceptions of superiors in terms of entrepreneurial characteristics or competencies, both sets of scores were plotted on a spider diagram and presented in a radar graph in figure 7.7 below, and displays the changes in values relative to the centre point (lowest possible score).

Figure 7.7: Comparison of self- and superior assessment



The competencies in which middle-managers perceived themselves higher than their superiors are initiative, energy, low support needs, perseverance, responsibility, problem solving, balanced ego development, generosity, honesty and good people judgement.

The competencies in which middle-managers perceived themselves lower than that of their superiors are aspiration, thriving on ambiguity, persuasiveness, self-discipline, belief in value of money, self-confidence, market awareness and business knowledge.

The competencies in which middle-managers perceived themselves on par with that of their superiors are patience and value of appropriate control systems.

The two competencies that scored the lowest in both assessments, and need more explanation, are tolerance for ambiguity and patience.

Tolerance for ambiguity: Intrapreneurs face uncertainty compounded by constant changes that introduce ambiguity and stress into every aspect of the enterprise. Setbacks and surprises are inevitable; lack of initial organisation, structure, and order is common. An intrapreneur must exist and prosper in an environment that is confusing and has few answers. There are so many alternatives from which to choose; which to select and which not to. Many people cannot work in unstructured environments that continually challenge them with many confusing clues about what to do.

Entrepreneurs are comfortable in ambiguous situations, because they present great opportunities for exploitation, and act with confidence that somehow they will find ways to cope with whatever problems they encounter.

Patience: It often takes a long time to develop a new venture, business process, system or the like. It may take a year to perfect a new product, process or system, and that delay may cause an intrapreneur to grow impatient.

Despite all the pushing, it still takes time for the results to manifest themselves. Just because the intrapreneur is working hard and driving towards the objective, does not mean results will automatically land at his/her feet. He/she may have to work hard for months on end before seeing results from the efforts. The wise intrapreneur simply cannot allow eagerness to overrule good business judgment. Patience can be learned, and once intrapreneurs accept that certain things or people take longer than expected, it will reduce anxiety.

7.5.4 Part 3: Climate Survey

The literature review identified thirteen dimensions for a climate conducive to corporate entrepreneurship, and using the Likert scale five statements for each dimension were randomised and put to respondents, thus resulting in a total of sixty-five statements.

In respect of each statement respondents have to indicate their degree of agreement or disagreement with its content on a four point scale by selecting the relevant block using the following key:

- 1 = Strongly disagree.
- 2 = Slightly disagree.
- 3 = Slightly agree.
- 4 = Strongly agree.

Using the four-point Likert scale, the respondents indicated the extent to which they agreed or disagreed with 65 statements regarding the thirteen dimensions that was explained theoretically. The findings of the survey are shown in table 7.2 below.

Table 7.2: Entrepreneurial climate survey results

	CONSTRUCT	N	Mean	STD	Cronbach's α
1	Entrepreneurial Leadership	103	2.72	0.73	0.83
2	Management Support	103	2.56	0.60	0.71
3	Sponsors (Champion)	103	2.60	0.63	0.77
4	Tolerance for risks, mistakes and failure	103	2.73	0.53	0.62
5	Innovation and creativity / New ideas encouraged	103	2.76	0.63	0.80
6	Appropriate rewards and reinforcement	103	2.65	0.71	0.82
7	Vision and strategic intent	103	2.91	0.69	0.84
8	Discretionary time and work	103	2.84	0.71	0.85
9	Empowered teams / Multi-disciplined teamwork and diversity	103	2.54	0.64	0.74
10	Resource availability and accessibility	103	2.31	0.66	0.80
11	Continuous- and cross-functional learning	103	2.79	0.61	0.81
12	Strong customer orientation	103	2.75	0.69	0.85
13	Flat organisational structure with open communication and strong sense of belonging	103	2.56	0.69	0.79

- N represents the number of people in the selected sample that completed the questionnaire and whose data could be used.
- Mean represents the average score on the original 4-point scale of the questionnaire.

- STD represents the standard deviation from the mean – an indication of the extent of agreement between respondents. The lower the score, the higher the agreement.
- Cronbach's α represents the internal consistency between the variables in the questionnaires and is based on the average correlation of variables within the questionnaire. The internal consistency between the variables in the questionnaire is subsequently deemed acceptable because it varies from a high of 0.85 to a low of 0.62.

To test for response bias, four of the participating mines' respondents were compared with respect to their opinions expressed and ANOVAs found statistically significant differences on ten of the thirteen of the factors (See table 7.3). In this instance the factors not showing significance are appropriate rewards, continual, cross-functional learning, and strong customer orientation.

Table 7.3: Test for response bias (ANOVA)

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>
Entrepreneurial Leadership	10.11	3	3.37	7.49	0.00*
Management Support	2.97	3	0.99	2.91	0.04*
Sponsors (Champion)	4.29	3	1.43	3.83	0.01*
Tolerance for risks, mistakes & failure	3.02	3	1.01	3.82	0.01*
Innovation & creativity / New ideas encouraged	5.89	3	1.96	5.67	0.00*
Appropriate rewards & reinforcement	2.22	3	0.74	1.46	0.23
Vision & strategic intent	3.61	3	1.20	2.62	0.05*
Discretionary time & work	3.98	3	1.33	2.74	0.05*
Empowered teams (Multi-disciplined & diverse)	3.37	3	1.12	2.90	0.04*
Resource availability & accessibility	3.80	3	1.27	3.09	0.03*
Continuous- & cross-functional learning	1.34	3	0.45	1.21	0.31
Strong customer orientation	3.50	3	1.17	2.56	0.06
Flat, open organisational structure	7.88	3	2.63	6.32	0.00*

**ANOVA statistically significant at 0.05 alpha level*

To test for practical significance between the four mining companies, the effect sizes were calculated using Cohen's " d " and presented in table 7.4. Thalheimer and Cook (2002) explain the relative size of Cohen's d as: negligible effect (≥ -0.15 and <0.15); small effect (≥ 0.15 and <0.40); medium

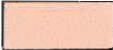
effect (≥ 0.40 and < 0.75); large effect (≥ 0.75 and < 1.10); very large effect (≥ 1.10 and < 1.45); and, huge effect > 1.45).

Cohen (1988:25) hesitantly defined effect sizes as “small, $d = 0.2$,” “medium, $d = 0.5$,” and “large, $d = 0.8$ ”, stating that there is a certain risk inherent in offering conventional operational definitions for those terms for use in power analysis in as diverse a field of inquiry as behavioural science.

Table 7.4: Test for practical significance

Effect sizes between:	De Beers & Gold Fields	De Beers & Implats	De Beers & Kumba	Gold Fields & Implats	Gold Fields & Kumba	Implats & Kumba
	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>
Entrepreneurial Leadership	0.90	0.19	1.40	0.57	0.19	0.85
Management Support	0.31	0.14	0.81	0.17	0.36	0.60
Sponsors (Champion)	0.42	0.08	0.76	0.45	0.28	0.77
Tolerance for risks, mistakes & failure	0.56	0.48	0.95	0.11	0.31	0.45
Innovation & creativity / New ideas encouraged	0.33	0.07	1.10	0.24	0.59	0.91
Appropriate rewards & reinforcement	0.06	0.07	0.43	0.01	0.43	0.45
Vision & strategic intent	0.16	0.38	0.40	0.49	0.19	0.74
Discretionary time & work	0.22	0.07	0.64	0.29	0.38	0.70
Empowered teams (Multi-disciplined & diverse)	0.15	0.04	0.71	0.11	0.47	0.62
Resource availability & accessibility	0.56	0.60	0.85	0.01	0.24	0.23
Continuous- & cross-functional learning	0.10	0.00	0.43	0.10	0.33	0.42
Strong customer orientation	0.25	0.26	0.75	0.03	0.41	0.49
Flat, open organisational structure	0.46	0.38	1.32	0.09	0.60	0.74

Key as per Thalheimer and Cook (2002):

	Negligible effect (≥ -0.15 and < 0.15) – Negligible possibility exists in practice
	Small effect (≥ 0.15 and < 0.40) – Small possibility exists in practice
	Medium effect (≥ 0.40 and < 0.75) – Medium possibility exists in practice.
	Large effect (≥ 0.75 and < 1.10) – Large possibility exists in practice.
	Very large effect (≥ 1.10 and < 1.45) – Very large possibility exists in practice.

The very large effect for De Beers and Kumba comparison on the entrepreneurial leadership construct, for example, can be ascribed to the fact

that Kumba middle-managers' have a substantially higher collective level of agreement in terms of their perception of the five statements made to measure the construct, compared to the perceptions of the De Beers middle-managers, who had a substantially lower collective level of agreement. In other words, the noticeable difference in perception in terms of:

- The extent to which their leaders take a long-term view of the organisation and articulate the vision to all levels of the organisation.
- The extent to which their leaders challenge the status quo and inspire them to think, reason and act in innovative ways.
- The extent to which their leaders have a good balance between concern for production and concern for people.
- The extent to which their leaders lead by example and people are eager to voluntarily follow them.
- The extent to which their leaders seek to maximise value from opportunity without constraint to existing models, structures or resources.

7.5.4.1 *Entrepreneurial climate findings*

The survey embodies respondent's collective perceptions about the mining industry with respect to the thirteen characteristics conducive for an entrepreneurial climate as a result of their interaction that serves as a basis for interpreting the situation, and reflects the prevalent norms and attitudes of the industry's culture.

The findings of the survey are graphically depicted in two graphs, namely:

- As a radar graph in figure 7.8 to display the changes in values relative to the lowest point, and provides an overview of the status quo.
- As a clustered bar chart in figure 7.9 that compare the values across the constructs ranked from highest to lowest score.

Figure 7.8: Entrepreneurial climate analysis (Radar graph)

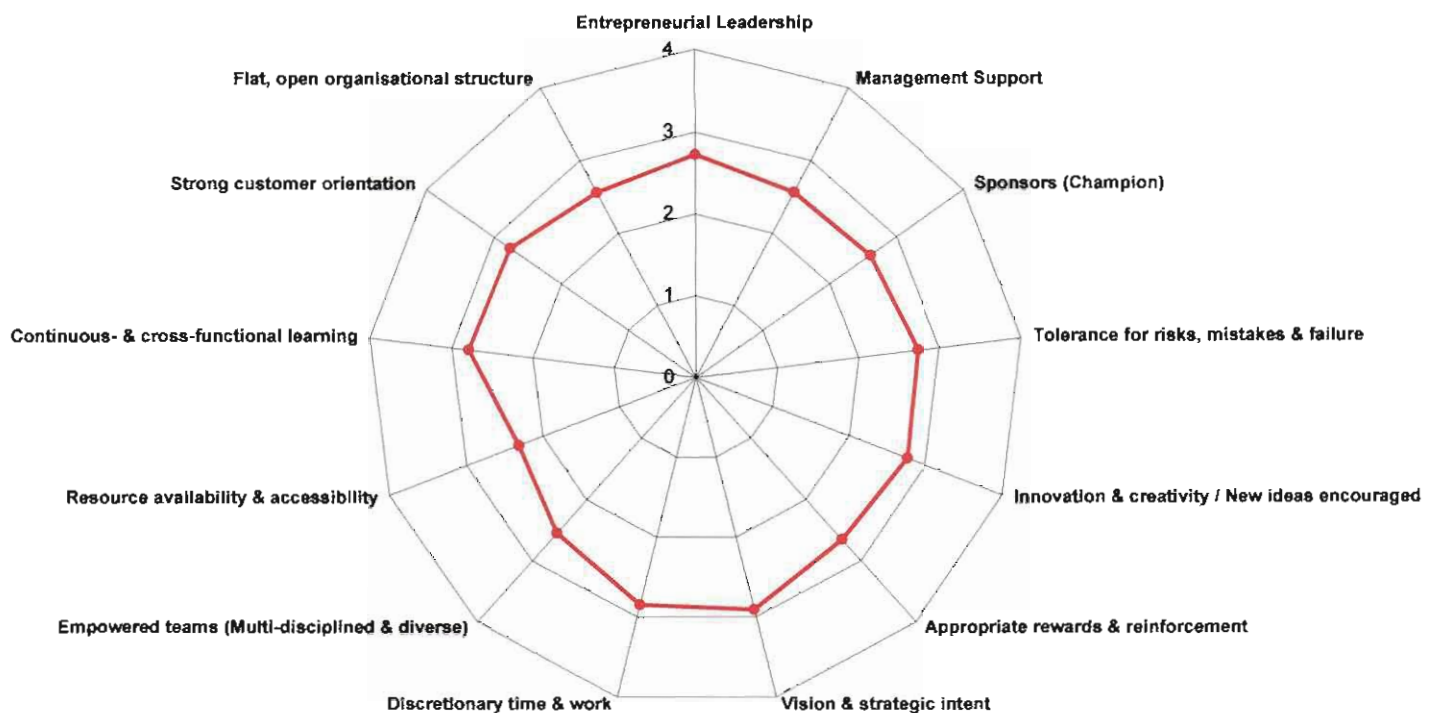
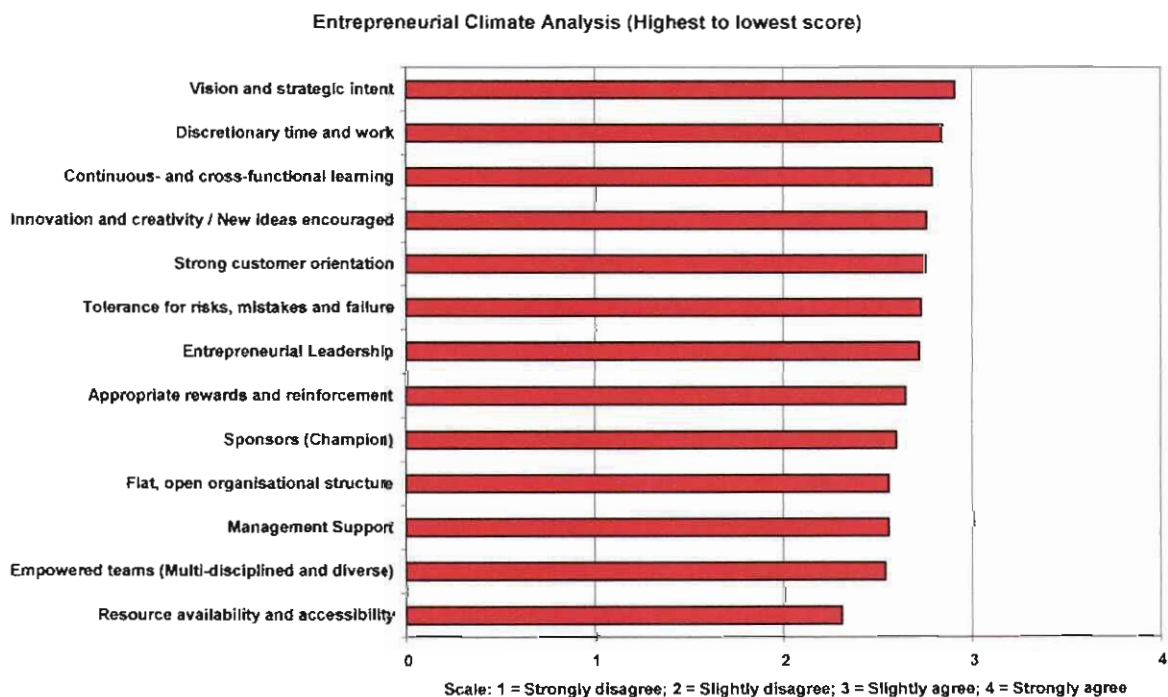


Figure 7.9: Entrepreneurial climate analysis (Clustered bar chart)



Considering that the highest mean score of 2.93 and lowest means score of 2.33 fall in the range of 2 (slightly disagree) to 3 (slightly agree), the

conclusion is made that the overall climate in the mining industry is not optimally conducive for entrepreneurial behaviour and activity to manifest.

The constructs that were measured are all evidently present, although not at a desired level to enhance and promote entrepreneurialism.

Based on Timmons and Spinelli's (2007:540) proposition that the climate of an existing organisation is critical in how well the organisation will deal with growth, and that the climate of an organisation can have significant impact on performance, South Africa's mining industry could well enhance its growth and performance if it improves its climate to be more conducive to entrepreneurial conduct and behaviour.

Climate is created both by the expectations people bring to the organisation and the practices and attitudes of the key managers. The climate also sustains the enterprise and obviously has an impact on how much the organisation can thrive. Reduce the climatic imperatives and it begins to shrivel.

7.5.4.2 Conclusions derived from each construct

In order to drill down into the findings of the thirteen entrepreneurial climatic imperatives required for an environment where entrepreneurial behaviour can manifest, the following conclusions were derived at:

Entrepreneurial leadership: Although leaders take a long-term view of their organisations the articulation of the vision to all levels of the organisation is seemingly lacking. Leaders evidently challenge the status quo, but the inspiration for employees to think reason and act in innovative ways does not sufficiently filter through. There is furthermore a good balance between concern for production and concern for people by the leaders and they attempt to lead by example. They, however, do not proactively seek to maximise value from opportunity without constraint to existing models, structures or resources.

Management support: Developing ideas for the improvement of the company is not encouraged strongly enough by management, and subsequently top management is not always aware of employees' ideas and suggestions. Obviously this has the effect that those employees who come up with innovative ideas on their own do not receive ample management encouragement and support for their activities. Support for many small and experimental projects – realising that some will undoubtedly fail – does not seem to be a regular occurrence because senior managers do not encourage innovators to bend rigid procedures in order to keep promising ideas on track.

Sponsors: Although there are managers who help employees to get their work done by removing obstacles and roadblocks, originators of new ideas find it difficult to implement because of the lack of influential people to support them. People with influence that support, coach, protect, and find resources for an intrapreneurial project and its team are therefore a scarcity, which is further constrained because of a lack of managers who have the skills, power, commitment, and courage to be effective sponsors of intrapreneurial initiatives. Building coalitions of active sponsors to help projects succeed is also difficult.

Tolerance for risks, mistakes and failure: Mining companies evidently take calculated risks at times, even some big risks occasionally to keep ahead of the competition. Although practical experimentation by employees is acceptable and mistakes are allowed to an extent, projects involving risk and unpredictability are not necessarily highly valued, because of its often ambiguous nature.

Innovation and creativity / New ideas encouraged: Although mining companies in general do provide some opportunity for employees to be creative and try their own methods of doing the job, the desire among people for generating new ideas are marginal because people are not actively inspired to push their boundaries and to think “out-of-the-box.” Innovative and new ideas are subsequently not a regular occurrence and organisations are

not quick to respond to improved work methods that are developed by workers.

Appropriate rewards and reinforcement: Recognition and rewards do occur in the mining industry, specifically in relation to job performance. Individuals with successful innovative projects also receive additional rewards and compensation for their ideas in some instances. However, in terms of rewarding effective intrapreneurs it is concluded that the recognition and rewards often do not correlate with the value added by the innovation.

Vision and strategic intent: In the mining industry organisational vision and strategies are usually relatively clear to middle-managers; whether the announced visions and strategies inspire them is a different matter, and what the vision and strategy mean on a departmental level is questionable. Management decisions are regarded as being marginally aligned and supportive to the vision and strategies which in turn does not significantly impact in helping middle-managers to set priorities.

Discretionary time and work: People are given some opportunity for independence and freedom in how they do their work – having some autonomy on the job and left on their own to do their own work. Freedom to use some of their time to safely divert from assigned tasks to explore new ideas without having to ask for permission also occurs, but given the free time to develop an idea further can be regarded as only marginally acceptable for effective corporate entrepreneurship.

Empowered teams / Multi-disciplined teamwork and diversity: Working in teams is a common occurrence in the mining industry. As a matter of fact very little takes place beyond the scope of teamwork. However, cross-functional project teams have limited freedom to make decisions and act on them without needing to ask for permission, and often experience interference from functional Superiors who are not part of the team. Choices in recruiting and selecting new team members for cross-functional teams are seemingly not characterised by diversity based on project skills requirements, and

subsequently cross-functional teams or cross-business-unit teams are not utilised effectively.

Resource availability and accessibility: Resources are not always readily available and accessible in pursuance of new ideas and opportunities, nor is attracting resource commitment for entrepreneurial ventures regarded as easy. Options for individuals to get financial support for their innovative projects and ideas are limited, and processes for accessing and acquiring resources to pursue new opportunities are cumbersome and slow in approval.

Continuous- and cross-functional learning: Although the mining industry provides ample opportunities for learning and growth, and employees are encouraged to stay abreast of developments in their functional fields, the sharing of their knowledge across functions is limited. People are not necessarily keen to share knowledge across departments or functional boundaries, and talking to employees in other departments about ideas for new projects is not actively encouraged. Subsequently, spending time and resources helping others outside their area in ways that are not part of their assigned responsibilities is therefore not a regular theme.

Strong customer orientation: It is understandable that the involvement of customers in service and product development is limited due to the unique nature of mining operations. Nevertheless, discarding the importance of having a strong customer orientation by middle-management would be detrimental to mining companies' longevity. Whether it is gold, platinum, diamonds, coal, iron ore or uranium, all have customers whose needs must be met in order to retain them. It is, however, doubtful whether the mining industry's product and service innovation are driven by a strong customer orientation, and whether sufficient resources are spent in determining customer needs and satisfaction. Customers should be treated as very important stakeholders and not just another transaction to be processed.

Flat organisational structure with open communication and strong sense of belonging: Making decisions without going through elaborate

justification and approval procedures are still a challenge in the mining industry, although attempts are made to foster open communication structures in which all employees participate. Subsequently the degree of hierarchical control is in many instances still elaborative. In terms of specific value systems which employees know and live up to, it is clear that mining companies are actively pursuing it. It was also found that people are in general satisfied with their jobs (barring the issues constraining entrepreneurial behaviour to manifest as discussed) and do not resign easily.

7.6 SUMMARY

The empirical study consisted of a qualitative part and a quantitative part. The qualitative part consisted of interviews with five prominent leaders in the mining industry. The quantitative part consisted of a survey questionnaire that attempted to measure the entrepreneurial climate in the industry based on thirteen constructs identified from the literature review.

From the interviews it became evident that leaders agree that corporate entrepreneurship can address lack of innovation and slow growth, although regarded as not an easy feat. Forming part of overall strategy and executed through proper process and in a structured way will lead to a dynamic organisation.

It was also agreed that mining companies are not particularly good in harnessing the ideas of its employees and much can be done to unlock operational management's capacity, and creating the space for individuals to act entrepreneurially.

There are fundamental challenges facing the industry of which some can be influenced and others not. Constraints in terms of the regulatory framework were also highlighted.

From the self- and superior-assessments in terms of entrepreneurial characteristics/competencies, it is viewed that middle-managers and their

superiors in general have the ability to behave in entrepreneurially. All is however not well and complacency should therefore not prevail. Ultimately, the goal is to be strong in all the characteristics or competencies discussed if corporate entrepreneurship is to flourish.

Characteristics of the self-assessments that need to be developed are business knowledge, persuasiveness, market awareness, patience and tolerance for ambiguity. Characteristics of the superior-assessment that need development are good people judgment, low support needs, generosity, patience, and tolerance for ambiguity.

In terms of the entrepreneurial climate in the mining industry the conclusion is made that the overall climate in the mining industry is not optimally conducive for entrepreneurial behaviour and activity to manifest. The constructs that were measured are all evidently present, although not at a desired level to enhance and promote entrepreneurialism.

With commitment to the corporate entrepreneurship theme by leaders in the industry and translating that commitment into an awe-inspiring vision that influences buy-in and ownership from middle-management, the climate can definitely be enhanced. In the next chapter conclusive remarks are made based on the empirical study, and recommendations presented to improve the status quo.

CHAPTER 8

CONCLUSIONS & RECOMMENDATIONS

8.1 INTRODUCTION

The continual search for new organisational forms is driven by basic changes in the nature of competition and the economy. First, advantage today is derived less from the management of physical and financial assets and more from how well companies align such intangible assets as knowledge workers, R&D, and IT to the demands of their customers. Second, the opportunities and challenges that globalisation affords are forcing companies to revisit many assumptions about the control and management of both their physical and their intangible assets (Kaplan & Norton, 2006:102).

In this light corporate entrepreneurship is presented and recommended to the mining industry as antidote to large company staleness, lack of innovation, stagnated growth and the sluggishness that often overtakes mature companies.

However, establishing corporate entrepreneurship as dominant theme is a strategic decision and not something that happens overnight. Nevertheless, a journey of a thousand miles begins with one single step, and the intent of this chapter is to propose ways for mining companies (who truly desire it), to take the first steps toward creating a climate conducive for entrepreneurship and liberating the entrepreneurial spirit of its employees.

8.2 CONCLUSION SYNOPSIS

Although the findings of the empirical study were discussed at length in the previous chapter, summarised conclusions are presented to serve as basis for recommendations posed later on in this chapter. The conclusions provide a useful “snapshot” of the entrepreneurial climate in the mining industry, and highlight a number of concerns that inhibit internal entrepreneurial climatic imperatives.

8.2.1 Conclusions from CEO interviews

Following the interviews conducted with CEOs from five major mining companies the following conclusions are made:

- Corporate entrepreneurship can indeed be a way of addressing lack of innovation and slow growth, although not easy to pursue due to cumbersome external challenges.
- Corporate entrepreneurship is not regarded as an oxymoron, but rather an imperative for growth that should form part of the overall strategy, and if executed through proper process and in a structured way will lead to a dynamic organisation.
- The mining industry is not particularly good in harnessing the ideas of its employees and mechanisms should be instituted to improve this.
- The industry's performance could be improved, but a number of political and economic constraints pose great challenges.
- In terms of addressing the challenges facing the industry there are factors like the exchange rate and the gold price that can't be influenced. Areas that could, however, be influenced include efficiency, productivity, technology, work practices, training and development, accountability, unmined and unexplored reserves, and management practices.
- The perceived rigid and bureaucratic constraints by Government need urgent address.
- In terms of the prevalence of innovativeness, risk-taking, proactiveness, competitive aggressiveness and autonomy, there are evidently successes and failures in these aspects in the mining industry – more prevalent in some mining companies and less prevalent in others.
- Creating an entrepreneurial organisation is achievable through enablement, empowerment and support for innovative thinking that starts at board level.
- Leaders should minimise bureaucratic impact by unlocking operational management's capacity to manage, and creating the space for individuals to act. The role of leadership in creating the climate in an organisation is fundamental.

8.2.2 Conclusions on entrepreneurial characteristics/competencies

Following the self- and superior assessment pertaining entrepreneurial characteristics/competencies, the following conclusions are made:

- In general middle-managers have the potential to behave in an entrepreneurial way.
- Characteristics that pose some concern for entrepreneurial behaviour to manifest in the organisation are business knowledge, persuasiveness, market awareness, patience and tolerance for ambiguity.
- In general middle-managers' superiors have the potential to behave in an entrepreneurial way.
- Characteristics that pose some concern for entrepreneurial behaviour to manifest in the organisation are good people judgment, low support needs, generosity, patience, and tolerance for ambiguity.
- Subsequently all is not well and an attitude of complacency should not prevail. Ultimately, the goal should be to be rated "strong" in all the characteristics or competencies.

8.2.3 Conclusions on entrepreneurial climate

Following the climate questionnaire that analysed the thirteen constructs conducive for entrepreneurial activity and behaviour, the following conclusions are made:

- The overall climate in the mining industry is not optimally conducive for entrepreneurial behaviour and activity to manifest.
- The constructs that were measured are all evidently present, although not at a desired level to enhance and promote entrepreneurialism.
- Although leaders take a long-term view of their organisations the articulation of the vision to all levels of the organisation is seemingly lacking. Proactively seeking to maximise value from opportunity without constraint to existing models, structures or resources is lacking.

- Developing ideas for the improvement of the company is not encouraged strongly enough by management, and top management is not always aware of employees' ideas and suggestions. Support does not seem to be a regular occurrence because senior managers do not encourage innovators to bend rigid procedures in order to keep promising ideas on track.
- Although there are managers who help employees to get their work done by removing obstacles and roadblocks, originators of new ideas find it difficult to implement because of the lack of influential people to support them.
- Mining companies clearly take calculated risks at times, and practical experimentation by employees is acceptable and mistakes are allowed to an extent.
- Although mining companies in general do provide some opportunity for employees to be creative and try their own methods of doing the job, innovative and new ideas are not a regular occurrence and organisations are not quick to respond to improved work methods developed by workers.
- Recognition and rewards do occur in the mining industry, specifically in relation to job performance. Recognition and rewards often do not correlate with the value added by the innovation.
- In the mining industry organisational vision and strategies are usually relatively clear to middle-managers; whether the announced visions and strategies inspire them is a different matter, and what the vision and strategy mean on a departmental level is questionable.
- Freedom to use time to safely divert from assigned tasks to explore new ideas without having to ask for permission also occurs, but given the free time to develop an idea further can be regarded as only marginally acceptable for effective corporate entrepreneurship.
- Cross-functional project teams have limited freedom to make decisions and act on them without needing to ask for permission, and often experience interfering from functional Superiors who are not part of the team.

- Resources are not always readily available and accessible in pursuance of new ideas and opportunities, nor are attracting resource commitment for entrepreneurial ventures regarded as easy.
- Although ample opportunities for learning and growth exist, and employees are encouraged to stay abreast of developments in their functional fields, the sharing of their knowledge across functions is limited. Spending time and resources helping others outside their area in ways that are not part of their assigned responsibilities is therefore not a regular theme.
- It is doubtful whether the mining industry's product and service innovation are driven by a strong customer orientation, and whether sufficient resources are spent in determining customer needs and satisfaction.
- Making decisions without going through elaborate justification and approval procedures are still a challenge in the mining industry. Subsequently the degree of hierarchical control is in many instances still elaborative.

8.2.4 High-level strengths-, weaknesses-, opportunities- and threats- (SWOT) analysis conclusion

A high-level SWOT analysis conclusion of the South African mining industry is presented in below, as derived from the literature study and the empirical study. It is by no means complete, but provides a useful overview in terms of the mining industry's internal strengths and weaknesses, and external opportunities and threats which serve as bases for considering future courses of action.

STRENGTHS (Internal)

- Excellent CEO / top leadership (highly skilled; open-minded; willingness to pursue entrepreneurialism).
- Excellent skills base of mining companies.
- Plethora of unnoticed ideas.
- Emerging talent.
- Entrepreneurial potential.
- Un-mined ore reserves.

- Technological innovation capabilities.
- Competitive aggressiveness.

WEAKNESSES (Internal)

- Entrepreneurial climate not optimally conducive for entrepreneurship to flourish.
- Size and risk profiles of mining companies pose challenges.
- Bureaucracy.
- Overly centralised control.
- Resource base assets under control cause complacency and create a false sense of security.
- Structural impediments.
- Mature gold industry in secular downward trend.
- Management practices.
- Cost of labour and productivity.
- Deep, high-risk mining lead to high cost structures.
- Illiterate people in workforce.
- Lack of innovativeness, risk-taking, proactiveness and autonomy.

OPPORTUNITIES (External)

- Market conditions (current commodity boom).
- New ore discoveries.
- Unexplored and unexploited reserves (opening up new mines).
- Increase in demand for metals.
- Beneficiation to add to industry's earning ability.
- Increased volume output with same people.

THREATS (External)

- Government constraints on business (planned economy versus free market system).
- Corporate governance and administrative load.
- Regulation.
- Rigid labour laws.

- Conditions for investment.
- New minerals legislation.
- Market conditions.
- Exchange rate and commodity prices.
- Price-taking versus price-making.
- Migration of intellectual skills.
- Impact of HIV/AIDS on industry.

First impressions make the scale tilt strongly toward the negative. It is, however, not only doom and gloom; ample strengths and opportunities exist in the South African mining industry to address (and counter) the weaknesses and the threats. As per the theme of this study it is subsequently proposed that the South African mining could build on its strengths; capitalise on its opportunities; remedy its weaknesses; and counter its threats by adopting a stronger corporate entrepreneurial orientation. Hence recommendations in this respect follow.

8.3 RECOMMENDATIONS

The recommendations forthcoming the conclusions are discussed under the following headings:

- Triggering events for corporate entrepreneurship.
- Towards an entrepreneurial climate.
- Not just another management tool or technique.
- Entrepreneurship as dominant logic.
- Integrating entrepreneurship with strategy.
- Strategy for entrepreneurship.
- Structuring for corporate entrepreneurship.
- Entrepreneurial leadership development
- Management innovation development.
- Human resources management.
- An integrated framework for corporate entrepreneurship.

8.3.1 Triggering events for corporate entrepreneurship

Morris and Kuratko (2002:336) propose that the decision to act entrepreneurially occurs as a result of interactions among organisational characteristics, individual characteristics, and some kind of precipitating event. Schindehutte *et al.* (2000:23) call this precipitating event a “trigger”, and provides the impetus to behave entrepreneurially when other conditions are conducive to such behaviour. Examples of triggering events for corporate entrepreneurship are depicted in table 8.1.

Table 8.1: Triggering events for corporate entrepreneurship

• Specific customer request. • Competitor threat or action. • Changes in peoples lifestyles/expectations. • New sales targets. • Public relations/image. • Substitute product or service. • Declining market share. • Declining profits. • Declining sales. • Improved quality control. • Poor quality of an existing product or service. • Rising costs. • Problem with existing logistical performance. • Specific customer complaint. • Supplier request. • Availability of new IT or on-line systems. • Regulatory requirement. • Decreasing size of the market. • New investment by a buyer. • Supplier complaint.	• Senior management initiative. • Personal initiative on the part of one or more employees. • Ongoing innovation program in the firm. • Strategic growth target. • New marketing initiative. • Diversification. • Availability of new equipment. • Availability of new resources. • Availability of new distribution channel or method. • New management. • Perception of increasing risk. • Vertical integration. • Geographical expansion. • Internal opportunities. • Inventory problems. • Staff training. • Horizontal integration. • New investment by a supplier. • Change in accounting practices.

Source: Schindehutte *et al.* (2000:23).

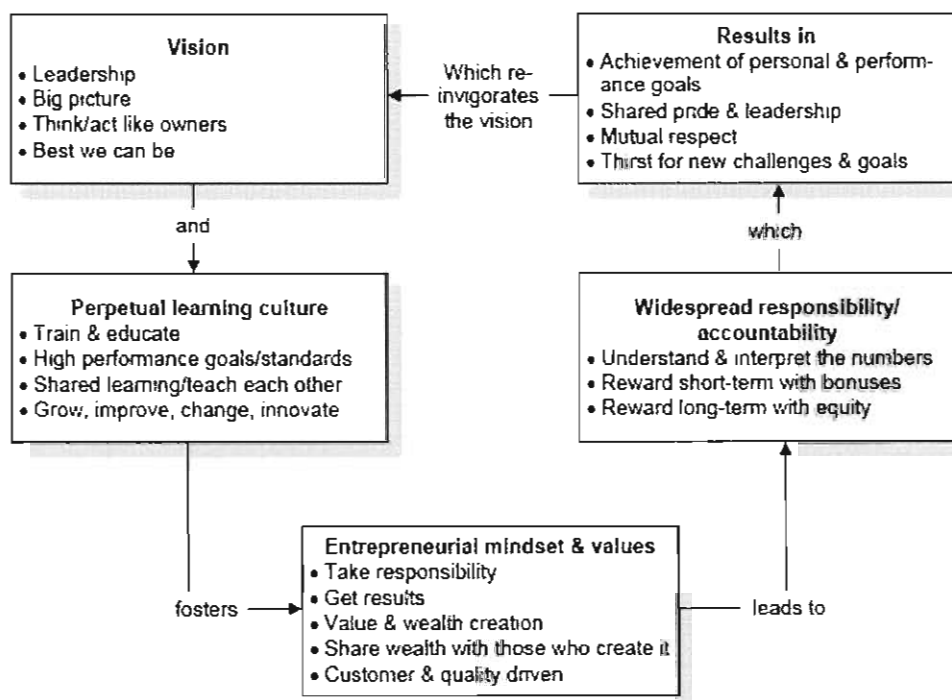
From the examples of triggering events in table 8.2, at least 22 of them relates to the conclusions derived from this study (highlighted), and is it sufficient to say that ample “triggers”, both externally and internally, exist for mining companies to pursue corporate entrepreneurship.

8.3.2 Towards an entrepreneurial climate

The movement toward an entrepreneurial climate and culture is well summarised in Timmons and Spinelli's (2007:545) "Chain of Greatness," which is illustrated in Figure 8.1.

Vision coupled with learning produce an entrepreneurial mindset throughout the organisation. Accountability and responsibility for innovative initiatives are assigned and assumed, as employees take ownership of these initiatives and of the organisation itself. The end result is a strong, positive, and consistent climate that is achievement driven, pride inducing, and personally fulfilling for employees. The chain of greatness becomes reinforcing and perpetuating (Morris & Kuratko, 2002:269).

Figure 8.1: Chain of greatness



Source: Timmons and Spinelli (2007:545)

The essence of the "Chain of Greatness" is the following:

- Leadership that instils a vision of greatness and an owner's mentality across the company is where it all begins.

- The visionary leadership should be supported by a philosophy of perpetual learning throughout the organisation, accompanied by high standards of performance to create a value-creating entrepreneurial climate.
- The combination of the first two fosters a culture that teaches and rewards teamwork, improvement, and respect for each other.
- The entrepreneurial mindset and values in turn lead to a fair and generous short- and long-term reward system, as well as the necessary education to make sure that everyone knows and can use the numbers, and creates a mechanism for sharing the wealth with those who contributed to it.
- The results are extraordinary levels of personal, professional, and financial achievement (Timmons & Spinelli, 2007:544).

8.3.3 Not just another management tool or technique

The quest for productivity, quality, and speed has spawned a remarkable number of management tools and techniques: total quality management, benchmarking, time-based competition, outsourcing, partnering, reengineering, change management and so forth. Although the resulting operational improvements have often been dramatic, many companies have been frustrated by their inability to translate those gains into sustainable profitability, and bit by bit, almost unnoticeably, management tools have taken the place of strategy. As managers push to improve on all fronts, they move farther away from viable competitive positions (Porter, 1996:61).

Morris and Kuratko (2002:149) argue that entrepreneurship is more than a course of action that an individual pursues; it is more than a way of thinking. At an organisational level, entrepreneurship can provide a theme or direction to a company's entire operations and can serve as an integral component of a firm's strategy.

8.3.4 Entrepreneurship as dominant logic

The point of departure is the *dominant logic* of the company, a term developed by Bettis and Prahalad (1995) that refers to the way in which managers

conceptualise the business and make critical resource allocation decisions. The dominant logic of a company attempts to capture the prevailing mindset, and it drives the overall focus of the systems and routines in the company. Further, it filters and interprets information from the environment; dilutes complexity; and guides the strategies, systems, and behaviour of the organisation (Bettis & Prahalad, 1995:7).

It is recommended that companies in the mining industry create a dynamic dominant logic by making entrepreneurship the basis upon which organisations are conceptualised and resources are allocated. As a dominant logic, entrepreneurship promotes strategic agility, flexibility, creativity, and continuous innovation throughout the firm.

It will enable an overriding focus of the mining company to opportunity identification, discovery of new sources of value, and product and process innovation that will lead to greater profitability. Furthermore, an emphasis on entrepreneurial activity will then be translated into the objectives, strategies, reward systems, control systems, planning approaches and structure of the firm.

In a sense, dominant logic sets the context for the firm's overall direction, while strategy and strategic management more specifically define that direction and determine how well it is accomplished.

8.3.5 Integrating entrepreneurship with strategy

Not only can entrepreneurship serve as the dominant logic of a mining company, but it also plays an important role in the firm's strategy. The integration of entrepreneurship with strategy has two aspects, both of which are critical, namely *entrepreneurial strategy* and a *strategy for entrepreneurship*.

An **entrepreneurial strategy** is concerned with applying creativity and entrepreneurial thinking to the development of a core strategy for the firm.

Discovering unique positions in the marketplace is difficult, as is breaking away from established ways of doing things (Morris & Kuratko, 2002:154). Competitive strategy is about being different. It means deliberately choosing a different set of activities to deliver a unique mix of value (Porter, 1996:64).

According to Mintzberg and Lampel (1999:29) better questions need to be asked and fewer hypotheses generated – to allow to be pulled by real-life concerns rather than being pushed by abstract concepts. Better practice is needed, not neater theory. So the concern must be with process and content, statistics and dynamics, constraint and inspiration, the cognitive and the collective, the planned and the learned, the economic and the political. In other words attention must be given to strategy formation as a whole.

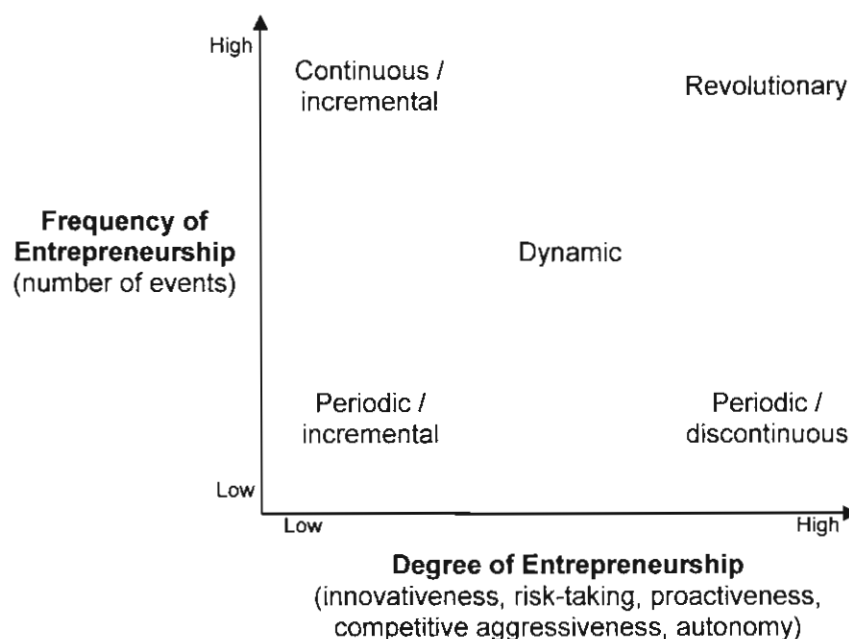
Subsequently, the application of entrepreneurial thinking to the firm's core strategy is primarily dealing with the following external questions: Where are unfilled spaces in the marketplace? How can the company differentiate itself on a sustained basis? Where can the company lead the customer?

A **strategy for entrepreneurship** concerns the need to develop a strategy for the entrepreneurial activities of the firm. The strategy for entrepreneurship might cover any number of areas. Six relevant decision areas are outlined below.

- Where does the company want to be in the entrepreneurial grid (See figure 8.2)? From an overall standpoint, is the company's strategy one of high frequency and low degree of entrepreneurship, high degree and low frequency, or some other combination? What is the company's desired risk profile?
- To what extent is the entrepreneurial emphasis in the company that of growing new businesses and starting new ventures outside the mainstream of the company versus transforming the existing enterprise and its internal operations into a more entrepreneurial environment?
- In what areas does the company want to be an innovation leader versus an innovation follower in relation to the industry?

- In what areas of the company is management looking for higher versus lower levels of entrepreneurial activity? Which business units or product areas are expected to innovate the most? Which departments are expected to be the real home for entrepreneurship, setting direction and providing leadership for the rest of the company?
- What is the relative importance over the next three years of product versus service versus process innovation? What is the relative importance of new versus existing markets?
- To what extent is innovation expected to come from senior management, middle management, or first-level management? Is there clear direction in terms of the types of innovation expected at each level?

Figure 8.2: The entrepreneurial grid



Source: Morris & Kuratko (2002:48).

The development of a strategy for entrepreneurship is especially concerned with internal questions, including the types of innovative efforts that will receive resources and from where in the company innovations are expected to come. In a sense, it is about stimulating the internal market, or market inside the company, for ideas and innovation. Clearly, the two aspects are related.

Strategy, however, needs to be supported by the appropriate organisational environment which management creates. It is this organisational environment that produces the behaviour observed in companies. Therefore, to secure the desired strategic behaviour by employees, a firm must first create the appropriate environment – that is, the environment that promotes and supports its chosen strategy. By environment, four elements are implicated: an organisation's culture; its incentives; its structure; and its people. (Markides, 2004:10).

8.3.6 Strategy for entrepreneurship

Strategy does not exist in a vacuum. Strategy and strategic management go hand in hand, and even the most entrepreneurial of strategies will fail unless it is coupled with management practices that support and reinforce the strategy. The following key ingredients are subsequently recommended to mining companies to contribute to a well-conceptualised entrepreneurial strategy:

- Develop an entrepreneurial vision.
- Increase the perception of opportunity.
- Institutionalise change.
- Instil the desire to be innovative.
- Invest in people's ideas.
- Share risks and rewards with employees.
- Recognise the importance of failure.

8.3.6.1 Develop an entrepreneurial vision

Gupta *et al.* (2004:244) state that the first condition for encouraging entrepreneurial action in a company is the presence and effective communication of an entrepreneurial vision. Hitt *et al.* (1999:148) note the significance of developing, communicating and emphasising specific shared values among organisation members, and Brazeal and Herbert (1999:42) highlight the visionary role of top management in creating the context for opportunity-seeking values and cultural norms.

Great organisations are driven by clear visions. It is important that senior management conceptualise and communicate a vision of organisation-wide entrepreneurship. Vision comes from the top, while entrepreneurial behaviour comes from throughout the organisation (Morris & Kuratko, 2002:161). Cohen (2004:17) notes that a clear entrepreneurial vision must be reinforced constantly, and that company leaders need to articulate an inspiring future, and then use that vision repeatedly to guide decisions, inspire commitment, and motivate action.

A clear vision sets the tone for the company and inspires people to achieve a greater purpose (Swiercz & Lydon, 2002:384), a shared vision that requires identification of a company-specific concept of entrepreneurship, as well as what have been termed *big hairy audacious goals* (or BHAGs for short) that spell out a bold, daunting challenge – one that stretches every member of the company (Collins & Porras, 1996:73).

8.3.6.2 Increase the perception of opportunity

In its broadest conception, entrepreneurial behaviour is a comprehensive term that captures all actions taken by a firm's members that relate to the discovery, evaluation, and exploitation of entrepreneurial opportunities (Shane & Venkataraman, 2000:218).

Entrepreneurial behaviour is therefore opportunity-seeking behaviour, and entrepreneurial strategy represents a quest to find and exploit untapped opportunities – opportunities that arise from areas of uncertainty both inside and outside the organisation. If every employee is to be considered a potential entrepreneur, then the ability to recognise opportunity becomes paramount (Morris & Kuratko, 2002:161).

Strategy and objectives must be about people possibilities. These include possibilities in terms of going against the grain, abandoning assumptions, and looking at operations and customers in completely new ways. It is a continual emphasis on alternative approaches to marketing, human resource

management, the use of information technology, and every other facet of business.

Mullins (2004:3) notes that there are four common sources of opportunities – opportunities that are more than mere ideas:

- Opportunities created by macro trends in society.
- Opportunities found by living and experiencing the customer problem.
- Opportunities created through scientific research.
- Opportunities proven elsewhere that companies can pursue locally.

Mining companies should broaden the suggestions from employees to embrace any kind of improvement or innovation, not just production or operational ideas. This way, the ongoing focus of the company would be opportunity-recognition, and its revenue model continually refreshed.

Instead of identifying opportunities only once a year during the strategic-planning process, mining companies could institute an opportunity-finding mechanism operating on a continuous basis. In other words, formalised and used to generate ideas and worthwhile proposals constantly.

The following opportunity-seeking questions (obviously depending on sector type) may serve to get a brainstorming process underway:

- What beneficiation opportunities exist that we have not considered?
- What other type of customer could benefit from our product, even if used in a different way?
- What other products or ancillary services could we produce for the same customers?
- What other products could we produce, for any customers, that use the skills, techniques, technologies, and know-how that we have?
- Is there a way of reinventing our business model that would give us a competitive edge?

- What unmet needs do people or companies have that we could meet, even if it means acquiring the necessary know-how and expertise?

A useful concept proposed by Morris and Kuratko (2002:162) is the opportunity horizon, which represents the outer limit on management's vision regarding the opportunities open to the firm. For many companies, the opportunity horizon is quite constrained. Managers are unable to escape the past, and so future possibilities are little more than an extension of what the company is doing now and where it has been historically.

Figure 8.3 represents a framework for use in assessing the company's (or a given unit's) approach to opportunity.

Figure 8.3: Opportunity assessment and internal value creation

Exploiting External Opportunities					Finding New Internal Sources of Value				
Source	Current efforts	Aggressively pursued	Partially tapped	Un-tapped	Source	Current efforts	Aggressively pursued	Partially tapped	Un-tapped
New technology applications					Marketing and sales approaches				
Untapped or under-served customers / markets					Human resources management				
Further penetration of current markets					Operations and production methods				
Supply chain management					Information resources				
Outsourcing					Equipment and facilities				
Competitor vulnerabilities					Patents and intellectual property				
Strategic alliances					Financial resources				
Financial leveraging					R&D resources				
Social patterns and developments					Logistical management				
Regulatory changes					Administration				
Other					Other				

Source: Adapted from Morris and Kuratko (2002:162)

Abraham (2205:6) notes that seeing opportunities everywhere means being in a position to notice that something can be done better, quicker, cheaper, differently, more conveniently, faster, or more reliably. Entrepreneurs resonate with value generation and constantly try to find ways to create and deliver value.

If something takes too long to do, there has to be a shorter way. If something breaks down too soon, it could be made more reliable. If some problem seems too complex, there is perhaps a simpler solution.

8.3.6.3 Institutionalise change

Change enriches people, adding to their experiences, deepening their insights and represents new opportunities for employees. Unfortunately strategies can sometimes serve to preserve the status quo, although in some instances unintentionally.

Kurt Lewin conceived of change as modification of those forces keeping a system's behaviour stable (Cummings & Worley, 2005:22), and in relation to this study it implies modifying those forces keeping mining companies' behaviour stable.

Morris and Kuratko (2002:162) argue that in entrepreneurial companies, strategy should be conceived as a vehicle for change. In fact, in the new competitive landscape, strategy provides focus and direction for change both within the firm and in the marketplace. The opposite of accepting the status quo is to continually challenge every aspect of a business, looking for better ways to do things, processes that can be done differently, and things that can be eliminated.

Change efforts falls on a continuum ranging from incremental changes that would involve fine-tuning a company's position to quantum changes that would entail fundamentally altering how a mining company operates.

Transforming a mining company to entrepreneurial status implies radical changes in terms of the way employees perceive, think, and behave. It must supersede “making things better” or fine-tuning the status quo. It concerns fundamentally altering mining companies’ assumptions about its functioning and how it relates to the global environment. Changing these assumptions entails significant shifts in philosophies and values and in the numerous structures and arrangements that shape the current entrepreneurial behaviour.

8.3.6.4 *Instil the desire to be innovative*

A strategy that encourages innovation will be effective only if management efforts make clear what types of innovation the company seeks and from where in the company these innovations are expected to come (Morris & Kuratko, 2002:163).

Leavy (2005:38) argues that boosting an organisation's overall innovation starts with learning to tap into the creative potential of all the employees and their knowledge about customers, competitors, and processes, and the key is to establish the right organisational climate. He proposes four climate-setting factors that are fundamental to success:

- Placing of people and ideas at the heart of the management philosophy.
- Giving people room to grow, to try things and learn from their mistakes.
- Building a strong sense of openness, trust and community across the organisation.
- Facilitating the internal mobility of talent.

All four are key to the development of an internal climate where individual creativity and initiative can flourish, and talent and ideas circulate freely, so that intellectual capital can be leveraged to the maximum (Leavy, 2005:39). The desire to be innovative stems from a sense of involvement in, ownership of, and responsibility for innovative projects.

Kanter (2004:157) states that innovative accomplishments represent a new way for the company to use or expand its resources that raise long-term capacity that could include:

- Affecting a new policy – creating a change of orientation or direction.
- Finding a new opportunity – developing an entirely new product or opening a new market.
- Devising a fresh method – introducing a new process, procedure, or technology for continued use.
- Designing a new structure – changing the formal structure, reorganising or introducing a new structure, or forging a different link among units.

In terms of a management style for innovation Kanter (224:158) states that there is a strong association between carrying out an innovative accomplishment and employing a participative collaborative management style. Subsequently, the following approach is recommended:

- Persuade instead of ordering.
- Build a team that frequently share information.
- Seek inputs from others, i.e. soliciting suggestions from subordinates and welcoming peer review.
- Acknowledge others' stake or potential stake in the project – in other words, be politically sensitive.
- Share rewards and recognition willingly.

8.3.6.5 *Invest in people's ideas*

Ideas, together with an individual's personal commitment to them, represent the single greatest asset in a company. Unfortunately, companies tend to treat ideas like targets in a shooting gallery, and they come up with the most inventive means of shooting them down. Or their concept of support for ideas begins and ends with a suggestion box (Morris & Kuratko, 2002:163).

Fostering idea generation requires that management continually plough and fertilise the fields. Investments are needed in intelligence-gathering activities of all types. Infrastructure is needed to support information storage, reporting, and sharing. This must be reinforced by the norms and values of the company. Forums are needed for airing ideas. Pools of capital are required for investing in ideas. Managers at all levels must define their jobs in terms of listening to, productively challenging, endorsing, feeding, sponsoring, and investing in the ideas of employees.

The two most precious words in the organisation should be “what if?” Approached in this manner, the internal environment of the company becomes a marketplace of ideas; the strategic management becomes a set of activities devoted to making this marketplace work efficiently.

According to Kuratko *et al.* (2005:708) intrinsic rewards centre on the satisfaction individuals receive as a result of developing their own ideas, from being more in control of their destiny and from having ultimate responsibility for the success of projects with which they are involved.

8.3.6.6 Share risks and rewards with employees

Entrepreneurship is about risk and reward. The relationship is direct but nonlinear. This is a fundamental precept of entrepreneurial behaviour and investor behaviour. Ignoring the risk-reward relationship when striving to develop entrepreneurial strategies within companies misses the whole point of entrepreneurship.

Sustainable entrepreneurship requires that employees experience some of the risk and meaningfully participate in the rewards. The implication is that individuals and teams lose in terms of salary, bonuses, freedom, research support or other resources if projects fail or under perform, and they do quite well when projects are highly successful.

Below are a number of practical ideas for mining companies to consider in establishing systems for sharing risk and reward to encourage entrepreneurial behaviour among its employees:

- Middle-managers put a percentage of their salary at risk and can either lose it, double it, or triple it based on team performance.
- When a new idea is accepted by the firm, the CEO awards shares of stock to the employee.
- Middle-managers are given R5000 to spend on an innovative idea that relates to their job.
- After the company has set its targets, 30% of incremental earnings above target are placed into a bonus pool that is paid out based on each employee's performance rating.
- Small cash awards are given to employees who try something new and fail – and the best failure of the quarter receives a larger award.
- Implement a point system where employees receive differing amounts of points for different categories of innovation contributions. Points are then redeemable for computers, merchandise, tuition, and other types of rewards.
- Implement a system where small cash amounts are given for innovative suggestions, and then redeemable points (for more significant cash awards) are earned based on how far the suggestion moves through the process of development, approval, implementation, and impact (cost savings or revenue generation).
- Team members working on a major innovation are awarded shares of zero value at project outset, and as milestones are achieved (on time) predetermined values are added to the shares. Milestones not achieved lead to a decline in share value.
- Implement a system that ties cash awards for employees to a portfolio of innovation activities produced over time, including ideas generated, patents applied for, prototypes developed, and so forth.
- Implement a “frequent innovator” system that works like an airline frequent flier program.

- Give employees 10% of out-of-pocket savings achieved by their ideas in the first two years of use.
- Give a weekend at a resort to the employee who raises the most challenging question in monthly management meetings.
- Implement a system of R1000 “on-the-spot” awards for anyone showing special initiative.

8.3.6.7 *Recognise the critical importance of failure*

Failure is a sign of experience, learning, and progress. Not only can overall projects fail, but the likelihood of project demise is a function of how the champion deals with lots of small failures along the way. Doing something entrepreneurial means experimenting, and experimentation is all about trying something and, when it does not work out, trying something else (Morris & Kuratko, 2002:164). Tolerating failure in creative ventures supports the emergence of untried, new ideas in the entrepreneurial firm (Russell, 1999:74).

According to Thornberry (2001:531) this is a key cultural value that a company should not only subscribe to, but act upon as well, if it wants to be more entrepreneurial. Failure must be expected in the learning process and if what the corporate entrepreneur is doing does not require learning, then he's not being an entrepreneur. Learning necessitates mistakes. Any new corporate venture will have mistakes, and this is where the learning takes place that allows the entrepreneur to shape his or her new venture.

Covin *et al.* (2006:63) refers to strategic learning from failure, and defines it as the firm's self-reported proficiency at identifying its strategic mistakes or failed strategies, the causes of those failures, and the lessons of those failures. The generation of knowledge from disappointing outcomes is argued to be essential to the success of future entrepreneurial initiatives (Shepherd, 2003:320).

Learning from failure, as opposed to expecting punishment for it, should therefore be promoted in mining companies. By encouraging plenty of experimentation and risk-taking, there are more chances for a new value creating breakthroughs.

Leavy, (2005:42) highlights the importance that the company recognises that entrepreneurial behaviour will continue to flourish only if management is willing to accept and even applaud "well-intentioned failure." The tendency then should be to ask not why did you fail, but what did you learn?

8.3.7 Entrepreneurial leadership development

Swiercz and Lydon (2002:384) examined the competencies required of successful "career entrepreneurial leaders" which they define as individuals who initiate, develop, and manage entrepreneurial organisations from start-up to an ongoing enterprise. Their analysis revealed two sets of competencies comprising entrepreneurial leadership, referred to as *functional competencies* and *self competencies*.

Functional competencies are defined as competencies that pertain to the four performance subsystems of the "FourSquare" model (Swiercz and Spencer, 1992). The four performance subsystems are operations, finance, marketing, and human resources (Swiercz & Lydon, 2002:384).

A model for functional competencies is depicted in Table 8.2, highlighting the four performance subsystems and its applications.

Table 8.2: Functional competencies for entrepreneurial leadership

FUNCTIONAL COMPETENCIES	
OPERATIONS <i>Management systems and procedures that are implemented to produce the firm's products or services.</i> • Have the foresight to develop and implement an idea with simplicity and clarity of purpose. • Orchestrate management systems for quality and reproducibility. • Develop a production methodology, document, and train employees. • Periodically evaluate company operations to improve business processes.	FINANCE <i>Decisions made regarding the acquisition and management of the firm's capital resources.</i> • Project and plan for adequate capital to support future growth. • Acquire more sophisticated forms of capital. • Showcase a proven track record and demonstrate continued performance. • Develop relationships with financial institutions. • Understand and able to interpret the "numbers"
MARKETING <i>Decisions made to determine customer needs and to develop organisational responses to those needs.</i> • Create tools to obtain customer feedback. • Develop customised solutions to the growing needs of customers. • Focus on post-sale execution to exceed customer expectations. • Initiate corporate partnerships: leaders choose leaders.	HUMAN RESOURCES <i>Decisions made regarding the staffing, rewards, influence, and organisational architecture.</i> • Hire employees who will support the various stages of the company's development. • Evaluate present employees with current phase of development. • Learn to identify, recruit, and lead people that are experts. • Align company objectives with rewards. • Delegate responsibilities and relinquish control. • Intentionally create and influence organisational culture.

Source: Developed and adapted from Swiercz & Lydon (2002)

Self competencies are defined as less tangible, non-functional competencies that pertain to the individual leader. Four main self competencies were discovered. They are intellectual integrity, promoting the company rather than the individual leader, utilising external advisors, and creating a sustainable organisation (Swiercz & Lydon, 2002:387).

The self competencies for entrepreneurial leadership are explained further in table 8.3 on the next page.

Table 8.3: Self competencies for entrepreneurial leadership

SELF COMPETENCIES	
Exercise intellectual integrity • Understand personal strengths and weaknesses. • Hire people to complement weaknesses • Self educate where needed.	Move from “me” to “we” • Sell the company instead of self. • Become a coach.
Speak to the oracle • Maximize external advisors. • Participate in networking groups. • Anticipate organizational changes.	Create a sustainable organisation • Become a strategic thinker. • Begin to make long-term decisions. • Identify unique contribution to the organisation.

Source: Developed and adapted from Swiercz & Lydon (2002)

8.3.8 Structuring for corporate entrepreneurship

The design of an organisation has three overarching elements, namely the company structure, communication flows, and the control system (Morris & Kuratko, 2002:191).

Traditional organisational models, built around rigid hierarchies and clearly defined boundaries, are thought to be poorly suited for today's entrepreneurial corporations, because of their tendency to limit flexibility and stifle communication (Dess *et al.*, 1999:91)

The answer to what a truly constitutes an entrepreneurial structure will vary depending on the size, age, products, markets, processes, and technologies of the mining company. This reality suggests that a company's structure must be subject to continual experimentation and change.

It is proposed that mining companies abandon many of the conventional rules of organisational design and pursue designs that facilitate variety, change, and speed. However, such designs are difficult to execute because they are intricate blends of many different design policies.

The author believes that entrepreneurship flourishes where there are fewer layers or levels in the structure of a company, and spans of control are broader. Therefore, the general orientation should be towards a more horizontal and less vertical design. Following are a number of considerations mining companies could pursue:

- Decentralisation and empowerment should be the norm in terms of operations, while clear vision and strategic direction come from the top.
- The dominant direction in terms of the flow of ideas should be bottom up, not top down.
- The structure should emphasise simplicity and smallness within a large enterprise by employing such devices as pseudo autonomous units, companies within companies, or empowered teams.
- Cross-functional interaction and cooperation must be priorities, but the clash of ideas from inter-functional interaction should also be encouraged.
- Systems should put in place to facilitate extensive and rapid communication among parties at all levels and in all functions.
- There should be less formalisation of roles and positions within the structure.
- Empowerment efforts should not be token or random but designed to be systematic and consistent.
- Staff functions should be kept lean.

Covin and Slevin (1990:127) propose some additional elements and argue that a firm's entrepreneurial behaviour correlates positively with the firm's performance when the organisational structure has the following:

- Managers allowed to freely vary their operating styles.
- Authority that is assigned based on the expertise of the individual.
- Free adaptation of the organisation to changing circumstances.
- An emphasis on results rather than processes or procedures.
- Loose, informal controls with an emphasis on a norm of cooperation.
- Flexible on-the-job behaviour, shaped by requirements of the situation and personality of the employee.

- Frequent use of group participation and group consensus.
- Open channels of communication with free flow of information.

Kanter (2204:161) also pose a number of conditions that top decision makers could design into their companies in order to provide middle-managers with the opportunity and the incentives to reach beyond their formal jobs and combine organisational resources in new ways. The following factors create these opportunities:

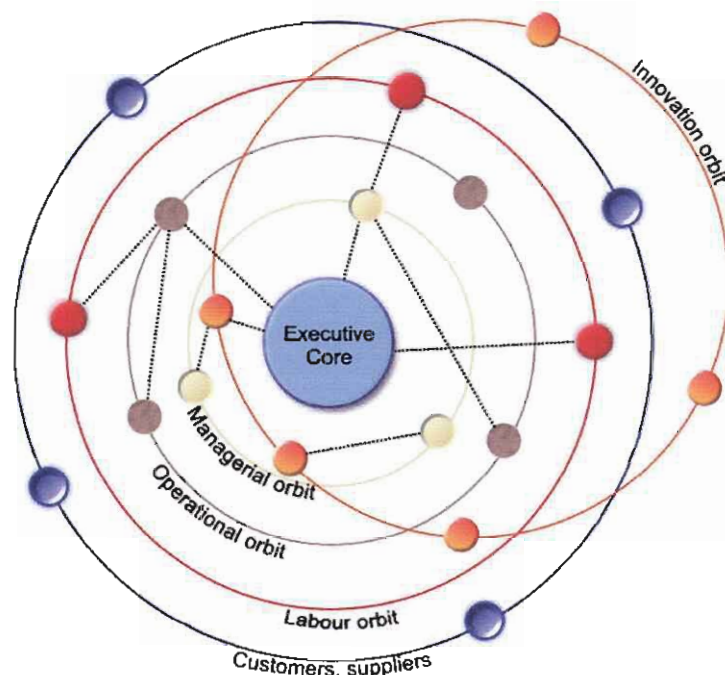
- Multiple reporting relationships and overlapping territories. These force middle managers to carve out their own ideas about appropriate action and to sell peers in neighbouring areas or more than one boss.
- A free and somewhat random flow of information. Data flow of this kind prods executives to find ideas in unexpected places and pushes them to combine fragments of information.
- Many centres of power with some budgetary flexibility. If such centres are easily accessible to middle managers, they will be encouraged to make proposals and acquire resources.
- A high proportion of managers in loosely defined positions or with ambiguous assignments. Those without subordinates or line responsibilities who are told to “solve problems” must argue for a budget or develop their own constituency.
- Frequent and smooth contact across functions, a tradition of working in teams and sharing credit widely, and emphasis on lateral rather than vertical relationships as a source of resources, information, and support. These circumstances require managers to get peer support for their projects before top officers approve.
- A reward system that emphasises investment in people and projects rather than payment for past services. Such a system encourages executives to move into challenging jobs, gives them budgets to tackle projects, and rewards them after their accomplishments with the chance to take on even bigger projects in the future.

If empowered, innovative middle managers can be one of South Africa's mining industry's most potent weapons in its battle against the challenges facing the industry.

Another approach to structure is using circles as proposed by Tropman and Morningstar (1989:161). As depicted in figure 8.4 it is a design in which levels are replaced by orbits and in which the orientation toward authority changes with the disappearance of "higher ups." There are three main orbits: the central, or executive, circle; the managerial circle; and the operational, or technical, circle. These authors also suggest the addition of other orbits to capture key external role players such as customers, suppliers, and financiers.

Communication among those in different orbits becomes easier and more direct, as is reflected in the lines that connect those in one orbit (say the operational or technical orbit) with those in another (say the executive core) without necessarily going through the people who fall in orbits in between (say the managerial orbit).

Figure 8.4: The organisation as circles ("orbits")



Source: Tropman and Morningstar (1989:161)

A key feature of the structure in figure 8.4 is that it allows for the creation of new spheres for incubator or experimental programs; hence, innovation spheres can be created and located anywhere in the organisation. They can be placed between two spheres, cross various spheres, be placed at the edge or outer periphery of the organisation, and so on. Innovative activities thus have a level of independence, but oversight is also applied.

8.3.9 Developing management innovation

Hamel (2006:72) argues that innovation in management principles and processes can create long-lasting advantage and produce dramatic shifts in competitive position.

According to Kaplan and Norton (2006:103) management system can be defined as the set of processes and practices used to align and control an organisation. Management systems include the procedures for planning strategy and operations, for setting capital and operating budgets, for measuring and rewarding performance, and for reporting progress and conducting meetings.

A management breakthrough in principles, processes or systems can deliver a potent advantage to the innovating company and produce a seismic shift in industry leadership.

A management innovation creates long-lasting advantage when it meets one or more of three conditions: The innovation is based on a novel principle that challenges management orthodoxy; it is systemic, encompassing a range of processes and methods; and it is part of an ongoing program of invention, where progress compounds over time (Hamel, 2006:74).

According to Hamel (2006:75) a management innovation can be defined as a marked departure from traditional management principles, processes, and practices or a departure from customary organizational forms that significantly

alters the way the work of management is performed. Put simply, management innovation changes how managers do what they do.

It is subsequently recommended that mining companies develop management innovation by its managers. A systematic process for producing bold management breakthroughs must include the elements as per figure 8.5

Figure 8.5: The elements of management innovation



Source: Adapted and reworked from Hamel (2006:77).

Following are recommendations to explain the elements in management innovation.

Commit to a big problem: To maximize the chances of a management breakthrough, the starting point is with a problem that is both significant and inspiring. Questions to consider identifying a big problem could be:

- What are the tough trade-offs that the company never seems to get right?
- What are big organisations bad at?
- What are the emerging challenges the future has in store for the company?

Search for new principles: Any problem that is pervasive, persistent, or unprecedented is unlikely to be solved with recycled principles. It's hard to know if a management principle is really new unless you know which ones are strictly outdated. Questions to consider could be:

- What things exhibit the attributes or capabilities that want to be built into the organisation?
- What is it that permeates those models with their enviable qualities?

Deconstruct your management orthodoxies: To fully appreciate the power of a new management principle, the grip that convention has on imagination must be loosened. While some of what is believed may be scientific certainty, much of it is not. A lot of what passes for management wisdom is unquestioned doctrine concealed as unquestionable truth. Questions to consider could be:

- Is the belief toxic to the ultimate goal the company is trying to achieve?
- Can an alternative to the reality the belief reflects be imagined?

Exploit the power of analogy: If the goal is to escape the constraints of conventional management thinking, it helps to study the practices of organisations that are decidedly unconventional. The challenge is therefore to hunt down unlikely analogies that suggest new ways of tackling thorny management problems.

Getting started: To turn theories into reality, there is a need to understand exactly how the company's existing management processes intensifies the problem it wishes to resolve. The following questions for each relevant management process need to be asked:

- Who owns the process?
- Who has the power to change it?
- What are its objectives?
- What are the success metrics?
- Who are the customers of this process?
- Who gets to participate?
- What are the data or information inputs for this process?
- What analytical tools are used?
- What events and milestones drive this process?
- What kind of decisions does this process generate?
- What are the decision-making criteria?
- How are decisions communicated, and to whom?
- How does this process link to other management systems?

After documenting the details of each process, assemble a forum of interested parties such as the process owner, regular participants, and anyone else who might have a relevant point of view. Ask them to assess the process in terms of its impact on the management challenge sought to be addressed.

Obviously it is unlikely to get permission to reinvent a core management process at one go, however toxic it may be.

Nevertheless, design low-risk trials that test the management innovations without disrupting the entire organisation. That may mean designing a simulation, where a critical strategic issue is run through a new decision-making process to see whether it produces a different decision. It may mean operating a new management process in parallel with the old process for a time. Consider posting the innovation on the Intranet site and invite people from across the company to evaluate and comment on the ideas before they're put into practice. The goal is to build a portfolio of bold new management experiments that has the power to lift the performance of the company ever higher above its competitors.

Further practical recommendations that mining companies could adopt are the following:

- Make innovation a central topic in leadership development programs.
- Set aside a substantial share of capital spending every year for projects that meet exceptional standards of innovativeness.
- Train innovation mentors to encourage innovation throughout the company.
- Enrol all middle-managers in an online course on business innovation.
- Establish innovation as a large part of top management's long-term bonus plan.
- Set aside time in quarterly business review meetings for an in-depth discussion of each unit's innovation performance.
- Build an innovation portal that grants employees access to a range of innovation tools and data on the company's innovation pipeline.

- Develop a set of metrics to track innovation inputs (such as the number of engineering hours devoted to innovative projects), throughputs (such as the number of new ideas entering the company's innovation pipeline), and outputs (such as the cost advantages gained from innovative breakthroughs).

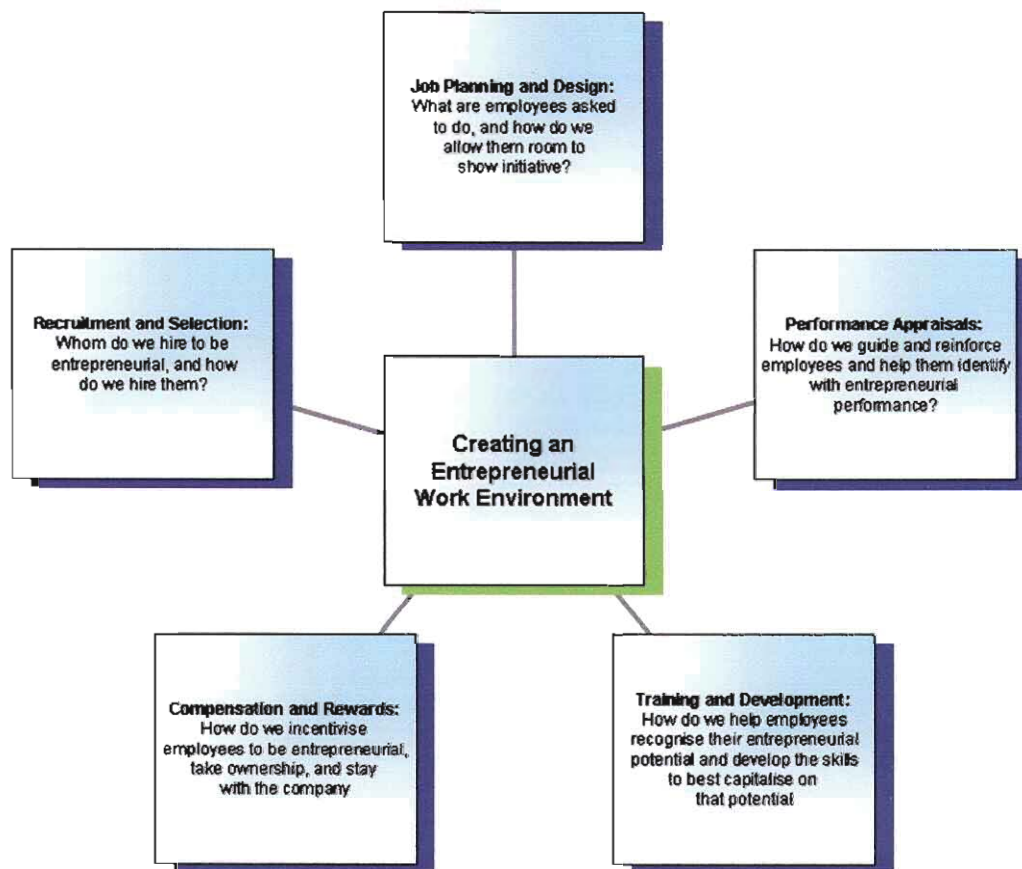
8.3.10 Human resources management

According to Morris and Kuratko (2002:236) human resource management (HRM) is a broad concept that refers to the set of tasks associated with acquiring, training, developing, motivating, organising, and maintaining the employees of a company. More specifically, the term reflects the idea that organisational goals and employee needs are mutually compatible if they are managed properly and that employees represent continued investments on the part of the firm – with continued returns.

Swiercz and Spencer (1992:43) also state that the development of an effective human resource system can play a major role in the creation of sustainable competitive advantage, and showed that that HRM system capabilities can contribute to sustainable competitive advantage because they: (a) can help exploit opportunities and/or neutralise threats in a firm's environment, (b) are difficult to develop and therefore rare in the competitive environment, (c) are very difficult to imitate, and (d) cannot be easily displaced by strategically significant substitutes.

The author postulates that by using the desired employee, climate and cultural characteristics, it becomes possible to identify the HRM policy combinations most conducive to fostering entrepreneurial behaviour. The categories of HRM practices associated with acquiring, training, developing, motivating, organising, and maintaining the employees of a company therefore provide a useful framework (Figure 8.6) for establishing specific linkages between HRM and entrepreneurship (Morris & Kuratko, 2002:238).

Figure 8.6: Using key elements of HRM practices to create an entrepreneurial environment



Source: Adapted from Morris & Kuratko (2002:238)

Based on the framework in figure 8.6 the following recommendations are posed to mining companies:

8.3.9.1 Recruitment and selection

- If the fit between company direction and available internal resources are poor, the company should rely on a balance of external and internal sources for job candidates.
- The need to create and maintain an entrepreneurial culture combined with a reliance on external sources of employees would, in turn, increase the need for extensive employee orientation and induction programs.

- Rapid environmental change and continuous product/market innovation can be expected to produce time pressures as well as variable job demands and requirements.
- Subsequently reliance should be on more general, more implicit, and less formalised selection criteria.
- Once a person has been appointed, the career should be designed around broad career paths and multiple career ladders for that employee. Broad paths and multiple ladders provide exposure to more areas of the organisation and different ways of thinking. This exposure enhances idea generation and problem solving and encourages cooperative activities.
- An employee should not be selected for, or assigned to entrepreneurial tasks simply on the basis of past performance on other tasks or because he or she has the basic knowledge and skills the job requires.
- Open selection procedures allow for more self-selection into entrepreneurial positions and hence a better match between the entrepreneurial requirements of the organisation and the individual's needs.

8.3.9.2 *Job planning and design*

- Innovation and risk-taking behaviours would seem more consistent with a long-term orientation and an emphasis on formal planning with high employee involvement.
- Job-related tasks need to be broadly defined, with more decision-making discretion given to employees.
- Greater emphasis has to be placed on results rather than process or procedure.
- Jobs need to be less structured or constrained by rigid organisational policies.
- Do away with multiple policies and procedures, centralised decision making, as it tends to constrain action alternatives and inhibit the proactive decision making necessary for successful entrepreneurial initiatives.

8.3.9.3 Training and development

- Changing job demands and the need to keep abreast of the newest technologies implies a need for continuous, ongoing training.
- Training and development practices that promote entrepreneurial behaviour should be integrated in existing training programmes.
- Training and development programmes that teach business skills should be implemented. If the skill and capacity to deliver such interventions do not exist within the organisation, it should be sourced externally.
- Training and development programmes for the development of entrepreneurial leadership should be a strong consideration.
- Training programs wherein acceptance of change, a willingness to take risks and assume responsibility, and the value of teamwork and shared achievements are central themes should be instituted.
- It is necessary that political skills be taught to prospective intrapreneurs, including ways to obtain sponsors, build resource networks, and avoid early publicity of new concepts and ventures.
- There is also a need for training activities that are less structured or standardised and which focus on individualised knowledge requirements. This type of training approach enables employees to respond in unique ways to new challenges, adapt to dynamic environmental conditions, and feel comfortable with ambiguity.

8.3.9.4 Performance appraisals

- The purpose of performance appraisals and reward practices are to communicate performance expectations and reinforce desired employee behaviours, both of which should be designed around specific criteria.
- Performance evaluations and discretionary compensation based on long-term results and on a balance between individual and group performance should be applied with entrepreneurial project teams.
- Given that risk implies failure, appraisal and reward systems should reflect a tolerance of failure and offer some employment security.

- Because entrepreneurial individuals tend to demonstrate a high need for achievement but are also reward conscious, it is important that they be active participants both in setting high performance standards and in designing customised reward systems.
- Appraisals for entrepreneurial venture or project teams should be conducted at intermittent and irregular time intervals in, rather than at uniform or fixed intervals. They should be tailored to the life cycle of the entrepreneurial project. This is because entrepreneurial events require time to evolve, with each one encountering unique sets of obstacles and with various projects typically at different stages of development. In addition, entrepreneurial success often depends on the ability of employees to obtain resources from novel sources or in unconventional ways and occasionally to violate or ignore standard company policies and procedures.
- Performance appraisals must emphasise end results or outcomes, rather than the methods employed to achieve those results.
- The evaluation of employees will need to include explicit measures of innovativeness and risk assumption, which implies some use of qualitative and subjective measures of performance.

8.3.9.5 Compensation and reward

- With regard to rewards, personal incentives (financial and non-financial) are necessary to reinforce the risk-taking and persistence required to implement an entrepreneurial concept.
- To retain entrepreneurial employees, incentives must be significant and individual incentives must be balanced by rewards linked to group performance over longer periods of time, to encourage cooperative, interdependent behaviour.
- Compensation practices and incentives such as share options and profit sharing should be implemented in order to promote taking responsibility for innovation and achieving a longer-term commitment.

- The customised nature of these reward systems also suggests that responsibility for their design and implementation should be decentralised or delegated to the divisional or departmental level.

8.4 SUMMARY

Embarking on the journey toward an entrepreneurial climate relies strongly on visionary entrepreneurial leadership to instil an entrepreneurial mindset throughout the organisation. This will enable accountability and responsibility for innovative initiatives, and result in a strong, positive, and consistent climate that is achievement driven.

Entrepreneurship can provide a theme or direction to a company's entire operations and can serve as an integral component of a firm's strategy. In this respect mining companies should create a dynamic dominant logic by making entrepreneurship the basis upon which they are managed.

The integration of entrepreneurship with strategy has two aspects, namely entrepreneurial strategy and a strategy for entrepreneurship. An entrepreneurial strategy concerns the application of creativity and entrepreneurial thinking to the development of the core strategy for the firm.

A strategy for entrepreneurship on the other hand concerns the need to develop a strategy for the entrepreneurial activities of the firm, and recommendations in this respect include developing an entrepreneurial vision; increasing the perception of opportunity; institutionalising change; instilling the desire to be innovative; investing in people's ideas; sharing risks and rewards with employees; and, recognising the importance of failure.

In terms of developing entrepreneurial leaders, two sets of competencies, namely functional competencies and self competencies, seem paramount. Functional competencies pertain to four performance subsystems: operations, finance, marketing, and human resources. Self competencies pertain to the individual leader, and the four main self competencies are intellectual integrity,

promoting the company rather than the individual leader, utilising external advisors, and creating a sustainable organisation.

In terms of structure, traditional organisational models have rigid hierarchies and clearly defined boundaries, which are not well suited for entrepreneurial companies. Entrepreneurship flourishes where there are fewer layers or levels in the structure of a company, and spans of control are broader. Therefore, the general orientation should be towards a more horizontal and less vertical design.

The organisation as “circles” or “orbits” is useful to address this, and consist of four main orbits: the executive, circle; the managerial circle; the operational circle; and, the customer/supplier/external stakeholder circle. Communication among those in different orbits becomes easier and more direct, and allows for the creation of new spheres for incubator or experimental programs; hence, innovation spheres can be created and located anywhere in the organisation.

Furthermore, innovation in management principles and processes can create long-lasting advantage and produce dramatic shifts in competitive position. A management breakthrough in principles, processes or systems can deliver a potent advantage to the innovating company and produce a seismic shift in industry leadership.

Lastly, the development of an effective human resource system can play a major role in the creation of sustainable competitive advantage. By using the desired employee, climate and cultural characteristics, it becomes possible to identify the HRM policy combinations most conducive to fostering entrepreneurial behaviour.

To “package” the recommendations discussed in this chapter, an integrated framework for corporate entrepreneurship is proposed and presented in the next and final chapter.

CHAPTER 9

AN INTEGRATED FRAMEWORK FOR CORPORATE ENTREPRENEURSHIP

9.1 INTRODUCTION

Creating a fast-moving, innovative mining company that produces product-, service- and process innovation, continuous improvements and breakthroughs to get better and stronger quicker than its competitors to become and remain the leader in its industry sector is achievable; *but not as a bureaucratic organisation*. To get an explosion of appropriate innovation, a mining company must find ways to release and direct the entrepreneurial energy of all its employees – from its board members right through to the lowest levels in the organisation.

The challenge, however, is not whether mining companies can focus attention and resources in a manner that makes corporate entrepreneurship a reality; the challenge is *sustainable corporate entrepreneurship* – making entrepreneurship happen on an ongoing basis and throughout the company.

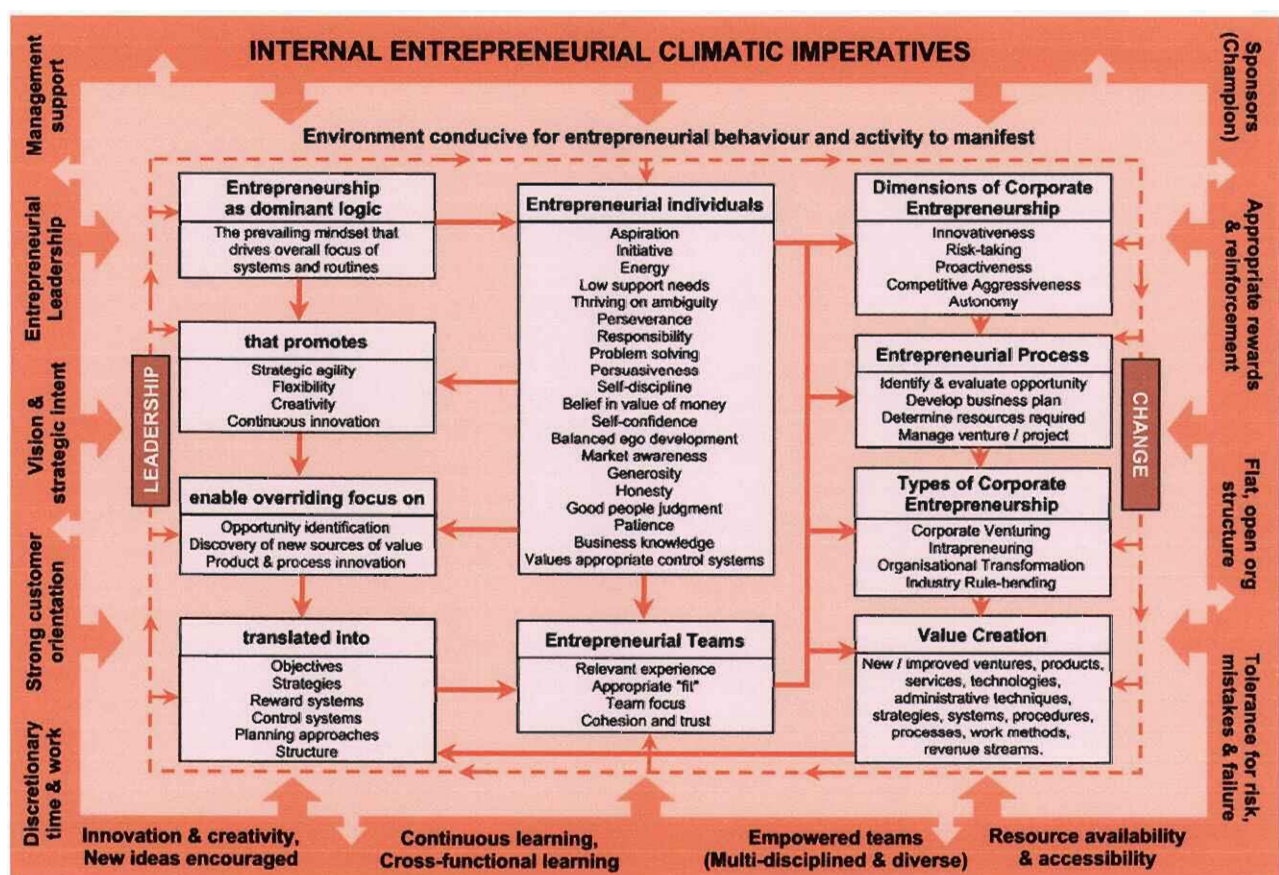
To “package” the recommendations discussed in the previous chapter, an integrated framework for corporate entrepreneurship is proposed and presented in this chapter. The framework serves to integrate the large amount of information presented in this study into a sensible whole, and to provide a useful tool for easy reference purposes during and after implementation.

Following an expose of the framework and the reasoning of its proposed functionality, a number of steps are recommended for implementation in a mining company.

9.2 AN OVERVIEW OF THE INTEGRATED FRAMEWORK

In meeting the primary objective of this study, the preceding chapters of this study served as building blocks for developing an integrated framework for improving the climate for corporate entrepreneurship in the South African mining industry. The framework is presented in figure 9.1, followed by a discussion thereof.

Figure 9.1: Integrated framework for corporate entrepreneurship



An entrepreneurial climate is required to sustain entrepreneurship in a corporate context. In the framework this is referred to as *internal climatic imperatives* and consists of thirteen elements, namely: Entrepreneurial Leadership; Management Support; Sponsors (Champion); Tolerance for risks, mistakes and failure; Innovation and creativity / New ideas encouraged; Appropriate rewards and reinforcement; Vision and strategic intent; Discretionary time and work; Empowered teams / Multi-disciplined teamwork

and diversity; Resource availability and accessibility; Continuous- and cross-functional learning; Strong customer orientation; and, Flat organisational structure with open communication and strong sense of belonging.

The thirteen constructs – indicated on the outer block of the framework – impacts on the organisational environment and enables entrepreneurial thinking, behaviour and activity to manifest.

It sets the scene for a strategic decision to establish entrepreneurship as dominant logic that permeates the prevailing mindset of every member of the organisation and drives the overall focus of the organisation's existence in relation to the combination of man, machines, methods, materials, markets, money and information.

Entrepreneurship as dominant logic further enables an overriding focus on identification of opportunities, discovery of new sources of value, product and process innovation which is translated into the company's objectives, strategies, reward systems, control systems, planning approaches, structures and management principles.

The dominant logic also infuses entrepreneurial individuals acting on their own, or as leaders, or as members of entrepreneurial teams that translates into an organisation where the dimensions of corporate entrepreneurship are prevalent norms, namely:

- Innovativeness: A willingness to introduce newness and novelty through experimentation and creative processes aimed at developing new products and services, as well as new processes.
- Risk-taking: Making decisions and taking action without certain knowledge of probable outcomes; some undertakings may also involve making substantial resource commitments in the process of venturing forward.

- Proactiveness: A forward-looking perspective characteristic of a marketplace leader that has the foresight to seize opportunities in anticipation of future demand.
- Competitive aggressiveness: An intense effort to outperform industry rivals. It is characterised by a combative posture or an aggressive response aimed at improving position or overcoming a threat in a competitive marketplace.
- Autonomy: Independent action by an individual or team aimed at bringing forth a business concept or vision and carrying it through to completion.

These entrepreneurial individuals or teams facilitate value creating initiatives through the entrepreneurial process, namely opportunity analysis, development of business plan, determining and acquiring resources, and managing the initiative to fruition and beyond, that could result in any one of the types of corporate entrepreneurship, namely:

- Corporate Venturing: Involves starting a business within a business, usually emanating from a core competency or process.
- Intrapreneuring: An attempt to instil the mindset and behaviours that external entrepreneurs have with employees within organisations.
- Organisational Transformation: Involves innovation, a new arrangement or combination of resources that result in the creation of sustainable economic value.
- Industry Rule-Bending: A focus on changing the rules of competitive engagement.

The value creating initiatives ultimately manifests in new or improved products, technologies administrative techniques, strategies, systems, work processes, revenue streams and so forth, which in turn are aligned and can be reverted back to dominant logic that was translated into objectives, strategies, reward systems, planning approaches, structure, and management principles.

Orbiting around all these factors and processes are leadership and change that are required to modify the forces maintaining the organisation's behaviour at its present level, then shifting the behaviour of the organisation, departments, and individuals to the new entrepreneurial level, and stabilising the organisation at a new state of entrepreneurial equilibrium.

Leadership subsequently influences and imparts on every aspect in the organisational environment, constantly reinforcing the entrepreneurial vision, driving change, coaching employees, inspiring commitment, motivating action, and nurturing the climatic imperatives.

Lastly, it is important to also take note of the reciprocal effect between the climate and the environment. As the climate determines the conduciveness of the environment for entrepreneurial behaviour to manifest, so will the "happenings" in the environment in turn have an effect on the climate.

If, for example, a reactive posture, complacency, lack of buy-in, lack of ownership, unwillingness to excel, and "they-owe-me-mentality" prevail, the climate will respond adversely. Such behaviour and actions by members of the organisation cause holes in the organisations "ozone layer", which, over time, will make any entrepreneurial efforts unlikely to see the light of day.

9.3 RECOMMENDATIONS FOR IMPLEMENTATION

In order to translate the framework into a workable reality will firstly depend on a conscious decision by the organisation's leadership to embrace corporate entrepreneurship as dominant logic. Plato said, "the beginning is the most important part of the work," and a number of steps is subsequently recommended that will open the doors of corporate entrepreneurship in mining companies in South Africa.

- Assess the organisation's internal climatic imperatives.
- Instil discomfort with the status quo.

- Create a vision that stretches employees.
- Create a sense of urgency.
- Involve employees.
- Remove obstacles that hinder corporate entrepreneurship.
- Find and reward sponsors.
- Open up the system for innovation.
- Create an intrapreneurial architecture.
- Enable choice in the lives of employees.
- Build community and be intolerant of selfish politics.
- Measure the rate of innovation.
- Train and develop employees.

An explanation of each step follows.

9.3.1 Assess the organisation's internal climatic imperatives

It is important to know where you are before you can decide where you want to go. By using the Corporate Entrepreneurship Climate Questionnaire used in this study (Annexure D), the mining company can assess the status quo in terms of the thirteen climatic imperatives reflected on the outer block of the framework as perceived by its employees. Simultaneously, the leadership can use the thirteen questions below to gauge the extent of their own current attitude to the climatic imperatives.

- Entrepreneurial Leadership: Are we sharing the organisation's vision, and creating the space, systems, procedures, and culture that free others – at all levels of the organisation – to take responsible initiative that can achieve the vision, and mobilising other strong people?
- Management Support: Are we facilitating and promoting entrepreneurial activity in the firm; supporting innovative ideas; providing necessary resources or expertise, and institutionalizing the entrepreneurial activity within the firm's system and processes?

- Sponsors (Champion): Do we have sponsors who champion coach, protect, and marshal resources for intrapreneurial endeavours?
- Tolerance for risks, mistakes and failure: Are we willing to take risks and show a tolerance for failure when it occurs; allowing experimentation and encouragement of trial and error?
- Innovation and creativity / New ideas encouraged: Do we encourage innovation among employees and creating the space for stimulating ideas to bubble up from individuals?
- Appropriate rewards and reinforcement: Do we appropriately rewarded intrapreneurs for all the energy, effort, and risk taking expended in the creation of new processes/systems/methods?
- Vision and strategic intent: Are we articulating an inspiring future that guides decisions, inspire commitment, and motivate action? Are our employees moved by the vision and do they understand what they must to bring it to realisation?
- Discretionary time and work: Do our employees have discretion to the extent that they are able to make decisions about performing their own work in the way they believe is most effective; and do we allow people freedom to use some of their time to explore new ideas and hunches without having to ask for permission?
- Empowered teams / Multi-disciplined teamwork and diversity: Are our teams cross-disciplinary and diverse to improve innovation, and are they empowered to make decisions?
- Resource availability and accessibility: Do we provide support in terms of resource (money, time, people, equipment, and competencies) availability and make it easily accessible for intrapreneurs to explore and develop new ideas to include?
- Continuous- and cross-functional learning: Do we encourage employees to constantly improve and develop themselves; to identify opportunities and solve problems through collaboration and a knowledge-sharing?
- Strong customer orientation: Do we invest their time, energy and imagination in listening to, and understanding customers; and do we instil

customer orientation with our employees so that they understand customer needs and satisfaction are the priority of our organisation?

- Flat organisational structure with open communication and strong sense of belonging: Do we have a decentralised, flexible structure that can react quickly to the changing environment, and facilitates organisational community where people take care of each other and help each other out?

9.3.2 Instil discomfort with the status quo

At the heart of corporate entrepreneurship is a healthy dissatisfaction with things as they are. When people in the organisation generally are aware of a problem, it can be said to have entered the corporate consciousness. However, when leaders get up and “shout it out” as to speak, the problem has not only entered the corporate consciousness – it has also become a part of the corporate conscience. At that point, the tide in the organisation can begin to turn.

However, dissatisfaction with financial performance alone is not the best driver of innovation. It tends to focus managers on devices to increase short-term profitability, and this frequently means killing off innovation projects.

If mining companies want to raise their level of dissatisfaction in useful ways, they must approach the issue more qualitatively. They shouldn't let the system filter out unpleasant truths. They must build direct lines to customers, suppliers, and employees. Leaders could engage in in-depth e-mail conversations with random employees, and then use the information to fix the larger system.

Select a customer and spend time with people in that company. Find out what suppliers think. Get together a panel of the lower-level employees working within the organisation – just the senior executives and them, off-site and off the record. What have they learned about how the company functions?

Use the Climate Questionnaire in annexure D to increase the dissatisfaction with the way the organisation goes about innovation. It can stimulate dialogue on ways to improve innovation that build on the organisation's climate and cultural strengths and address its weaknesses. The questionnaire could also be used to conduct an annual culture check in all the various areas of the company. In that way mining companies will learn which of their leaders are true supporters of innovation.

Once the senior executives have become truly dissatisfied with things as they are and are determined to make them better, it's time to raise the level of dissatisfaction in the rest of the organisation.

9.3.3 Create a vision that stretches employees

It is impossible to give employees the freedom they need to be innovative unless they are guided into alignment by some force other than hierarchical commands. Vision is a powerful tool for aligning the independent, entrepreneurial employee.

Create a vision that stretches the organisation beyond "business-as-usual" – a strategic intent that exceeds what seems possible with existing resources. Such a vision or intent demands organisational transformation, not just incremental improvements and creates new freedoms and new responsibilities because it requires the creative energy of all employees.

A vision must go beyond mere financial goals. Employees will not leap out of bed in the morning to give shareholders a 15 percent return on their investment. They need an inspiring picture of what the company is to become.

9.3.4 Create a sense of urgency

In the previous chapter, triggers for corporate entrepreneurship were discussed. The message might come across that companies seek entrepreneurial behaviours from their employees when they are in trouble,

and the sense of crisis motivates employees to make innovation happen. The reality is that employees are always capable of entrepreneurial behaviour.

Very often, however, management and employees do not perceive the need for innovation and change. Possible strong performance of the company and a preoccupation with the demands and day-to-day operations could lead to complacency and a tendency to underestimate the extent to which things are changing in the external environment.

Further, innovation is disruptive. Managers have a natural tendency to applaud past accomplishments and reputation of the organisation, even when those accomplishments have little to do with current marketplace conditions and that reputation may no longer be deserved.

The great challenge for any mining company wishing to achieve sustainable entrepreneurship is creating an ongoing sense of urgency throughout the organisation. When there is a crisis, employees feel the urgency, but when the crisis is overcome, complacency eventually sets in. Management must create an environment where urgency is felt all the time. Urgency in this context refers to a compelling sense that organisational survival depends on change. It is an imperative that suggests that the company either innovates or falls behind – there is no middle ground. Urgency is a call for immediate action, a pressing need to do things differently, a belief that time is running out.

Management must instil in their employees a burning desire to make things better. In other words, inspire people to demonstrate a combination of paranoia (someone is out there right now figuring a superior way to do this), competitiveness (we can out-innovate anyone), pride (with our people and passion, anything is possible), and obsession (we are focused and will not quit before we reach the mountain summit).

Creating a sense of urgency is different from creating a sense of crisis. Urgency is a call to action, but it is not about short-sightedness, pragmatism, or change for the sake of change. The imperative for innovation and change

does not preclude the need for strategy and planning. Furthermore, a sense of urgency does not lessen the need to build operations around sound business fundamentals. In fact, such fundamentals as a customer focus, a quality emphasis, value for money, and investing in employees should be the focal point of the concern for urgency.

9.3.5 Involve employees

At the annual strategy meetings of mining companies, the top officials of the company listen to the CEO lay out the strategy for the coming year. Though they give brilliant presentations too often we see a blankness or weariness in the audience. Why are they not moved?

If leaders are perceived to be perfect, nothing happens. As long as the CEO is advocating from a position that says, "I know it all and I hope you all get it," the creativity of employees are not evoked. Instead, they wait for the all-knowing boss to tell them how the vision affects them and their area of work.

Effective leaders admit that they don't know it all. Though they are sure the directions they point in contain fruitful opportunities for innovation and change, they also know that they need the creativity and intrapreneurship of many ordinary employees to find and implement the specific opportunities that lie within the overall strategy.

9.3.6 Remove obstacles that hinder entrepreneurship

Nothing creates pessimism faster than a senior management team that calls for innovation and then leaves in place the systems and people who are very obviously blocking it. Here are some suggestions for mining companies:

- Ask the innovators in your organisation who the most damaging blockers of innovation are. Don't promote those blockers. Watch them and, if appropriate remove them.

- Give everyone in the organisation “Save a Tree” rubber stamps. Have them stamp and return any form or report they don't need to see. This could save hours of wasted work and impact on the human spirit of lifting the burden of waste.
- Put together a team to discover obnoxious approvals and forms. Ask who requires them. Most probably those people are retired or no longer care. Eliminate approvals and forms that are not mission-critical.
- Require every report generated internally to include an estimate of the number of hours that went into preparing it. Often minor requests for information stop real work in its tracks as middle management scrambles to get the most precise answer possible. When the answer to a casual question turns out to have cost three hundred hours, leaders will start asking questions more carefully.
- Expose the “turf-defending”, bureaucratic cynics and deal with them. Afford them the opportunity to re-evaluate their attitudes or have them resign quietly if they are not prepared to embrace change.
- Create an environment in which people at all levels can get on with the work of turning the vision into a reality.
- Promote only those who sponsor rather than block innovation.

9.3.7 Find and reward sponsors

Sponsors are a critical link between top management and the corporate entrepreneurs in the organisation. They select, fund, nurture, guide, educate, question, and redirect innovators. No system for promoting corporate entrepreneurship can replace the courageous and vital sponsor who understands and cares about the intrapreneurial team and its idea. But effective sponsors are generally rare and underappreciated.

Scan the organisation for managers whose people are exhibiting entrepreneurial behaviour and invest in them. Also interview successful innovators and find out from them who came to their defence in their difficult

times in their quest to bring the idea to fruition. Find out whose coaching they found the most helpful and who used their clout to keep their project alive.

More than often only a tiny proportion of the company's managers are doing the major share of the successful sponsoring. The rest get in the way and/or lack the business judgment to know who or what to sponsor.

Good sponsors have the judgment to recognise an idea before it is obvious. They have the people skills to bring out the best in a team without taking over. They have the selflessness to defend good ideas even when those ideas are unpopular. They are your best candidates for the future leadership of the company.

9.3.8 Open up the system for innovation

Keep your system open to all kinds of innovation. Value continuous improvement, process breakthroughs, new products and services, new ways of working together, new internal services, and new organisational patterns. While the emphasis may change, all kinds of innovation have their place.

9.3.9 Create an intrapreneurial architecture

The essence of an innovative organisation is flexibility, although the flexibility needed is not achieved by constantly changing the formal organisational structure. The entrepreneurial organisation is a constantly changing network of relationships across the formal boundaries. Given an intrapreneurial architecture, people seeking the connections that will enable them to do their best work will contribute to adapting and transforming the organisation.

Management of mining companies should determine what policies and institutions will foster the most effective self-organising system, as well as what "force fields" can be put into place that will guide its evolution toward constructive activities and structures.

9.3.10 Enable choice in the lives of employees

To create flexible systems that adapt to the challenges at hand, build choice into the lives of employees. In a bureaucratic organisation employees wait to be told what to do. In an intelligent organisation, employees don't wait; they exercise their freedom of choice.

The following are some examples of choice that mining companies can build into their systems:

- Institute a 15 percent rule. Many companies have policies that allow employees to spend a percentage of their work time on new ideas of their own choosing. This lets them test ideas and explore potential opportunities. It improves the quality of employee suggestions because employees have time to evaluate ideas before bringing them to management's attention.
- Give employees more choice over which projects they work on. Some projects that don't make business sense will probably wither away for lack of staff. Also, management will find out who the real leaders are – everyone will want to be on their teams.
- Let operating divisions choose how much staff service they want to buy from whom. Not only will costs drop, but staff services will improve. Formerly bureaucratic staff functions will get creative in finding ways to satisfy the needs of their internal customers.

Competition and duplication have a bad name in companies, but in truth, they can be good or bad. Political competition for a monopoly right to deliver services or provide components often brings out the worst in people. But when customers have choice, the competition to earn a place in the evolving network brings out innovation, cost consciousness, and a search for effectiveness.

9.3.11 Build community and be intolerant of selfish politics

Management will find it easier to build choice into the system if they can trust employees to use it for the good of the organisation rather than to promote their narrow personal interests. Management can build community spirit by creating visions of the future of the organisation that address people's deepest values; making the organisation stand for something the employees can be proud of – something that makes it worthwhile to rise above selfish concerns.

At the core of community is voluntary contribution to the whole, above and beyond the call of duty. Too strict an accounting of time, too brutal a management-by-objectives system, too much focus on narrow measures of performance, and the sense of voluntary contribution suffers. Mining leadership can do the following:

- Respond with gratitude to all volunteer efforts to serve customers and make the organisation more effective.
- Create space for individuals to volunteer for team projects outside their normal jobs.
- Make sure all managers understand that the volunteer sector inside the organisation is the root of corporate community.

A less pleasant task in community building is discouraging managers who are more interested in fighting over turf than building the strength of the whole organisation. But how do you find them?

Looking down from the higher reaches of the organisation, you may find it difficult to see which of your people are generous to each other. By contrast, it is very easy for the people below to see which managers are builders of the organisation and which are only builders of their own careers. Too often, those who fight for what they believe is right are labelled as “non team players,” while those who earn points with the boss at the expense of the

organisation and its customers are seen as “willing to sacrifice for the good of the whole.” Do not be fooled. Know what employees think of their leaders.

To create a mining company that has the integrating force of community, management should go out of their way to discourage and refuse to promote those who are primarily working to increase their own power. Some ideas are:

- Be intolerant of finger pointing. Speak strongly to those who blame individuals rather than seeking the root cause of a problem. Do not be interested in whose fault it is; talk about how to fix it.
- Favour those individuals who correct the systemic sources of problems. Build processes to reveal subordinates’ opinions of leaders and managers.
- Review the long-term effects of a manager’s tenure. If a manager’s area falls apart soon after he leaves, he probably created short-term results at the expense of the long-term health of the organisation. If many innovative successes were started during his term, you had someone who was working for the long-term good of the system.

The central task of a leader is to lift people out of selfishness and local turf defence into a concern for the success of the larger enterprise, the larger community. If the people are attacking one another, the leader has failed.

9.3.12 Measure the rate of innovation

Mining companies get what they measure and pay attention to. If mining companies want innovation, they must measure it. Although it is not easy to do well, the effort to measure innovation counterbalances the tendency of normal accounting measures to focus people’s attention on the short run.

Mining companies should consider instituting an “innovation audit” to measure the innovation output of departments and divisions – a team of auditors to visit departments and division and review all the innovations, classifying them on a scale that runs from minor improvements to new breakthroughs from which

numerous superior new processes / technologies / arrangements / products / services are expected to evolve. The results of this audit, like the financial results, should be considered a key measure of a leader's performance.

9.3.13 Train and develop employees

The significance and value of training and development has long been recognised. Given the requirements of establishing an entrepreneurial orientation in a mining company that implies venturing into novel terrain the need for training is even more obvious.

Training, in the most simplistic definition, is an activity that changes people's behaviour. Because corporate entrepreneurship might be a foreign concept to many employees in the mining industry, they will have to be educated in the fundamental principles in order to gain understanding.

In terms of training and development needs pertaining to the integrated framework for corporate entrepreneurship, the assessment stage will prove valuable to identify such needs. Training and development programmes should be designed, prioritised and delivered forthcoming the assessment of the organisation's current corporate entrepreneurial status.

It is also recommended that an experiential approach to training and development for corporate entrepreneurship be adopted, because the best way to learn is through experience. There is a subtle yet distinct difference between **words** and **meaning**. Words fail to express the deepest levels of human experience. People first experience then assigns meaning to their experiences through language. When a phrase is used excessively, it loses its impact until only a cliché remains. Because clichés are so worn out by constant use, they are largely ignored.

Similarly, instruction that uses only description and lecture becomes trapped within the repetition of its own jargon and can be meaningless to delegates.

Experiential learning goes beyond the limitations of language to the deeper levels of meaning that language cannot express.

Subsequently the three modes of learning namely ***cognitive***, ***emotional***, and ***physical*** need to be addressed. Many training and education approaches utilise primarily the first, occasionally the second, and rarely the third. When the emotional and physical modes are also included it adds fire to the “dryness” of an intellectual exercise. The impact of the three modes used together can shift an employee’s perspective in a way that a classroom environment alone cannot.

9.4 ACHIEVEMENT OF THE STUDY’S OBJECTIVES

The main objective of the study was to develop an integrated framework to create a climate conducive for corporate entrepreneurship in the mining industry. In pursuance of the objective, a number of sub-objectives were set, i.e.:

- Gaining understanding on the entrepreneurial phenomenon and how it applies to the corporate environment.
- Determining the current entrepreneurial climate in South Africa’s mining industry.
- Determining the opinions and experiences of selected leaders in the mining industry pertaining to entrepreneurship in a corporate setting.
- Gaining understanding on the impact of leadership in creating a climate conducive to entrepreneurial activity in a company.
- Determining the strengths, weaknesses, opportunities and threats in terms of corporate entrepreneurship development in South Africa’s mining industry.
- Applying the forthcoming literature and empirical data to propose recommendations for practical application to improve the entrepreneurial climate in mining companies.

These sub-objectives were covered in the preceding chapters of the study to ultimately culminate in achievement of the primary objective.

9.5 RECOMMENDATIONS FOR FUTURE RESEARCH

The focus of this study was on the corporate entrepreneurship antecedents pertaining to the organisation, i.e. the internal environment of mining companies in the South African mining industry. Subsequently, the first recommendation for future research is the corporate entrepreneurship antecedents pertaining to the external environment of the mining industry in South Africa.

It is the author's submission that government bureaucracy, policies and related regulatory- and legislative framework do not contribute favourably toward the creation of an *external climate* conducive for corporate entrepreneurship to flourish in the mining industry.

Therefore, a second recommendation for future research that links with the first is how the South African mining industry compares to its international competitors in terms of its external environment, with specific reference to the regulatory- and legislative framework and government bureaucracy and policies.

9.6 SUMMARY

The challenge for South African mining companies is sustainable corporate entrepreneurship – making entrepreneurship happen on an ongoing basis and throughout the company. However, an entrepreneurial climate is required to sustain entrepreneurship in a corporate context, and an integrated framework to improve the entrepreneurial climate in the South African mining industry is proposed to facilitate the improvement of the entrepreneurial climate.

The framework refers to thirteen *internal climatic imperatives* to help establish entrepreneurship as dominant logic that permeates the prevailing mindset of

every member of the organisation and drives the overall focus of the organisation's existence in relation to the combination of man, machines, methods, materials, markets, money and information.

The dominant logic also infuses entrepreneurship that translates into an organisation where the dimensions of corporate entrepreneurship, namely innovativeness, risk-taking, proactiveness, competitive aggressiveness and autonomy, are prevalent norms.

Entrepreneurial individuals or teams can then facilitate value creating initiatives through the entrepreneurial process, namely opportunity analysis, development of business plan, determining and acquiring resources, and managing the initiative to fruition and beyond. The result is that corporate venturing, intrapreneuring, organisational transformation and industry rule-bending become reality, and ultimately manifests in new or improved products, technologies, administrative techniques, strategies, systems, work processes, revenue streams and so forth.

In order to translate the framework into a workable reality requires a conscious decision by the organisation's leadership to embrace corporate entrepreneurship as dominant logic, and a number of steps are recommended for implementing the integrated framework, namely:

- Assess the organisation's internal climatic imperatives.
- Instil discomfort with the status quo.
- Create a vision that stretches employees.
- Create a sense of urgency.
- Involve employees.
- Remove obstacles that hinder corporate entrepreneurship.
- Find and reward sponsors.
- Open up the system for innovation.
- Create an intrapreneurial architecture.
- Enable choice in the lives of employees.

- Build community and be intolerant of selfish politics.
- Measure the rate of innovation.
- Train and develop employees.

The development of the integrated framework for corporate entrepreneurship subsequently supports the achievement of the primary objective of the study, as well as the sub-objectives that ultimately contributed toward its achievement.

In terms of future research, the corporate entrepreneurship antecedents pertaining to the external environment of the mining industry in South Africa is recommended, as well as comparisons with international mining companies in this respect in order for possible regulatory, legislative and policy contributions.

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and compete with one another. Having both enhances a nation's competitiveness, and, consumers and the economy are the beneficiaries.

Do you think that large firms, like mining companies, can be entrepreneurial in the positive sense of creating real economic value for everyone's benefit through the development of new products and services? Explain.

Do you think it is reasonable to expect that in large mining companies one would find a plethora of ideas and potential ideas that go unnoticed because there are some structural impediments to their realisation, or little or no incentive for employees to bring such ideas forth? Explain.

The South African mining industry is one of the most important contributors to the growth and development of the economy. According to the Chamber of Mines of South Africa 2005 annual report, the sector (just naming a few):

- Accounted for 6.6% of gross domestic product (GDP) in 2004.
- Directly accounted for 9.9% of total fixed investment and for 14% of total private sector investment.
- Accounted for 35.3% or R534-billion of the market capitalisation of the JSE for 2004.
- Contributed R90.3-billion to exports, representing 29.3% of South Africa's total merchandise exports in 2004.
- Directly employed an average of 457 371 workers in 2004.
- Paid about R6.9-billion in direct taxes and R4.1-billion in other taxes in 2003.

Although these figures are quite impressive, what do you think could be done to improve on them?

ANNEXURE B

CHIEF EXECUTIVE OFFICER INTERVIEW PROTOCOL

Opening:

Thank you very much for participating in this process of gathering information for this study to learn about and understand entrepreneurship in a corporate setting and the impact of leadership in establishing an entrepreneurial climate. I am conducting interviews with CEOs and leaders in the mining industry prior to engaging in a survey aimed at middle-management. These interviews are part of an effort to discover what the processes are that are at work in entrepreneurial companies. In other words, my goal is to locate, illuminate, and understand the distinctive values, practices, competencies and skills that are in operation in companies that leap ahead of their competitors, who sustain a culture of innovation and change, and keep on developing and growing.

This interview will form part of an attempt to determine the point of view of leaders in the mining industry pertaining to entrepreneurship in established firms. All comments from this and other interviews will be anonymous. Names will not be attached to any of the stories, suggestions, examples, or comments made.

I will be making a number of statements and ask you a number of related questions in terms of your experiences in the past.

I kindly ask for your permission to record it.

BACKGROUND

Over the last decade, there has been a growing interest in the use of corporate entrepreneurship as a process for corporations to enhance the innovative abilities of their employees and, at the same time, increase corporate success through the potential creation of new corporate ventures,

and it seems that the pursuit of corporate entrepreneurship has arisen from a variety of pressing problems including:

- Increased global competition;
- Continual downsizing of organisations seeking greater efficiency;
- Dramatic changes, innovations, and improvements in the marketplace;
- Perceived weaknesses in the traditional methods of corporate management; and
- The exodus of innovative-minded employees who are disenchanted with bureaucratic organisations.

Subsequently, many large companies are seeking ways of reinventing or revitalising their entrepreneurial roots. These companies often long for some of the spark, innovation, speed and risk taking that they once had, but which have slowly eroded under the weight of size, bureaucracy, complex processes and hierarchy.

Do you believe that corporate entrepreneurship can be an antidote to large company staleness, lack of innovation, stagnated top-line growth, and the inertia that often overtakes the large, mature companies of the world? Explain.

However, there are those who believe that corporate entrepreneurship can also be an oxymoron, a novel approach to new business development that often sits uncomfortably, sometimes impossibly, next to the planning, structure and careful organisation many large companies have often built so carefully over the years.

How would you respond to that?

It is said that corporate entrepreneurship is in national interest, not only because large firms account for much of the nation's economic output and jobs, but also because corporate and independent entrepreneurs complement

CHALLENGES FACING THE SOUTH AFRICAN MINING INDUSTRY

According to the Chamber of Mines of South Africa (2005), the most fundamental challenge facing the South African mining industry is the productivity of labour and capital and their impact on the cost of mining and extracting minerals. To remain competitive, particularly with many low-cost emergent world producers, South Africa's mining industry has to focus on productivity and cost trends. Operating margins have to remain, or become competitive to attract investment into the industry, and to sustain existing operations. For the industry to remain competitive, it must be provided with an operating and investment environment that does not disadvantage it in relation to other mining countries.

How do you think, in practical terms, these challenges should be addressed?

Research identifies 5 Dimensions of Corporate Entrepreneurship, namely Innovativeness, Risk-taking, Proactiveness, Competitive Aggressiveness, and Autonomy...

Innovativeness: A willingness to introduce newness and novelty through experimentation and creative processes aimed at developing new products and services, as well as new processes.

Risk-taking: Making decisions and taking action without certain knowledge of probable outcomes; some undertakings may also involve making substantial resource commitments in the process of venturing forward.

Proactiveness: A forward-looking perspective characteristic of a marketplace leader that has the foresight to seize opportunities in anticipation of future demand.

Competitive aggressiveness: An intense effort to outperform industry rivals. It is characterised by a combative posture or an aggressive response aimed at improving position or overcoming a threat in a competitive marketplace.

Autonomy: Independent action by an individual or team aimed at bringing forth a business concept or vision and carrying it through to completion.

In your opinion, how prevalent are these...

- ☐ *in the mining industry?*
- ☐ *in your company?*

Do you have a practical example?

Research identifies 4 types of Corporate Entrepreneurship, namely Corporate Venturing, Intrapreneuring, Organisational Transformation, and Industry Rule-bending...

Corporate Venturing: Involves starting a business within a business, usually emanating from a core competency or process.

Intrapreneuring: An attempt to instil the mindset and behaviours that external entrepreneurs have with employees within organisations.

Organisational Transformation: Involves innovation, a new arrangement or combination of resources, that results in the creation of sustainable economic value.

Industry Rule-Bending: A focus on changing the rules of competitive engagement.

In your opinion, how prevalent are these...

- ☐ *in the mining industry?*
- ☐ *in your company?*

Do you have a practical example?

ON LEADERSHIP

While numerous authors advanced the notion of "visionary leadership" during the past twenty years, others believe that the concept of "entrepreneurial leadership" has emerged as the solution for the 21st century. Many companies today are realising the need for entrepreneurial leadership, and it is understandable because of the uncharted and unprecedented territory that lies ahead for businesses in today's dynamic markets.

One author states that the most important function of an entrepreneurial leader is not to find new opportunities or to identify the critical competitive insights, but rather to create an organisation that does these things as a matter of course. They argue that the entrepreneurial leader would have succeeded when:

- ❑ Everyone in the organisation takes it for granted that business success is about a continual search for new opportunities and a continual letting go of less productive activities;
- ❑ Everyone feels that he or she has not only the right but the obligation to seek out new opportunities and to make them happen;
- ❑ The hallways buzz with energy, when people come to work excited, and when they are proud to be associated with your dynamic organisation; and,
- ❑ The value created within the organisation translates into stakeholder wealth.

<i>Is this mere wishful thinking, or do you think it is possible to achieve?</i>

This kind of leadership was seemingly epitomised by Jack Welch who wanted General Electric to become the most competitive enterprise on earth. His objective was to put a small-company spirit into a big-company body, to build an organisation out of an old-line industrial company that would be more high-spirited, more adaptable, and more agile than companies that are one-fiftieth their size. He wanted to create a company where people dare to try new things – where people feel assured in knowing that only the limits of their

creativity and drive, their own standards of personal excellence, will be the ceiling on how far and how fast they move.

Do you think that mining companies could adopt similar approaches, or does the type of company restrict a leader in creating such an organisation?

Yet, other authors argue that the organisational archetype of the future will be entrepreneurial. Its leadership, strategies, and structure will reflect entrepreneurial thinking with associated characteristics.

Can you identify with this future perspective? Explain

ENTREPRENEURIAL CLIMATE

If the climate in an existing organisation is critical in how well the organisation will deal with growth, and if the climate of an organisation can therefore have significant impact on performance, and is created both by the expectations people bring to the organisation and the practices and attitudes of the key managers, what role do you believe leadership plays in this equation?

What do you consider to be the most important leadership characteristics and behaviour necessary to establish an entrepreneurial climate in an organisation?

GENERAL

Who do you regard as the greatest business leader of all times? Explain.

If you could change 3 things in your organisation with immediate effect, what would it be?

CLOSURE

..... I really want to thank you for availing me this opportunity, and for your valuable inputs. The next stage in my research is to conduct an

entrepreneurial climate survey amongst middle-management across the industry. In this regard I would like to ask for your approval to conduct the survey and to direct me to the person who could assist in facilitating the process. The idea is not to play-off one company against another, but rather to determine the industry climate. I am, however prepared to provide you with the results of your company if you so wish.

ANNEXURE C

CHIEF EXECUTIVE OFFICERS INTERVIEW SUMMARY

Can corporate entrepreneurship be an antidote to large company staleness, lack of innovation, stagnated top-line growth, and the inertia that often overtakes the large, mature companies of the world?				
Ian Cockerill (Goldfields)	Keith Rumble (Implats)	Neal Froneman (SRX Uranium 1)	Dr Con Fauconnier (Kumba Resources)	Jonathan Oppenheimer (De Beers)
• In theory, yes. Any seriously minded company is always interested in good quality ideas coming from its employees. • If you want to be true to your base, you need people in your organisation who are creative. • You must have the right environment that encourages "constructive decent" through mature and self-confident managers. • However, corporate governance, regulation and administrative load are obstacles that possibly cause you to impose more control in the organisation. • Hence, it increasingly difficult to execute.	• Yes. • You can break out of the stagnation. • You can reengineer a company; revitalise the company. • Transforming Implats into what it is today, being one of the top-performing companies on the JSE was done through corporate entrepreneurship; through corporate innovation. • It's about business transformation, and that process persists today. • Setting very clear goals in terms of technological improvements, cost targets and productivity targets are part of this culture of entrepreneurship.	• The bigger you get, the more difficult it becomes to be entrepreneurial. • Your risk profile changes and therefore it becomes more difficult to take the high risks. • The more international you become, the more complex the corporate governance becomes, and the less willing are directors who have to approve these things to take decisions. • It's more difficult, but it doesn't mean you shouldn't pursue it. • Especially in South Africa we can because of its skills base in mining.	• Yes. The general proposition is right. I think we need some of that; I think South Africa needs that. • Open the door for people to use their talent. • Give recognition where they've done good things. • Allow them to make mistakes. • That is where entrepreneurial spirit will start or end – if a guy hasn't or has the opportunity to use his talent. Because entrepreneurship starts firstly with a guy given room to do what he <i>can</i> do.	• What corporate entrepreneurship is in reality is a structural business process which truly empowers people to be accountable and deliver in their domain, and the creation of a management system which is not overly bureaucratic, and enables the environment. • It's in that context that much of the business design that companies – and here perhaps mining is a very good example of how <i>not</i> to do it – that become overly bureaucratised and centralised in terms of control.

There are those who believe that corporate entrepreneurship can also be an oxymoron, a novel approach to new business development that often sits uncomfortably, sometimes impossibly, next to the planning, structure and careful organisation.

Ian Cockerill (Goldfields)	Keith Rumble (Implats)	Neal Froneman (SRX Uranium 1)	Dr Con Fauconnier (Kumba Resources)	Jonathan Oppenheimer (De Beers)
• Planning and forecasting is trying to project the future to get a sense of what the general economic trend and the health of company are. • Where entrepreneurship comes in, is that the idea has to be instituted. It has to be delivered, and that requires processes, otherwise there is no stability. • Having established a budget, then applying innovative and probing questions and saying where we think we could do better, how can we do better, what needs to be done better, what needs to be stopped, what needs to be pushed.	• Largely got to do with the cards that you're dealt in life. • Our largest competitor is in the privileged position that they can actually pick and choose where and when they expand and exploit a resource. But that has perhaps led to stagnation; the lateral thinking isn't necessarily taking place. • We didn't have that luxury; we had to look at other ways of creating growth for the business. We had to do things ourselves, and do things efficiently to afford the cost of capital of expanding them. • Some highly successful companies are successful because of its resource-base, sometimes lose the efficiency edge; they don't have to sharpen their pencil to great an extent.	• It is imperative if you're going to grow a company even if you are already large to be entrepreneurial – that's the fundamental of business, • If you follow proper process: good strategic planning, ownership of that strategy and then clearly putting your proposals through that strategic filter. If you can bring an opportunity to a board, it's in line with your strategy, you follow all the right processes – yes it takes longer – there is no reason why you can't be entrepreneurial. • Sometimes it's difficult to move quickly but there is no reason why you can't, through a proper structured way, still be entrepreneurial.	• I don't think it is. You're doing your organisation disfavoured if you don't see the need for innovation. • Today a 5-month plan is an ambitious issue. It can't be an oxymoron. • You better be able to think on your feet. • You better be able to react very quickly to market conditions. • You better be able to react quickly to any stimulus in the external environment which affects your company • You got to be able to react quickly to opportunities that come your way. • You can't wait for them to fit into your 5-year plan; you can't wait for them to fit into your 1-year plan. Against that background it's actually... success and rigid planning for me is almost an oxymoron. Those two don't go together.	• When we start talking about corporate entrepreneurship, what we <i>actually</i> talking about is more a desire to unlock some of the capacity inherent in the system, but not in a high-risk way, in a considered risk way... subtle difference. And in that context organisations that can do that tend to be very dynamic. • My thesis would be, we need to look at describing very accurately the type of individual who recognises, in a considered and risk-appropriate way, opportunities to create value within their own domain.

Do you think it is reasonable to expect that in large mining companies one would find a plethora of ideas and potential ideas that go unnoticed because there are some structural impediments to their realisation, or little or no incentive for employees to bring such ideas forth?

Ian Cockerill (Goldfields)	Keith Rumble (Implats)	Neal Froneman (SRX Uranium 1)	Dr Con Fauconnier (Kumba Resources)	Jonathan Oppenheimer (De Beers)
• Absolutely. • Need mechanism or process where people can bring forth ideas. • If you don't grow the right environment those ideas will never see the light of day, nor be nurtured or cared for.	• In general the mining industry is not particularly good in harnessing the ideas of the "shop floor." • We have tried to break through that by having a number of forums whereby employees are encouraged to participate with ideas. • I think we're partly successful – impressed with the number of ideas that are being generated, but I don't think we are a 100% there yet.	• There are definitely always impediments; it doesn't matter how hard you try and create a participative environment. • If you can remove the hygiene factors – the obstructions to people participating in management – those will lead to unblocking of processes.	• We've got a phrase here: "we work through the skill of people, not through rules and regulations." Some of the innovation we've seen come out of the company has only come because we've got great people and great people being given the opportunity to get on with it. • If your organisation is not in its heart entrepreneurial, I think you're going to get caught short.	• I think there are a series of structural events built around apartheid and the closing of the South African economy which made it very difficult for emergent talent to express itself in the mining sector. • The consequence of that is it either found alternative expressions – most of the South African economy was stagnant – so it left. Hence the migration out of South Africa between 1980 and 1995 of substantial "intellectual horsepower."

The South African mining industry is one of the most important contributors to the growth and development of the economy. Although the contribution is significant, do you think the industry's performance can be improved upon?

Ian Cockerill (Goldfields)	Keith Rumble (Implats)	Neal Froneman (SRX Uranium 1)	Dr Con Fauconnier (Kumba Resources)	Jonathan Oppenheimer (De Beers)
• Gold is a mature industry; in a secular downward trend, and will not recover. • In the absence of new discoveries and the opening up of new mines, it is inevitable that it will decline. • Platinum is clearly still growing. • Coal is fairly strong; there is clearly an attempt to build up the iron ore sector; and the coal sector. • Not necessarily bad, because mining is still effectively a primary industry, and this country is now moving away from being predominantly resource-based country; becoming much more of a diversified economy. Much healthier for the country than an over-reliance upon the mining sector.	• The market will ultimately determine the extent of investment and the extent of success of the industry. • You can't force the matter... you can't regulate that somebody has to make an investment... the market will dictate whether that investment is viable or not. • The demand that is coming out of India, China and Brazil economies is quite profound in terms of their intensive use of metals is coming on top of an industry that is already running at full capacity. That in turn is creating this run up in metal prices. That by its very nature will result in some additional investment in mining on a global basis. • The extent that South Africa has competitive advantages in terms of resources that are either unexploited or cost structure that is better than the competition... that will have to determine whether South Africa actually benefits from this global run.	• For sure! • However, there are a lot of constraints in South Africa. Government puts a lot of constraints on business here, and that's why people are actually moving to rather invest elsewhere. • Where government should be facilitating business, they actually get involved and because of their political agendas, there are real constraints. BEE, is one of the biggest impediments to doing business here. The whole issue of the new minerals legislation... they can't even approve prospecting permits. It is very, very difficult to do business here at the moment.	• Yes it can be. • There are unexplored reserves that we don't know about and there are some known reserves that haven't got mines on them yet. • The beneficiation issue: In general where you can beneficiate you should, because that adds to the earning ability of the mineral wealth that this country is endowed with... That you make maximum use of that and not take a ton of ore and send it to somebody overseas and he turns it into something else. • I'm just a bit worried that if you try and almost plan it from a central side you get into that stage where you think a planned economy works better than the free-market system. • What the government's got to make sure is that the bureaucracy, the red tape and the conditions for investment are sorted out. If that is sorted out, naturally	• I have to say yes, and the heart of that is operational excellence. The mining industry lends itself to apparent – and I use the word deliberately – apparent centralised control. • My hypotheses would be that the mining industry, because it lends itself to the perception of good centralised control, has become too centralised, and the consequence of that is that the decision making by all levels of management is not as efficient as it should be. • That does two things. One, it make's it an unattractive place for a junior person to work; so it chases the talent away. And the second is it harms financial returns. In that context I would place mining generally – and South African mining in particular – in the bottom quartile of global management practice. • Generally mining is badly managed... And again it

	•The gold industry is under huge pressure. The higher gold price will certainly extend a lifeline there. •The platinum industry is somewhat different. South Africa is dominant in the world of platinum, and the market needs the metal. The market is there, secure, and if the market needs the metal, there needs to be a basket of value to South African producers that justifies investment in capacity.		things will flow to where it makes commercial sense. •The world is changing, and we must capitalise on those changes. I think there are more and more opportunities, and already we're seeing some of them, like the platinum guys that are starting to make auto-catalysts in this country. • Yes, there is scope for further improvement, and that is where you need more entrepreneurs... And, yes, we've got the entrepreneurs in the mining industry to open up more mines, and there is a lot of capital going into new mines at the moment.	comes down to definitions... The pure definition of entrepreneurship is not a cure. The cure is dynamically structured, clear accountability structures which create truly empowered and enabled operational management who are allowed to make appropriate decisions at the corporate levels. You create that then you create a much more dynamic space where you can drive returns on capital significantly.

According to the Chamber of Mines of South Africa (2005), the most fundamental challenge facing the South African mining industry is the productivity of labour and capital and their impact on the cost of mining and extracting minerals. To remain competitive, particularly with many low-cost emergent world producers, South Africa's mining industry has to focus on productivity and cost trends. How do you think, in practical terms, these challenges should be addressed?

Ian Cockerill (Goldfields)	Keith Rumble (Implats)	Neal Froneman (SRX Uranium 1)	Dr Con Fauconnier (Kumba Resources)	Jonathan Oppenheimer (De Beers)
• Separate factors that you can influence and those that you can't influence. • Can't influence the exchange rate; can't influence the price of gold, • We can do nothing about the value; we can do something about the volume. The real influence comes in on the cost side and on the efficiency, the productivity. • Don't mean the same output with fewer people, mean more output with the same people. • Strong Rand can have an influence; cannot switch things on and off like a light switch. • To turn a mine around takes a period of time, and your ability to maintain your operating margin is very much influenced by spending only the bare essential amount of cash; are you working your assets as effectively as you would like	• Labour is 60% of our total cost base. • It's aggravated by the HIV issue in the health and strength of employees. • I don't know that know that they've done enough about technological opportunities in terms of reducing reliance on labour. • Balance between the social needs for employment and the cost pressures that the company's facing – a tightrope that one's walking all the time. • We're busy developing some technology that tries to reduce the amount of human effort that goes into drilling and blasting, because essentially our operations are drilling and blasting – that's the cycle – and if you got a weakening workforce drilling takes longer, your blasting efficiencies goes down as your costs go up. • I think those are the sort of	• Mining in South Africa in general is deep, and deep-level mining is perceived as high-risk. Investors factor that in – the higher technical risks. • That leads to a cost structure that is significantly higher than elsewhere in the world. • Although you can improve productivity, it is inherent in the design. • The fact the mine is deep, you need multiple shafts, you need people on the top, you need people on the bottom, it takes them a long time to get to their working place... improvements will be marginal. • I don't think we'll ever compete, just because we're playing on a different playing field. • Even if we doubled productivity you can factor in the changes into our cost structures and certainly the deep level mines will still	• The regulatory / admin support for the whole of the industry. • Our labour laws are too liberal on the one side and too rigid on the other side for the stage of development. • We still have a problem with red tape in this country... Looking at the issue of mineral rights conversions: The conversion of an average exploration licence now is taking six months; a mining licence is taking twelve months... It's too long in this modern world! You don't have the luxury of twelve months or six months. Our government's got to learn to do their part. • What the mining companies have to do: opportunity identification and exploiting it. • The other leg is the fact that we sit with a legacy in this country of disadvantage, especially in education.	• While I agree with the analysis of the symptom, right, I don't believe that the common perception of the cure is appropriate. The common perception of the cure is greater control. • I would argue that the effective cure is greater accountability rather than greater control... and holding individuals in the operational domain responsible and accountable for the performance of their domains. • You either have a negative spiral or a positive spiral... and it's very difficult to sit in the middle. • Right now, the entire industry is in a negative spiral. • Overall, I still think we haven't truly applied our minds, I mean, there isn't a mining company in the world that applies – truly – six sigma management practice. • There isn't a mining

to do. • Look at innovative work practices that can help influence productivity. We can make a big influence there, but aside from that, it's difficult, because we're very much in a price-taking industry.	innovations that one has to continue to work on because the technology in gold and platinum essentially hasn't changed for 30 years now.	have high costs relative to our peers. • That's exactly why our strategic plan is about operating in shallow, low-technical risk environments, because I don't think you'll ever get around that.	• One of the areas that I'm most worried about is the shortage of artisans. The average age of an artisan in this country is 54 years. About 6 to 8 years from now we're going to hit a brick wall if we don't do something now. • We still have a lot of people in the workforce that can't read and write. A guy that works for you that can't read and write at best you can give him a shovel or you can maybe with difficulty teach him to drive a truck. • If you want to get labour productivity up, the best form of empowerment is giving a guy the ability to become entrepreneurial. But you can't be entrepreneurial if you can't read and write! • Make sure that training and education gets priority... If we want to be world class we have to get that up to world standards. Otherwise I don't think we've got a chance.	company in the world that could – on a like-to-like basis – stand its management to the world best manufacturing management. And there's no reason why they shouldn't be able to stand shoulder to shoulder. • That's why I contend that mining management – or this management of mining activities – is on average bottom quartile. • There are a few stand-out exceptions, but by enlarge is in the bottom quartile... and it's in the bottom quartile because actually the resources are so rich that they can continue to make profits with management in the bottom quartile.

Research identifies 5 Dimensions of Corporate Entrepreneurship, namely Innovativeness, Risk-taking, Proactiveness, Competitive Aggressiveness, and Autonomy... In your opinion, how prevalent are these dimensions in the mining industry?

Ian Cockerill (Goldfields)	Keith Rumble (Implats)	Neal Froneman (SRX Uranium 1)	Dr Con Fauconnier (Kumba Resources)	Jonathan Oppenheimer (De Beers)
•Innovativeness: Very little on mining; only some in metallurgical processing. •Risk-taking: Gold is a long-life fairly conservative industry which is slow to react because it's been around forever. A dinosaur industry in nanosecond world. •Competitive Aggressiveness: definitely, e.g. Harmony hostile takeover attempt.	•Prevalent in some South African mining companies... less prevalent in others because of group structures and bureaucratic structures etc. •Very much about enabling an innovative organisation that is the key. •There's successes and failures in all of these aspects in the mining industry. •Traditional gold industry: there has been very little innovation in gold for 30/40 years now. Now it might be because of the force of circumstances or the relative economics of alternative technologies that determines that a man-held rock-drill is still the most cost effective way of extracting the ore. •Proactiveness is a very specific thing relating to each individual company... The mining industry depends on whose running the show at that point and time, whether	•Autonomy is very, important, and big companies generally don't have a lot of autonomy unless you have a very broad shareholder base, which is what we all strive for as CEOs. Difficult the bigger you get. •Competitive aggressiveness is probably our single biggest attribute. We are extremely aggressive. You may not see it in the public domain, but I promise you, we 'go for it.' •It's difficult to be proactive. Off course we all like to think we're proactive. That is important, and I must say I've got some team members that are very proactive. It's a key point. •The bigger you get the more difficult it is to take risks because it doesn't match your risk profile. As a small company we took huge risks. You manage the risks; you have to take risks. If there is no risk, there is no reward,	•Innovation remains a problem. •I think innovation is a function of the education a guy's got... not in the normal sense of the word, the broadest sense of the word; the opportunity given, and obviously with that often the facilities that you make available. •Part of innovation is for a guy to know that if he does something new there's recognition for him. •Innovation must come with the ability to innovate and given the opportunity to innovate; and that opportunity is almost a philosophical one where guys get on with the job. •Those are the elements... the ability; the opportunity; and the facilities or the resources to do it. If you've got a mix of those that are right, I think you will get innovation.	•Once we've defined and agreed the common definition, then we can have a debate about the logic chain going forward. Instead we use a catch-phrase, and entrepreneurship is a popular phrase in the political lexicon or the corporate lexicon. •But actually as a corporate, if I'm truly honest, I'm scared of an entrepreneurial approach, because it's inappropriate risk / reward bets... or it can be. •And if it is appropriate, then it's actually not entrepreneurial, it's just a person being very diligent and professional in their job. And then there comes a very blurred line... is that entrepreneurial or is that just very good operational management? They are the same under those circumstances. The definition converges.

	it is proactive or not. • Any businessman running a business in the mining industry is naturally competitively aggressive. You don't want to come second or third in the industry, you always want to be the leader and you set goals and objectives accordingly. • Large conglomerates constrain autonomy... If it wasn't the boardroom theme of the month then you probably weren't going to get a culture of entrepreneurship flowing down through an organisation...	simple as that. • Change for the sake of change is a waste; you have to be innovative, but just being innovative for the sake of being different or innovative is a waste of energy. • Some people introduce change for the sake of change, because they believe it keeps people on their toes, but it is misdirected. • There are a lot of things we've learned as an industry that don't need change. To me some of the structures – although they are militaristic – some of them are very appropriate.		

One author states that the most important function of an entrepreneurial leader is not to find new opportunities or to identify the critical competitive insights, but rather to create an organisation that does these things as a matter of course...Is this mere wishful thinking, or do you think it is possible to achieve.

Ian Cockerill (Goldfields)	Keith Rumble (Implats)	Neal Froneman (SRX Uranium 1)	Dr Con Fauconnier (Kumba Resources)	Jonathan Oppenheimer (De Beers)
• I would see that as being a creative manager, because management is all about being effective and efficient. • Entrepreneurialism for me is about conceptualising something that possibly doesn't even exist today. • I don't see that as being entrepreneurial leadership, but being entrepreneurial. It's a radical departure to from what you're currently doing... to create value.	• It is achievable. And all of those things are valid. • It's all about enablement and empowerment and support for innovative thinking, and it starts at the board level. • The board have to support line management and executive management in terms of trying different things. You're not always going to succeed; you're going to have failures along the way. • Tolerance for failure; credit for success; willing to do things differently; willing to put seed money into innovation and entrepreneurial initiatives. And that flows down to all levels of the organisation... Don't stifle innovation.	• If you surround yourself with the right people and you create the right environment, and your business is about growth, then that works. • But for some businesses, it's not their business model. They're not about growth; they're about steady-state. • Certainly if you want to be entrepreneurial - which means you look for opportunities – it's a process not of marginal continuous improvement but quantum leaps and quantum changes. • The CEO can't be entrepreneurial and the rest of the organisation just does. It's an environment where everybody's looking for a new opportunity; a new target; or a much better way to do things; or chop out the rot; or whatever... Those are quantum changes. • Some organisations believe in continuous improvement, but those are marginal.	• I've made peace with myself a long time ago that I don't have all the answers. • My job is to make sure that I pull the best out of the rest of my team; my team to pull the best out of the rest of the guys... that the whole system works for me... that everybody clubs is... that everybody works together. • For me the biggest thing is to make sure that people has the opportunity; that they have the resources; that they know they've got the support of management. • My biggest job is the "chief hurdle remover"... the hurdles in the organisation that prevent people from bringing that skill that they've got; that entrepreneurship that they've got; that talent that they've got onto the table and the company can benefit from.	• Freeing people! Making people accountable for their job. • You have to create a culture of personal ownership. Personal ownership implies personal accountability; personal accountability requires personal recognition. Of you do that, you create an environment – call it corporate entrepreneurship; call it a totally dynamic effective operational culture; call it what you will – which creates value in itself, but also creates opportunity in so much as the unit that you've created is competitively advantaged – it is able to out compete its peers.

This kind of leadership was seemingly epitomised by Jack Welch. His objective was to put a small-company spirit into a big-company body, to build an organisation out of an old-line industrial company that would be more high-spirited, more adaptable, and more agile than companies that are one-fiftieth their size. He wanted to create a company where people dare to try new things – where people feel assured in knowing that only the limits of their creativity and drive, their own standards of personal excellence, will be the ceiling on how far and how fast they move. Do you think that mining companies could adopt similar approaches, or does the type of company restrict a leader in creating such an organisation?

Ian Cockerill (Goldfields)	Keith Rumble (Implats)	Neal Froneman (SRX Uranium 1)	Dr Con Fauconnier (Kumba Resources)	Jonathan Oppenheimer (De Beers)
• Not only can they... they should. • Minimize the bureaucratic impact. • Junior companies just get on and do the job. • Trying to strike that balance in a big company which is subjected to all the normal governance issues is not easy. • Absolutely, if you can get that right you'll have a great company.	• It all depends on the individual's personality... is he able to carry that off... is he able to mobilise performance around that sort of ethos and those programmes. • Jack's biggest strength in my opinion was his ability to engage with as many people in his organisation as possible – he was very visible –and that's key. • You can't manage an organisation the size of GE or the size of Implats for that matter by sitting here. You actually got to be out in the field leading the way... rallying the troops so to speak. • It all comes with management by walk-about quite frankly. You're doing it; the other guys don't have an excuse why they shouldn't do it.	• They are just different industries, but there's no reason why you couldn't do that in a mining company... absolutely no reason. • It might mean that you have to diversify out of being a gold focused company to a multi-commodity company. • I don't think anyone in their right mind could not say that it does not apply to us.	• All these things we've talked about are things that need to work together. • Any individual in a company must know he's got the opportunity to use his talent to the benefit of the company and hopefully to the benefit of himself. That he's not shot at dawn if he makes an error. We see that as part of the learning experience. • There's got to be clear recognition – professional recognition and personal recognition – when guys do succeed.	• It's about unlocking operational management's capacity to manage. • Create a structure around that which creates the space for individuals to act. • If you achieved both of those, what you do is you drive towards operational excellence. And operational excellence provides you with a competitive advantage versus peers who are not operationally excellent, and that provides the growth channel for corporates.

If the climate in an existing organisation is critical in how well the organisation will deal with growth, and if the climate of an organisation can therefore have significant impact on performance, and is created both by the expectations people bring to the organisation and the practices and attitudes of the key managers, what role do you believe leadership plays has in establishing the climate?

Ian Cockerill (Goldfields)	Keith Rumble (Implats)	Neal Froneman (SRX Uranium 1)	Dr Con Fauconnier (Kumba Resources)	Jonathan Oppenheimer (De Beers)
• Most important thing for the leadership is to make sure it keeps its eyes and ears open, tuned in as finely as possible, to pick up nuances that may exist in an organisation that lead to the generation of negative energy • Your job as the leader is staunch that, knock it on the head, disprove it; or how do I counteract it with some other positive energy. • When you have more than two people in a room, you always going to have conflict, you always going to have differing opinions, and you got emotions coming in... and how do you logically factor in for emotions?	• Ensure that it's on all of your key management's balance scorecard objectives... If innovation and entrepreneurship is expected from them, make them identify areas of opportunity. • Specify specific objectives that they're going to achieve in a certain time frame and measure them against those objectives. • Making resources available to them in order to try the innovation stuff, be it money, be it people, be it just encouragement. • Recognition story; where innovation is successful publicise it – sound the gospel; advertise the successes.	• It's about teamwork; • It's about participation but not total democracy; • It's about strategic planning; • It's about delivery. • It's a lot of the things that are just plain good management. • I've surrounded myself with good people; we're all professionals; we've got structured approaches; a lot of interaction and communication; a lot of empowerment. • People want to grow; people want to grow vertically. Flat organisations have their benefits and I ascribe to that, but I also tell you people want to grow.	• The leader must recognise he's got a role, but he must also recognise that worth in people. • It's that ability to make room for the people under your charge to just get on with it... you've got to be able to help carry your people. I stand on the shoulders of many people... I have the privilege, but my job needs to be the guy that stands at the bottom and helps carry the guys above me; open the doors for them; make sure they've got everything they need; and make sure they've got the confidence that they've got my support.	• At the heart of creating an appropriate structure is a very, very clear and concise articulation of which decisions sit where. • Elliot Jacks describes a method of analysis called "Stratified Systems Theory." And the nature of "Stratified Systems Theory" dictates that you need to relate the decision making capability of an individual within a hierarchy to the complexity of the decisions that he needs to make.
	• It's a matter of focus. You have to have a focused approach to setting objectives for people, following through on those objectives, monitoring, rewarding, etc.	• It's a lot about that leader can create a positive or negative environment. • There's no doubt that the leader plays a huge role in whether an organisations is going to actually move	• To me that the most import job a leader is to bring out the best in other people in your organisation. If you can do that, you'll never be disappointed. • You've just got to make sure	• Fundamentally the way most mining companies operate is a flawed system. It generates structure, inappropriate decision making and a lack of accountability and autonomy.

	• Red tape is a killer. You need to unblock the system. • It's about enablement, and allowing what we call "skuk-works"... guys doing their own little thing down in the workshop to try and do things simpler and more effectively. • You must promote that... you mustn't have a formula that says you're not allowed to do that. You must allow the guys to experiment.	forward or backwards.	that your organisation, your rules and regulations, and your attitude doesn't stifle them. • You want guys to pitch up at work in the morning with a bit of a song in their heart. If I can't achieve that, then I think I've failed as a leader.	• How do you develop a system that creates efficiency? Everything becomes data-driven. You want to create a binary decision making process which holds the decision at lowest appropriate level. • When you've identified who owns the data, that means that person becomes the decision maker, and his boss becomes the veto man. • That's fine when everybody knows everything, but there's constantly new information emerging. So you have to create an information space – totally separated from the decision space – where you've got information sharing, both pre an event and post an event, and there's no hierarchy here. Anybody can talk to anyone in this space. • But there is a clear understanding that none of those conversations result in a decision; they may inform a decision, but when the decision is made, it is made in a formal application and the boss has the veto.

•Credibility. •Charisma. •Character. •Integrity. •Good intellectual capacity. •Stamina. •Mentally strong. •Communication ability.				•There are two types of business leaders. One is a person able to affect transactional growth – buying other companies, integrating them. That's a skill at the most senior level. The other is recognising the opportunity or the inherent value in assets which other people don't realise. To understand that a truly empowered operational space is very, very powerful in creating value. I believe is beginning to unlock the mining industry. •In terms of transactional value create, I see many fewer people who truly can engineer value by structuring a business to be more efficient than it was already. That's an enormous value space, because people think that there is vanilla answer – the emergence of ERP's... SAP, JD Edwards, Oracle – and presume that there is a standard business practice which is efficient.

ANNEXURE D

ENTREPRENEURIAL CLIMATE QUESTIONNAIRE

ENTREPRENEURIAL CLIMATE QUESTIONNAIRE © JH Oosthuizen

Thank you for taking time to participate in this survey. We are attempting to measure the entrepreneurial climate in your organisation, in other words, whether the climate in your organisation is conducive for entrepreneurial conduct, innovation and creativity by its employees. The survey is divided in three parts:

- Part 1 one is biographical information.
- Part 2 is a self & superior-assessment.
- Part 3 is the climate questionnaire.

Please complete every question / statement to ensure validity and reliability. After you have completed the questionnaire, click on the "submit" button at the end of the questionnaire to be returned to the researcher. Thank you.

(1) BIOGRAPHICAL INFORMATION

a) I am employed by (Select from drop-down list):

b) I presently work in the following field / dept / division (Select from drop-down menu):

c) I fall in the age group (Select from drop-down list):

d) Gender (Select from drop-down list)

(2) SELF & SUPERIOR-ASSESSMENT

In the left-hand column, evaluate yourself on a scale from 1 to 4 that best represents how well each of the characteristics below applies to you; where 1 shows you are weak in the characteristic and 4 shows you are strong in the characteristic. In the right-hand column, evaluate your superior on a scale from 1 to 4 that best represents how well each of the characteristics below applies to him/her; where 1 shows he/she is weak in the characteristic and 4 shows he/she is strong in the characteristic. Please be honest with yourself. You remain anonymous, and an over-inflation of how you view yourself and/or your superior will compromise the integrity of the survey.

Self-assessment					Superior-assessment			
☐ 1	☐ 2	☐ 3	☐ 4	Aspiration	☐ 1	☐ 2	☐ 3	☐ 4
☐ 1	☐ 2	☐ 3	☐ 4	Initiative	☐ 1	☐ 2	☐ 3	☐ 4
☐ 1	☐ 2	☐ 3	☐ 4	Energy	☐ 1	☐ 2	☐ 3	☐ 4
☐ 1	☐ 2	☐ 3	☐ 4	Low support needs	☐ 1	☐ 2	☐ 3	☐ 4
☐ 1	☐ 2	☐ 3	☐ 4	Thriving on ambiguity	☐ 1	☐ 2	☐ 3	☐ 4
☐ 1	☐ 2	☐ 3	☐ 4	Perserverance	☐ 1	☐ 2	☐ 3	☐ 4
☐ 1	☐ 2	☐ 3	☐ 4	Responsibility	☐ 1	☐ 2	☐ 3	☐ 4
☐ 1	☐ 2	☐ 3	☐ 4	Problem solving	☐ 1	☐ 2	☐ 3	☐ 4
☐ 1	☐ 2	☐ 3	☐ 4	Persuasiveness	☐ 1	☐ 2	☐ 3	☐ 4
☐ 1	☐ 2	☐ 3	☐ 4	Self-discipline	☐ 1	☐ 2	☐ 3	☐ 4
☐ 1	☐ 2	☐ 3	☐ 4	Belief in value of money	☐ 1	☐ 2	☐ 3	☐ 4
☐ 1	☐ 2	☐ 3	☐ 4	Self-confidence	☐ 1	☐ 2	☐ 3	☐ 4
☐ 1	☐ 2	☐ 3	☐ 4	Balanced ego development	☐ 1	☐ 2	☐ 3	☐ 4
☐ 1	☐ 2	☐ 3	☐ 4	Market awareness	☐ 1	☐ 2	☐ 3	☐ 4
☐ 1	☐ 2	☐ 3	☐ 4	Generosity	☐ 1	☐ 2	☐ 3	☐ 4
☐ 1	☐ 2	☐ 3	☐ 4	Honesty	☐ 1	☐ 2	☐ 3	☐ 4
☐ 1	☐ 2	☐ 3	☐ 4	Good people judgement	☐ 1	☐ 2	☐ 3	☐ 4
☐ 1	☐ 2	☐ 3	☐ 4	Patience	☐ 1	☐ 2	☐ 3	☐ 4
☐ 1	☐ 2	☐ 3	☐ 4	Business knowledge	☐ 1	☐ 2	☐ 3	☐ 4
☐ 1	☐ 2	☐ 3	☐ 4	Values appropriate control systems	☐ 1	☐ 2	☐ 3	☐ 4

(3) CLIMATE QUESTIONNAIRE

The questionnaire consists of 65 statements. Please indicate your choice with each question by selecting one of the variables on the right, i.e., from strongly disagree to strongly agree. Please indicate your choice by clicking on the appropriate button, i.e., Strongly Disagree, Slightly Disagree, Slightly Agree, or Strongly Agree. NB: Please complete every statement.

1. Our leaders take a long-term view of our organisation and articulate their vision to all levels of the organisation.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
2. In our organisation, developing ideas for the improvement of the company is encouraged by management.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
3. My manager helps me get my work done by removing obstacles and roadblocks.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
4. Our organisation has been built up by taking calculated risks at the right time.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
5. Our organisation is quick to use improved work methods that are developed by workers.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
6. Individuals with successful innovative projects receive additional rewards and compensation for their ideas and efforts beyond the standard reward system.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
7. Our organisational vision and strategies are clear to me.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
8. An employee with a good idea is often given free time to develop that idea.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
9. Project teams in our organisation have considerable freedom to make decisions and act on them without needing to ask for permission.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
10. There are several options within the organisation for individuals to get financial support for their innovative projects and ideas.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
11. People are keen to share knowledge without regard for crossing departmental or functional boundaries.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
12. A great deal of resources are spent in determining customer needs and satisfaction.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
13. People are allowed to make decisions without going through elaborate justification and approval procedures.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
14. Our leaders challenge the status quo and we are inspired by them to think, reason and act in innovative ways.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
15. Top management is aware of and receptive to my ideas and suggestions.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
16. Originators of new ideas find it easy to implement because of influential people to support them.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐

17. Good management of projects involving risk and unpredictability is highly valued, even when things don't always turn out according to plan.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
18. There is considerable desire among people in the organisation for generating new ideas.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
19. In this organisation rewards and encouragements is emphasised rather than criticism.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
20. Our organisation's announced visions and strategies inspire me.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
21. People are given considerable opportunity for independence and freedom in how they do their work.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
22. We use cross-functional teams or cross-business-unit teams effectively.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
23. Money is often available to get new project ideas off the ground.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
24. People are encouraged to talk to employees in other departments of this organisation about ideas for new projects.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
25. Product and service innovation are driven by a strong customer orientation.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
26. This organisation has a specific value system which we all know and live up to.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
27. Our leaders have a good balance between concern for production and concern for people.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
28. Those employees who come up with innovative ideas on their own receive management encouragement for their activities.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
29. Our organisation has people with influence that support, coach, protect, and find resources for an intrapreneurial project and its team.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
30. We have taken some big risks occasionally to keep ahead of the competition in the business we're in.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
31. This organisation provides the chance to be creative and try my own methods of doing the job.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
32. My supervisor will give me special recognition if my work performance is especially good.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
33. Great effort has been made to clarify what the vision and strategy mean to us in our department.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
34. I have much autonomy on my job and left on my own to do my own work.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐

35. Cross-functional team members are left to make decisions without interference from functional Superiors who are not part of the team.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
36. Resources are readily available and accessible in pursuance of new ideas and opportunities.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
37. Our organisation provides ample opportunities for learning growth.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
38. Our organisation involves customers in service and product development.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
39. Our organisation has an open communication structure in which all employees participate.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
40. Our leaders lead by example and people are eager to voluntarily follow them.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
41. This organisation supports many small and experimental projects realising that some will undoubtedly fail.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
42. Our organisation's managers have the skills, power, commitment, and courage to be effective sponsors of intrapreneurial initiatives.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
43. Experiments are acceptable in the marketplace, not only in the lab.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
44. Innovative and new ideas are a regular occurrence in our organisation.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
45. In this organisation effective intrapreneurs are generally rewarded.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
46. The vision and strategies often help me in setting priorities.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
47. I am allowed time at work to safely divert from my assigned tasks to explore new ideas I believe have potential.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
48. Project teams have choices in recruiting and selecting new team members.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
49. The process for accessing and acquiring resources to pursue new opportunities is streamlined to realise quick approval.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
50. Employees are encouraged to stay abreast of developments in their functional fields and to share their knowledge across functions.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
51. We regularly ask our customers what they think of our service and product offerings.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
52. The degree of hierarchical control is acceptably low in our organisation.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐

53. Our leaders seek to maximise value from opportunity without constraint to existing models, structures or resources.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
54. Senior managers encourage innovators to bend rules and rigid procedures in order to keep promising ideas on track.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
55. In this organisation it is easy to build coalitions of active sponsors to help projects succeed.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
56. If you make a mistake in this organisation you will be forgiven.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
57. In this organisation people are inspired to push their boundaries and to think "out-of-the-box."	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
58. In this organisation people are rewarded in relation to the excellence of their job performance.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
59. In this organisation management decisions are aligned and supportive to the vision and strategies.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
60. I have the freedom to use some of my time to explore new ideas and hunches without having to ask permission.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
61. Cross-functional teams are characterised by diversity based on project skills requirements.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
62. Attracting resource commitment for entrepreneurial ventures in this organisation is relatively easy.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
63. People here spend some of their time and resources helping others outside their area in ways that are not part of their assigned responsibilities.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
64. Customers are treated as very important stakeholders and not just another transaction to be processed.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐
65. In general, people enjoy working for this organisation, are satisfied with their jobs, and do not resign easily.	Strongly Disagree ☐	Slightly Disagree ☐	Slightly Agree ☐	Strongly Agree ☐

**Thank you very much for your valued input.
Kindly submit your questionnaire by clicking on the "submit button" below**

Submit

ANNEXURE E

SURVEY RESPONDENTS

Name	Employer	Department	Age	Gender
Ahmed Pater	De Beers	Other	31-35 years	Male
Alain Josling	De Beers	Other	41-45 years	Male
Albert Pinder	Implats	Operations	over 50 years	Male
Andreas Lesala	Kumba	Operations	41-45 years	Male
Andries van der Walt	Goldfields	Other	over 50 years	Male
Annon	Kumba	Other	31-35 years	Female
Anon2	Goldfields	Other	46-50 years	Male
Arthur Le Grange	De Beers	Operations	41-45 years	Male
Awie Jacobs	Kumba	Operations	over 50 years	Male
Ben De Klerk	Goldfields	Other	46-50 years	Male
Ben Potgieter	Goldfields	Operations	46-50 years	Male
Bongani Buthelezi	Kumba	Operations	26-30 years	Male
Bongani Mlambo	De Beers	Human Resources	31-35 years	Male
Bret Claasen	Implats	Operations	31-35 years	Male
Bruce Emerton	De Beers	Other	41-45 years	Male
Burt Evans	Implats	Administration	36-40 years	Male
Carla Strydom	Kumba	Other	41-45 years	Female
Cathlin Mulledy	De Beers	Human Resources	31-35 years	Female
Cecelia Reddy	Implats	Finance	26-30 years	Female
Chris Preece	De Beers	Operations	46-50 years	Male
Christine	Uranium 1	Administration	36-40 years	Female
Connie Shaw	Goldfields	Human Resources	41-45 years	Female
Corlia Jvr	De Beers	Human Resources	41-45 years	Female
Daleen Joubert	Kumba	Other	36-40 years	Female
Danny Jelinek	Kumba	Other	over 50 years	Male
David Rimbault	De Beers	Other	46-50 years	Male
Derek Moodley	Implats	Other	41-45 years	Male
Des Heany	Implats	Administration	46-50 years	Male
Dion Tappan	De Beers	Other	41-45 years	Male
Dirk Smith	Implats	Other	41-45 years	Male
Dr Gerrit Coetzer	Kumba	Other	41-45 years	Male
Dries Saaiman	Goldfields	Other	over 50 years	Male
Eddy Sheppard	Goldfields	Human Resources	41-45 years	Male
Elfin Harmse	Goldfields	Other	36-40 years	Male
Elsa Kruger	Implats	Human Resources	over 50 years	Female
Firoz Khan	Implats	Other	31-35 years	Male
Francette Jacobs	De Beers	Operations	26-30 years	Female
Francois Wepener	Implats	Operations	46-50 years	Male
Frits Schreijnders	Kumba	Other	46-50 years	Male
Gary Joseph	De Beers	Other	31-35 years	Male
Gerda Nel	Kumba	Other	46-50 years	Female
Ian Bratt	Implats	Operations	over 50 years	Male
Ian McIntosh	De Beers	Human Resources	36-40 years	Male
Ilani Malherbe	Implats	Operations	41-45 years	Female
Israel Ngonyama	Goldfields	Operations	36-40 years	Male

Name	Employer	Department	Age	Gender
Ivonne Koen	Kumba	Other	31-35 years	Female
Jaap van Rensburg	Goldfields	Other	over 50 years	Male
Jac Grobler	Kumba	Operations	26-30 years	Male
Jaco Houman	De Beers	Operations	31-35 years	Male
Jan Delport	Kumba	Other	36-40 years	Male
Janusz Warchol	Implats	Other	41-45 years	Male
Joalet Steenkamp	Kumba	Other	31-35 years	Female
Johan Britz	Goldfields	Other	over 50 years	Male
Johan Feldtman	Kumba	Other	36-40 years	Male
Johan Swart	Kumba	Other	over 50 years	Male
Johan Viljoen	Kumba	Human Resources	46-50 years	Male
Keith Broekman	Implats	Other	41-45 years	Male
Kobus Theron	Kumba	Other	46-50 years	Male
Koos Prinsloo	Kumba	Finance	41-45 years	Male
Lee-Ann Krishna	Kumba	Other	26-30 years	Female
Lizelle Van Wyk	Kumba	Finance	26-30 years	Female
Louis Jacobs	Kumba	Operations	over 50 years	Male
Louis Munnik	De Beers	Finance	over 50 years	Male
Mags Naidoo	Implats	Operations	31-35 years	Male
Malathee Padayachi	Kumba	Other	26-30 years	Female
Mandla Tshabalala	Kumba	Finance	36-40 years	Male
Marietjie Lancaster	Goldfields	Human Resources	41-45 years	Female
Marki Fourie	De Beers	Other	41-45 years	Female
Mike de Koker	Goldfields	Other	46-50 years	Male
Morgan Naicker	Kumba	Other	31-35 years	Male
Neil Anderson	Kumba	Finance	31-35 years	Male
Neil Metzger	Goldfields	Other	41-45 years	Male
Nicholas Roberts	Implats	Other	26-30 years	Male
Ntsieni Tshimange	De Beers	Operations	26-30 years	Female
Paul Coetzee	Kumba	Administration	46-50 years	Male
Paul Jordaen	Implats	Finance	46-50 years	Male
Paul Mahlangu	Implats	Other	41-45 years	Male
Paula Zietsman	De Beers	Human Resources	31-35 years	Female
Peter Empringham	Implats	Operations	over 50 years	Male
Philip Mosterd	Goldfields	Other	26-30 years	Male
Piet De Jager	Goldfields	Administration	46-50 years	Male
Pieter Pieterse	Kumba	Operations	36-40 years	Male
Pravin Naidoo	Implats	Operations	41-45 years	Male
Reshma Ramkumar	Implats	Operations	26-30 years	Female
Riaan Nel	Goldfields	Operations	46-50 years	Male
Ritzie Meyburg	Kumba	Other	36-40 years	Female
Simeon Moloko	Goldfields	Human Resources	41-45 years	Male
Simon Sease	De Beers	Operations	36-40 years	Male
Suzanne Finney	Implats	Operations	41-45 years	Female
Terrence Hill	Kumba	Other	31-35 years	Male
Theresa Coetsee	Kumba	Other	31-35 years	Female
Tok Rademeyer	Kumba	Operations	36-40 years	Male
Trevor Rowlands	De Beers	Operations	31-35 years	Male
Tshepo Mokhele	De Beers	Other	36-40 years	Male
Tumelo Roestoff	Goldfields	Other	26-30 years	Male

Name	Employer	Department	Age	Gender
Vish Chundupersad	Goldfields	Other	46-50 years	Male
Vonnelize Haupt	De Beers	Other	26-30 years	Female
Wendy Neethling	Goldfields	Other	31-35 years	Female
Werner Voges	De Beers	Other	31-35 years	Male
Wessel Wessels	De Beers	Operations	36-40 years	Male
Wiets Botes	Goldfields	Finance	over 50 years	Male
Willem Dippenaar	Kumba	Other	over 50 years	Male
Wilson Chonco	De Beers	Operations	36-40 years	Male

ANNEXURE F

SURVEY RESPONDENTS WITH FAULTY DATA

Name	Employer
AJ Coetzee	Goldfields
Azhar Mayet	De Beers
Charlton van der Merwe	Goldfields
Charnaine Muller	Kumba
Christo Naude	Goldfields
Dirk Badenhorst	Kumba
Dudley Mulville	De Beers
Gary Cormack	Goldfields
Germaine van Heerden	Goldfields
Hennie Lombard	Kumba
Jenny Bergs	De Beers
Jerome Welsh	Kumba
Johan Brits	Goldfields
Johan Crafford	Goldfields
Kobus Behrens	Goldfields
Leandra Liebenberg	Goldfields
Louis Trichardt	Kumba
Morne Pieters	De Beers
Nerys John	De Beers
Nigel Bower	Goldfields
Phillip Jacobs	Goldfields
Pieter Brits	Goldfields
Ronnie Rawlinson	De Beers
Santie Britz	De Beers
Turner Wilkinson	Goldfields