

**PERCEPTIONS REGARDING SHARED VALUE WITHIN THE  
SOUTH AFRICAN MINING INDUSTRY**

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**PERCEPTIONS REGARDING SHARED VALUE WITHIN THE  
SOUTH AFRICAN MINING INDUSTRY**

BY

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**DECLARATION**

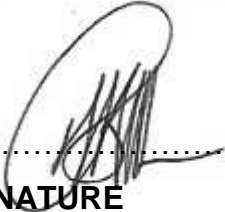
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In accordance with Rule G5.11.4, I hereby declare that the above-mentioned treatise/  
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assessment to another University or for another qualification.

  
.....  
**SIGNATURE**

..... 21 December 2020  
.....  
**DATE**

## DEDICATION

First and foremost, I would like to dedicate this thesis to the Lord.

*“And we know that all things work together for good to them that love God, to them who are the called according to his purpose. For whom he did foreknow, he also did predestinate to be conformed to the image of his Son, that he might be the firstborn among many brethren. Moreover, whom he did predestinate, them he also called: and whom he called, them he also justified: and whom he justified, them he also glorified”* (Romans 8:28-30).

I would also like to dedicate this thesis to every African child out there whose dreams might seem distant and unachievable, and who perhaps has not had great opportunities to unleash their potential. This is nothing but proof that your dreams are valid, provided you are prepared to sacrifice everything. Dreams do become a reality. Poverty is no barrier, neither is abundance. The zeal and readiness to take action is the defining difference. To all African mothers and fathers, who in their struggle for making an honest living they encourage their children to surpass their own endeavours, I say SALUTE! To all the African queens and princesses who support the visions of their spouses as if those dreams were theirs, I would like to remind you that you make the world to be a better place.

To my offspring, this is for you! At the time of concluding this research, my father was diagnosed with prostate cancer, which claimed his life on 04 December 2020 at about 03h53 am. Munzhelele wa Ha-Mutele! Wa ha-nyavhulungu-vhetete....vhulunzhedzwaho nga a rena nzhele....a sina nzhele a fhaladza. Vhone Munzhelele wa Ha-Mutele a kuendi nwana, ku enda Mwari! Vha ha tshinnyi tsha musha tshino liwa malimbe nga vhana, vhahulu vha tshi la tadulu. Vha ha makanganyise mulambo wa Nzhelele, wo siaho dasi wa elela utshiya tadulu. Vha ha nyathophani mikonde vhahulu vha le vhutete. Nngwe, maila unwatelwa! Luvhengo! You were my source of inspiration. Go on and embrace you next chapter in peace. This PhD is for you, mission is fulfilled!

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## **ABSTRACT**

Mining has been a key driver of socioeconomic change, economic growth and environmental impact for decades. However, the industry's volatility and its negative social and environmental effects are sources of concern. In this context, the study investigated the stakeholders' perceptions of Shared Value (SV) within the mining industry of South Africa. This included establishing antecedents and outcomes of SV within the South African mining industry. The study also aimed to fill the research gap and contribute to the existing body of knowledge regarding the mining industry and SV in South Africa.

The comprehensive literature review in this study included discussion on the overview of the South African mining industry, theories related to SV, theoretical perspectives on SV, and the experiential studies supporting the study's hypothetical model. The empirical investigation conducted by means of a survey was undertaken under the unprecedented conditions of COVID-19 pandemic. The primary data was statistically examined in six phases: exploratory factor analysis (EFA); Cronbach's alpha; descriptive statistics; Pearson's product correlation; and regression analysis. The ANOVA was also conducted to determine the influence of demographic factors on SV perceptions.

The empirical results confirmed that automation and innovation (through three pillars, namely, innovation for value chain inclusivity, automation and business model innovation, infrastructure development) and employment conditions are the antecedents of SV. The study illustrated three approaches of SV: reconceiving the product/service and markets, reimagining value chain productivity and development of the enabling environment. Furthermore, the study revealed competitive advantage and sustainability performance as the outcomes of SV.

This study makes a notable contribution throughout management and strategy practices as it provides insightful guidelines for stakeholders to understand how to adapt and enforce SV strategies, while empirical results could also be utilised by the government as a guide to formulate policies and strategies relating to the mining industry.

**Keywords:** automation, business model innovation, competitive advantage, employment conditions, inclusive value chain innovation, infrastructure development, innovation, mining industry, mineral resource governance, sustainability performance, and shared value.

## **TABLE OF CONTENTS**

<b>DECLARATION .....</b>	<b>i</b>
<b>DEDICATION.....</b>	<b>ii</b>
<b>ACKNOWLEDGEMENTS.....</b>	<b>iii</b>
<b>ABSTRACT .....</b>	<b>iv</b>
<b>LIST OF ANNEXURES.....</b>	<b>xix</b>
<b>LIST OF FIGURES .....</b>	<b>xx</b>
<b>LIST OF TABLES .....</b>	<b>xxii</b>
<b>LIST OF ABBREVIATIONS.....</b>	<b>xxv</b>

## **CHAPTER ONE**

### **BACKGROUND AND SCOPE OF THE STUDY**

<b>1.1 INTRODUCTION AND BACKGROUND OF THE STUDY .....</b>	<b>1</b>
<b>1.2 PROBLEM STATEMENT .....</b>	<b>3</b>
<b>1.3 PURPOSE OF THE STUDY.....</b>	<b>5</b>
<b>1.4 OBJECTIVES OF THE STUDY.....</b>	<b>5</b>
<b>1.4.1 Primary research objective .....</b>	<b>5</b>
<b>1.4.2 Secondary research objectives .....</b>	<b>5</b>
<b>1.4.3 Methodological objectives .....</b>	<b>6</b>
<b>1.5 BRIEF LITERATURE OVERVIEW.....</b>	<b>6</b>
<b>1.5.1 Evolution of corporate social responsibility .....</b>	<b>6</b>
<b>1.5.2 Shared Value concept.....</b>	<b>7</b>
<b>1.5.3 Ways of creating Shared Value.....</b>	<b>9</b>
<b>1.6 THEORETICAL MODELS ON SHARED VALUE .....</b>	<b>10</b>
<b>1.6.1 Porter and Kramer's (2011) model.....</b>	<b>10</b>



## TABLE OF CONTENTS (Cont.)

1.6.2	Nestlé's CSV pyramid model .....	12
1.6.3	The Hourglass model of business sustainability .....	13
1.6.4	Rationale for variable selection .....	14
1.7	RESEARCH QUESTIONS AND HYPOTHESES .....	15
1.7.1	Research questions .....	15
1.7.2	Research hypotheses .....	16
1.7.3	Operationalisation of study variables .....	18
1.8	RESEARCH DESIGN AND METHODOLOGY .....	20
1.8.1	Research paradigm and approach .....	20
1.8.2	Secondary research.....	21
1.8.3	Primary research.....	21
	<i>1.8.3.1 Population, sampling technique and sample .....</i>	<i>21</i>
	<i>1.8.3.2 Measuring instrument and data collection .....</i>	<i>23</i>
	<i>1.8.3.3 Ethical considerations .....</i>	<i>24</i>
	<i>1.8.3.4 Data analysis .....</i>	<i>24</i>
	<i>1.8.3.5 Validity and reliability of the measuring instrument .....</i>	<i>25</i>
1.9	SCOPE AND DEMARCATION OF THE STUDY .....	25
1.10	SIGNIFICANCE AND CONTRIBUTION OF THE STUDY.....	26
1.11	THE STRUCTURE OF THE STUDY .....	27
1.12	CHAPTER SUMMARY .....	28

## CHAPTER TWO

### AN OVERVIEW OF THE SOUTH AFRICAN MINING INDUSTRY

2.1	INTRODUCTION .....	29
-----	--------------------	----

## TABLE OF CONTENTS (Cont.)

<b>2.2</b>	<b>THE LANDSCAPE OF THE SOUTH AFRICAN MINING INDUSTRY .....</b>	<b>30</b>
2.2.1	History of mining in South Africa .....	30
2.2.2	Mines and resources in South Africa .....	31
2.2.3	The importance of the South African mining industry .....	39
<b>2.3</b>	<b>FACTORS AFFECTING THE NATURE OF THE SOUTH AFRICAN MINING INDUSTRY .....</b>	<b>45</b>
2.3.1	Political factors .....	45
2.3.1.1	<i>Political debate on land expropriation and nationalisation of mines .....</i>	<i>46</i>
2.3.1.2	<i>The role of trade unions in the South African mining industry.....</i>	<i>47</i>
2.3.2	Environmental factors .....	49
2.3.2.1	<i>Infrastructure.....</i>	<i>49</i>
2.3.2.2	<i>Water quality.....</i>	<i>51</i>
2.3.2.3	<i>Climate change.....</i>	<i>52</i>
2.3.3	Social factors .....	52
2.3.3.1	<i>Employment and community development .....</i>	<i>53</i>
2.3.3.2	<i>Small scale mining.....</i>	<i>55</i>
2.3.3.3	<i>The rise of civic organisations in communities around mining areas .....</i>	<i>56</i>
2.3.4	Technological innovation and automation factors .....	57
2.3.5	Economic factors .....	59
2.3.6	Legal and regulatory factors .....	61
2.3.6.1	<i>South African environmental legislation.....</i>	<i>61</i>

## TABLE OF CONTENTS (Cont.)

2.3.6.2	<i>Broad-Based Socio-Economic Empowerment Mining Charter .....</i>	<i>66</i>
2.3.6.3	<i>Mining royalties .....</i>	<i>68</i>
2.3.6.4	<i>Carbon Tax Act.....</i>	<i>70</i>
2.4	LINK BETWEEN SOUTH AFRICAN MINING LEGISLATION AND SHARED VALUE .....	71
2.4.1	Social License to Operate .....	72
2.4.2	Social and Labour Plan Guidelines .....	74
2.5	CHALLENGES THAT FACE THE SOUTH AFRICAN MINING INDUSTRY .....	75
2.5.1	Globalisation effect on the South African mining industry .....	75
2.5.2	Local complexities undermining the competitiveness of the South Africa mining industry .....	77
2.6	COMPARISON OF THE SOUTH AFRICAN MINING INDUSTRY WITH THOSE IN THE BRICS MINING COUNTRIES.....	79
2.7	CORPORATE SOCIAL RESPONSIBILITY AND SHARED VALUE IN THE SOUTH AFRICAN MINING INDUSTRY .....	81
2.8	CHAPTER SUMMARY .....	83

## CHAPTER THREE

### THEORIES RELATED TO SHARED VALUE

3.1	INTRODUCTION .....	85
3.2	CORPORATE SOCIAL RESPONSIBILITY.....	86
3.2.1	Defining Corporate Social Responsibility.....	86
3.2.2	Linking Corporate Social Responsibility to Shared Value .....	90
3.3	STAKEHOLDER THEORY .....	92

## **TABLE OF CONTENTS (Cont.)**

3.3.1	Defining stakeholder theory.....	92
3.3.2	Linking stakeholder theory to Shared Value .....	97
3.4	THEORY OF RECIPROCITY AND INTERDEPENDENT EXCHANGE.....	99
3.4.1	Defining the theory of reciprocity and interdependent exchange ...	99
3.4.2	Linking the theory of reciprocity and interdependent exchange to Shared Value .....	102
3.5	INTEGRATIVE SOCIAL CONTRACT THEORY .....	103
3.5.1	Defining integrative social contract theory .....	103
3.5.2	Linking integrative social contract theory to Shared Value .....	106
3.6	BOTTOM OF THE PYRAMID THEORY.....	106
3.6.1	Defining the bottom of pyramid theory .....	107
3.6.2	Linking the bottom of pyramid and Shared Value.....	111
3.7	SOCIAL ENTREPRENEURSHIP THEORY .....	112
3.7.1	Defining the social entrepreneurship theory.....	112
3.7.2	Linking the social entrepreneurship theory to Shared Value .....	114
3.8	CHAPTER SUMMARY .....	115

## **CHAPTER FOUR**

### **THEORETICAL PERSPECTIVES ON SHARED VALUE**

4.1	INTRODUCTION .....	117
4.2	CONCEPTUALISING SHARED VALUE.....	118
4.3	EVOLVEMENT OF SHARED VALUE.....	120
4.3.1	Evolution of corporate social responsibility into Shared Value ....	120

## TABLE OF CONTENTS (Cont.)

4.3.2	Differentiating Shared Value from Corporate Social Responsibility .....	122
4.3.3	Shared Value as a new form of capitalism.....	126
4.4	CORPORATE SOCIAL RESPONSIBILITY APPROACHES .....	128
4.5	CRITIQUES AND DEBATES AROUND CORPORATE SOCIAL RESPONSIBILITY .....	129
4.6	CRITIQUES AND DEBATES AROUND SHARED VALUE .....	132
4.7	SHARED VALUE PERSPECTIVES AND APPROACHES .....	135
4.7.1	Shared Value perspectives .....	136
	4.7.1.1 <i>Economic perceptive</i> .....	136
	4.7.1.2 <i>Mission-driven perspective</i> .....	136
4.7.2	Generic approaches to creation of Shared Value .....	137
	4.7.2.1 <i>Reconceiving products, services and markets</i> .....	138
	4.7.2.2 <i>Redefining productivity in the value chain</i> .....	139
	4.7.2.3 <i>Enabling local cluster development</i> .....	142
4.8	FACTORS INFLUENCING SHARED VALUE.....	143
4.9	POTENTIAL OUTCOMES OF SHARED VALUE.....	148
4.10	OPERATIONALISING SHARED VALUE WITH A STRATEGY MANAGEMENT FRAMEWORK.....	151
4.10.1	Strategic analysis - identification of social issues convertible into profitable business/market opportunities .....	154
4.10.2	Strategy formulation - integrating Shared Value strategies to organisational strategy and business models .....	155
4.10.3	Strategy implementation and measurement of Shared Value success.....	157

## TABLE OF CONTENTS (Cont.)

4.11	THE ECOSYSTEM OF SHARED VALUE .....	161
4.12	REVIEW OF SHARED VALUE CASE STUDIES .....	162
4.13	SHARED VALUE OPPORTUNITIES IN THE MINING INDUSTRY .....	167
4.14	CURRENT LIMITATIONS OF SHARED VALUE .....	171
4.15	CHAPTER SUMMARY .....	173

## CHAPTER FIVE

### HYPOTHESISED MODEL OF SHARED VALUE PERCEPTIONS WITHIN THE MINING INDUSTRY

5.1	INTRODUCTION .....	175
5.2	PROPOSED HYPHOTHESISED MODEL OF SHARED VALUE .....	176
5.3	OPERATIONALISATION OF RESEARCH VARIABLES AND STATEMENT OF THE HYPOTHESES .....	177
5.3.1	Independent variables .....	177
5.3.1.1	<i>Environmental impact</i> .....	177
5.3.1.2	<i>Employment conditions</i> .....	179
5.3.1.3	<i>Value/supply chain considerations</i> .....	183
5.3.1.4	<i>Automation and innovation</i> .....	185
5.3.1.5	<i>Infrastructure development</i> .....	188
5.3.1.6	<i>Regulatory and legislative conditions</i> .....	191
5.3.2	Intervening variable .....	196
5.3.2.1	<i>Shared Value perceptions</i> .....	196
5.3.3	Dependent variables .....	200
5.3.3.1	<i>Organisational performance</i> .....	201

## TABLE OF CONTENTS (Cont.)

5.3.3.2	<i>Competitive advantage</i> .....	205
5.3.3.3	<i>Sustainability</i> .....	208
5.4	CHAPTER SUMMARY .....	212

## CHAPTER SIX

### RESEARCH METHODOLOGY AND DESIGN

6.1	INTRODUCTION .....	213
6.2	RESEARCH OBJECTIVES .....	214
6.3	PRELIMINARY ASSESSMENT OF THE MODEL .....	214
6.4	RESEARCH PARADIGMS .....	215
6.5	RESEARCH METHODS .....	219
6.5.1	Qualitative research method .....	219
6.5.2	Quantitative research method .....	223
6.5.3	Mixed methods research .....	228
6.6	RESEARCH APPROACH .....	229
6.6.1	Descriptive research approach .....	230
6.6.2	Exploratory research approach .....	230
6.6.3	Experimental research approach .....	231
6.6.4	Quasi-exploratory research approach .....	231
6.7	RESEARCH DESIGN .....	232
6.7.1	Population and sampling .....	232
6.7.1.1	<i>Defining the research population</i> .....	233
6.7.1.2	<i>Establishing the sampling frame</i> .....	234
6.7.1.3	<i>Identification of sampling method</i> .....	235

## TABLE OF CONTENTS (Cont.)

6.7.1.4	<i>Selection of sample size.....</i>	<i>238</i>
6.7.2	Data collection .....	240
6.7.2.1	<i>Secondary data.....</i>	<i>240</i>
6.7.2.2	<i>Primary data .....</i>	<i>242</i>
6.7.3	Questionnaire design .....	244
6.7.4	Scales of measurement.....	246
6.7.5	Pilot study.....	253
6.7.6	Administration of questionnaires .....	254
6.7.7	Data analysis .....	255
6.7.7.1	<i>Exploratory Factor Analysis.....</i>	<i>257</i>
6.7.7.2	<i>Validity of the measuring instrument .....</i>	<i>258</i>
6.7.7.3	<i>Reliability of the measuring instrument.....</i>	<i>259</i>
6.7.7.4	<i>Descriptive statistics .....</i>	<i>260</i>
6.7.7.5	<i>Correlation analysis .....</i>	<i>262</i>
6.7.7.6	<i>Multiple regression analysis .....</i>	<i>263</i>
6.7.7.7	<i>Analysis of Variance .....</i>	<i>263</i>
6.8	RESEARCH ETHICS .....	264
6.9	CHAPTER SUMMARY .....	265

## CHAPTER SEVEN

### EMPIRICAL RESULTS OF THE STUDY

7.1	INTRODUCTION .....	267
7.2	PRESENTATION OF OBJECTIVES AND HYPOTHESES OF THE STUDY...	267
7.3	DATA ANALYSIS STEPS FOR THIS STUDY .....	270



## TABLE OF CONTENTS (Cont.)

<b>7.4</b>	<b>VALIDITY OF THE MEASURING INSTRUMENT .....</b>	<b>272</b>
7.4.1	Management perceptions of the independent variables .....	274
7.4.1.1	<i>Automation and innovation.....</i>	<i>276</i>
7.4.1.2	<i>Mineral resource governance .....</i>	<i>277</i>
7.4.1.3	<i>Employment conditions.....</i>	<i>277</i>
7.4.2	Management perceptions regarding Shared Value .....	278
7.4.3	Management perceptions of the dependent variables.....	280
7.4.3.1	<i>Competitive advantage .....</i>	<i>282</i>
7.4.3.2	<i>Sustainability performance .....</i>	<i>282</i>
<b>7.5</b>	<b>RELIABILITY OF THE MEASURING INSTRUMENT .....</b>	<b>284</b>
<b>7.6</b>	<b>REFORMULATION OF HYPOTHESES .....</b>	<b>288</b>
7.6.1	The first set of hypotheses concerning Shared Value within the South African mining industry.....	288
7.6.2	The second set of hypotheses concerning Shared Value within the South African mining industry .....	288
<b>7.7</b>	<b>DESCRIPTIVE STATISTICS OF THE VARIABLES UNDER INVESTIGATION.....</b>	<b>290</b>
<b>7.8</b>	<b>CORRELATION ANALYSIS RESULTS.....</b>	<b>292</b>
<b>7.9</b>	<b>MULTIPLE REGRESSION ANALYSIS RESULTS .....</b>	<b>294</b>
7.9.1	Regression analysis results of the influence of independent variables on perceptions regarding Shared Value within the South African mining industry.....	295
7.9.2	Regression analysis results of the influence of Shared Value within the South African mining industry on the dependent variables .....	297

## TABLE OF CONTENTS (Cont.)

7.9.2.1	<i>The influence of perceptions regarding Shared Value on competitive advantage .....</i>	<i>297</i>
7.9.2.2	<i>The influence of perceptions regarding Shared Value on sustainability performance .....</i>	<i>298</i>
7.10	ANALYSIS OF VARIANCE (ANOVA) RESULTS .....	301
7.10.1	ANOVA results on the influence of tenure on Shared Value.....	302
7.10.2	ANOVA results on the influence of occupational positions on Shared Value .....	303
7.10.3	ANOVA results on the influence of organisational activity on Shared Value .....	304
7.10.4	ANOVA results on the influence of size of the organisation on Shared Value .....	304
7.11	RESULTS ON THE HYPOTHESISED RELATIONSHIPS .....	305
7.11.1	Results on the first set of hypotheses .....	306
7.11.2	Results on the second set of hypotheses .....	307
7.12	CHAPTER SUMMARY .....	310

## CHAPTER EIGHT

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

8.1	INTRODUCTION .....	311
8.2	SUMMARY OF THE CHAPTERS OF THIS STUDY .....	312
8.3	CONCLUSIONS ON THE PROBLEM STATEMENT AND THE RESEARCH QUESTIONS OF THE STUDY .....	314
8.3.1	Perceptions regarding Shared Value as well as its antecedents and outcomes within the mining industry of South Africa.....	315

## TABLE OF CONTENTS (Cont.)

8.3.2	The gap in the literature regarding the adoption and implementation of Shared Value within the South African mining industry .....	316
8.3.3	Conclusions to the research questions of the study .....	319
8.4	SUMMARY OF EMPIRICAL RESULTS .....	325
8.5	EMPIRICAL RESULTS AND IMPLICATIONS OF THE STUDY .....	327
8.5.1	Empirical results and implications based on the influence of the independent variables on Shared Value within the South African mining industry .....	327
	<i>8.5.1.1 Automation and innovation</i> .....	327
	<i>8.5.1.2 Employment conditions</i> .....	329
	<i>8.5.1.3 Mineral resource governance</i> .....	330
8.5.2	Empirical results and implications based on management perceptions regarding Shared Value within the mining industry of South Africa .....	331
8.5.3	Empirical results and implications based on the influence of the intervening variable (Shared Value) on the dependent variables in the South African mining industry .....	333
	<i>8.5.3.1 Competitive advantage</i> .....	333
	<i>8.5.3.2 Sustainability performance</i> .....	334
8.6	RECOMMENDATIONS REGARDING ANTECEDENTS TO IMPROVE SHARED VALUE STRATEGIES IN THE SOUTH AFRICAN MINING INDUSTRY .....	336
8.6.1	Strategies linked to automation and innovation .....	336
	<i>8.6.1.1 Inclusive value chain innovation</i> .....	337
	<i>8.6.1.2 Automation and business model innovation</i> .....	340

## TABLE OF CONTENTS (Cont.)

8.6.1.3	<i>Infrastructure development.....</i>	<i>345</i>
8.6.2	Strategies linked to employment conditions .....	348
8.7	RECOMMENDATIONS LINKED TO SHARED VALUE STRATEGIES FOR THE SOUTH AFRICAN MINING INDUSTRY .....	352
8.7.1	Redesign the products/services and markets .....	353
8.7.2	Redefining productivity in value chain .....	354
8.7.3	Enabling local cluster development .....	355
8.8	RECOMMENDATIONS REGARDING OUTCOMES OF SHARED VALUE IN THE SOUTH AFRICAN MINING INDUSTRY .....	357
8.8.1	Strategies linked to competitive advantage .....	357
8.8.2	Strategies linked to sustainability performance .....	359
8.9	SUMMARY OF RECOMMENDATIONS BASED ON THE EMPIRICAL RESULTS .....	362
8.10	CONTRIBUTIONS OF THE STUDY .....	364
8.11	LIMITATIONS OF THE STUDY .....	366
8.12	AREAS FOR FUTURE RESEARCH .....	367
8.13	FINAL CONCLUSION .....	368
	LIST OF REFERENCES .....	370

## **LIST OF ANNEXURES**

<b>ANNEXURE A: COVER LETTER AND QUESTIONNAIRE .....</b>	<b>465</b>
<b>ANNEXURE B: ETHICS APPROVAL .....</b>	<b>472</b>
<b>ANNEXURE C: LANGUAGE EDITING LETTER .....</b>	<b>474</b>
<b>ANNEXURE D: TURNITIN SIMILARITY REPORT.....</b>	<b>475</b>
<b>ANNEXURE E: MULTIPLE COMPARISONS FOR SHARED VALUE .....</b>	<b>476</b>

## LIST OF FIGURES

FIGURE 1.1: THE CONNECTION BETWEEN PRODUCTIVITY AND SOCIAL ISSUES.....	11
FIGURE 1.2: NESTLÉ'S CSV PYRAMID MODEL .....	12
FIGURE 1.3: THE HOURGLASS MODEL OF BUSINESS SUSTAINABILITY .....	13
FIGURE 1.4: PROPOSED HYPOTHESISED MODEL OF THE STUDY .....	17
FIGURE 2.1: ECONOMIC CONTRIBUTION PER COMMODITY IN 2018 .....	32
FIGURE 2.2: SOUTH AFRICAN MINING MAP AND ACTIVE MEMBERS OF MINERALS COUNCIL OF SOUTH AFRICA.....	36
FIGURE 2.3: KEY ECONOMIC STATISTICS OF SOUTH AFRICAN MINING INDUSTRY.....	44
FIGURE 2.4: THE SOUTH AFRICAN ENVIRONMENTAL LEGISLATION FRAMEWORK.....	62
FIGURE 2.5: SELECTED DOMESTIC GROWTH DETERRENCE FACTORS .....	78
FIGURE 3.1: ECONOMIC PYRAMID OF WORLD POPULATION.....	109
FIGURE 3.2: DYNAMIC CAPABILITIES AND BASE OF THE PYRAMID BUSINESS STRATEGIES.....	111
FIGURE 4.1: APPROACHES TO CREATING SHARED VALUE .....	137
FIGURE 4.2: SHARED VALUE OPERATIONALISATION FRAMEWORK.....	153
FIGURE 4.3: INTEGRATING SHARED VALUE STRATEGY AND MEASUREMENT .....	158
FIGURE 4.4: ECOSYSTEM OF SHARED VALUE CREATION .....	161
FIGURE 5.1: SHARED VALUE INFLUENCE ON ORGANISATIONAL PERFORMANCE, COMPETITIVE ADVANTAGE AND SUSTAINABILITY .....	176
FIGURE 6.1: SAMPLE DESIGN PROCESS .....	233

## **LIST OF FIGURES (Cont.)**

<b>FIGURE 7.1: THE HYPOTHESISED MODEL OF THE IMPACT OF SHARED VALUE WITHIN THE SOUTH AFRICAN MINING INDUSTRY .....</b>	<b>269</b>
<b>FIGURE 7.2: THE ADAPTED MODEL OF THE IMPACT OF SHARED VALUE WITHIN THE SOUTH AFRICAN MINING INDUSTRY .....</b>	<b>287</b>
<b>FIGURE 7.3: THE HYPOTHESISED MODEL OF THE IMPACT OF SHARED VALUE WITHIN THE SOUTH AFRICAN MINING INDUSTRY .....</b>	<b>289</b>
<b>FIGURE 7.4: SUMMARY OF THE REGRESSION ANALYSIS RESULTS .....</b>	<b>300</b>
<b>FIGURE 7.5: EMPIRICAL MODEL OF THE IMPACT OF SHARED VALUE WITHIN THE SOUTH AFRICAN MINING INDUSTRY .....</b>	<b>309</b>
<b>FIGURE 8.1: EMPIRICAL EVALUATION OF THE PERCEPTIONS REGARDING SHARED VALUE WITHIN THE SOUTH AFRICAN MINING INDUSTRY.....</b>	<b>326</b>
<b>FIGURE 8.2: EMPIRICAL RECOMMENDATIONS OF THE STUDY .....</b>	<b>363</b>

## LIST OF TABLES

TABLE 1.1: DIFFERENCES BETWEEN CSR AND SV .....	8
TABLE 1.2: WAYS OF CREATING SHARED VALUE.....	9
TABLE 1.3: VARIABLES OF THE HYPOTHESISED MODEL .....	18
TABLE 2.1: PROVINCIAL OVERVIEW OF SELECTED MINES AND THEIR CONTRIBUTION .....	34
TABLE 2.2: KEY STATISTICS OF THE SOUTH AFRICAN MINING INDUSTRY FOR PERIOD 2009 TO 2018.....	43
TABLE 2.3: ENVIRONMENTAL LEGISLATION APPLICABLE TO MINING .....	64
TABLE 3.1: TYPICAL STAKEHOLDERS AND THEIR ROLES AND EXPECTATIONS .....	94
TABLE 4.1: COMPARISON OF CORPORATE SOCIAL RESPONSIBILITY AND SHARED VALUE .....	124
TABLE 4.2: CORPORATE SOCIAL RESPONSIBILITY APPROACHES .....	129
TABLE 4.3: FACTORS INFLUENCING CREATION OF SHARED VALUE.....	144
TABLE 4.4: SHARED VALUE CREATION OUTCOMES.....	149
TABLE 4.5: GENERIC SHARED VALUE MEASUREMENT CHALLENGES .....	160
TABLE 4.6: SHARED VALUE CREATION OPPORTUNITIES .....	168
TABLE 5.1: DIMENSIONS OF ORGANISATIONAL PERFORMANCE AS AN OUTCOME OF SHARED VALUE .....	204
TABLE 5.2: DIMENSIONS OF COMPETITIVE ADVANTAGE AS AN OUTCOME OF SHARED VALUE.....	207
TABLE 5.3: DIMENSIONS OF SUSTAINABILITY AS AN OUTCOME OF SHARED VALUE.....	211
TABLE 6.1: RESEARCH PARADIGMS .....	218
TABLE 6.2: ADVANTAGES AND DISADVANTAGES OF QUALITATIVE RESEARCH METHOD .....	221



## LIST OF TABLES (Cont.)

TABLE 6.3: ADVANTAGES AND DISADVANTAGES OF QUANTITATIVE RESEARCH METHOD .....	225
TABLE 6.4: COMPARING THE QUANTITATIVE AND QUALITATIVE RESEARCH METHODS.....	227
TABLE 6.5: DISTRIBUTION OF SELECTED MINING ORGANISATIONS.....	239
TABLE 6.6: QUESTIONNAIRE DESIGN AND VARIABLES .....	248
TABLE 7.1: ABBREVIATIONS OF VARIABLES .....	271
TABLE 7.2: EFA RESULTS PERTAINING TO THE INDEPENDENT VARIABLES ..	274
TABLE 7.3: FACTOR LOADINGS FOR PERCEPTIONS REGARDING SHARED VALUE.....	279
TABLE 7.4: EFA RESULTS PERTAINING TO THE DEPENDENT VARIABLES .....	281
TABLE 7.5: CRONBACH'S ALPHA VALUES OF MEASURING CONSTRUCTS: HYPOTHETICAL MODEL .....	285
TABLE 7.6: CRONBACH'S ALPHA COEFFICIENTS OF THE VARIABLES BASED ON THE EXPLORATORY FACTOR ANALYSIS.....	286
TABLE 7.7: DESCRIPTIVE STATISTICS FOR EACH VARIABLE: MEANS AND STANDARD DEVIATIONS PER VARIABLE .....	290
TABLE 7.8: CORRELATIONS ANALYSIS MATRIX.....	293
TABLE 7.9: REGRESSION ANALYSIS OF INFLUENCE OF THE INDEPENDENT VARIABLES ON THE INTERVENING VARIABLE .....	295
TABLE 7.10: REGRESSION ANALYSIS OF SHARED VALUE PERCEPTIONS ON COMPETITIVE ADVANTAGE .....	297
TABLE 7.11: REGRESSION ANALYSIS OF SHARED VALUE PERCEPTIONS ON SUSTAINABILITY PERFORMANCE.....	298
TABLE 7.12: ANALYSIS OF VARIANCE FOR SHARED VALUE.....	302

## **LIST OF TABLES (Cont.)**

<b>TABLE 7.13: SUMMARY OF THE ACCEPTANCE OF THE HYPOTHESES BASED ON THE STATISTICAL ANALYSIS .....</b>	<b>306</b>
<b>TABLE 8.1: SUMMARY OF ANSWERS TO THE RESEARCH QUESTIONS .....</b>	<b>321</b>

## **LIST OF ABBREVIATIONS**

AIIB	Asian Infrastructure Investment Bank
AMCU	Association of Mineworkers and Construction Union
ANC	African National Congress
BBBEE	Broad-Based Black Economic Empowerment
BEE	Black Economic Empowerment
BoP	Bottom of Pyramid Theory
BRICS	Brazil, Russia, India, China, and South Africa
CMSA	Chamber of Mines of South Africa
COSATU	Congress of South African Trade Unions
CSR	Corporate Social Responsibility
CSV	Creating Shared Value
DMR	Department of Mineral Resources
DTI	Department of Trade and Industry
ECA	United Nations Economic Commission for Africa
EFA	Exploratory Factor Analysis
EFF	Economic Freedom Fighters
EU	European Union
GDP	Gross Domestic Product
ICT	Information and Communications Technology
IDC	Industrial Development Corporation
IMF	International Monetary Fund
IRR	South African Institute of Race and Relations
ISCT	Integrative Social Contract Theory (ISCT)
JSE	Johannesburg Stock Exchange
MCSA	Minerals Council of South Africa

## **LIST OF ABBREVIATIONS (Cont.)**

MHSA	Mine Health and Safety Act (MHSA).
MPRDA	Minerals and Petroleum Resources Development Act
NDB	New Development Banks
NDP	National Development Plan
NEDLAC	National Economic and Labour Council
NEMA	National Environmental Management Act
NGO	Non-government organisation
NUM	National Union of Mineworkers
NWA	National Water Act 36 of 1998
OECD	Organisation for Economic Cooperation and Development
PESTEL	Political, Environmental, Social, Technological, Economic and Legislative conditions
SADC	South African Development Community
SAIIA	South African Institute of International Affairs
SE	Social Entrepreneurship
SLO	Social License to Operate
ST	Stakeholder Theory
SV	Shared Value
TLB	Triple Bottom Line
UN	United Nations
WBCSD	World Business Council for Sustainable Development
WCED	World Commission on Environment and Development

## **CHAPTER ONE**

### **BACKGROUND AND SCOPE OF THE STUDY**

#### **1.1 INTRODUCTION AND BACKGROUND OF THE STUDY**

The mining industry is the backbone of the South African economy. Though the mining industry is the largest contributor to the Gross Domestic Product (GDP) and employs both directly and indirectly more people than any other economic sector, it is more volatile and faces significant regulatory uncertainty, cyclical changes and global economic conditions than many other industries (Chamber of Mines of South Africa (CMSA) 2016:6). According to the Minerals Council of South Africa (2018), the mining industry contributes about 7.5% to GDP in South Africa, provides direct employment to 464 667 employees and has a R630 billion production capacity. Over the short term, a rise in fatalities from previous years has been seen in 2017 and 2018, with 82 deaths in 2017 eclipsing the 73 recorded in 2016. The mining industry posted a substantially improved safety performance in 2019, with 51 people tragically losing their lives in mining-related accidents compared to the 81 fatalities registered in 2018. On a positive note, however, the industry invested R7.5 billion into education, training and development (Mineral Council of South Africa 2018:38). According to the Federation for Sustainable Environment (2018), the South African economy and mining industry in particular has been continuously affected by lower commodity prices and export demand, rising operational costs and policy uncertainty, and labour unrest, among other factors. It is clear that the mining industry faces many challenges due to a variety of factors and input from various stakeholders. Therefore, it is vital for the mining industry through its operations and industry participants to survive and possibly contribute to the economy, among other areas, by creating value for all stakeholders.

Despite the mining industry playing an integral role in creating job opportunities that make the attainment of equitable and sustainable growth and development possible, volatility in the industry is a cause of concern. Van Wyk and Dlamini (2018) assert that South African households are under increasing pressure of constant limited growth in incomes against rising living costs, high debt levels, ecological dislocations, unemployment and

limited access to new sources of credit. After 20 years of democracy, the National Development Plan (2012:24-27) seeks to transform South Africa's economy and ensure a fair and sustainable distribution of wealth among South Africans as a government agenda. South Africa thus needs an economy that can meet the needs of all citizens and organisations in a sustainable manner. In the 21st century, the concept of the triple bottom line (TBL) emerged with emphasis on organisations to consider the environmental, social and economic impact of business activities in order to achieve long lasting success (Paramasivan 2010). Flowing from the TBL, according to Mehta and Sharma (2016:58), the World Business Council for Sustainable Development (WBCSD 2008) defines corporate social responsibility (CSR) as the continuing commitment by organisations to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large. This CSR concept evolved into the Shared Value (SV) concept in 2006 and was developed by Porter. Kvistgaard (2013:1) concurs that this resulted in the emergence of a 'new' theoretical and strategic approach where organisations can create economic value by also creating social value – coined as “creating SV”. According to Porter and Kramer (2011:64), SV is thus about implementing organisational policies and practices that establish and sustain the competitive edge of an organisation over its industry rivals and new entrants to the market, by simultaneously advancing social and economic conditions in the communities in which it operates. Nicholson (2017:2) contend that SV is not about sharing value that has already been created; rather, it is about expanding the pool of economic and social value. In order to remain competitive, organisations need to adapt to new demands from the market, environment and society in which they operate, and the creation of SV is a step in the right direction.

Cooper and Harvey (2018:2) allege that “while governments, industry and civil society have all endorsed the concept of SV, the implementation of policies to realise its achievement has been inconsistent within and between countries and few research efforts have explored why SV projects succeed and why they fail”. Siegruhn (2002) also argues that with a modern business sector alongside poverty and social problems in South Africa, there is not much literature about SV, despite the need. Many empowerment

initiatives may have failed because little emphasis has been placed on the importance of SV. Against this background, this study will focus on investigating the perceptions of SV as well as its antecedents and outcomes within the mining industry in South Africa.

## **1.2 PROBLEM STATEMENT**

The mining industry plays a critical role in the economic and social development of South Africa. Organisations are challenged to ensure that they act consistently within human rights standards relating to poverty reduction and are accountable for their actions to various stakeholders (Wettstein 2012:758). Although the mining industry represents the backbone of the economy in most developing countries, mining organisations often face constraints in their operations, limiting their productivity capacity and ability to remain globally competitive. Lane, Guzek and Van Antwerpen (2015) argue that mines face tough choices around their profitability, attracting and developing key skills, capital raising and allocation and stakeholder engagement. Goodman, Rajagopaul and Cassim (2019) further highlight the lack of operational and cost competitiveness of the mining industry, ageing mines, vulnerability to volatility of commodity prices and infrastructure challenges as major factors preventing mines from creating SV.

Salciuviene, Hopeniene and Dovaliene (2016:480) argue that organisations, by carefully meeting the needs of key stakeholders, could make a positive impact on people and the planet and gain financial benefits from engaging in business activities that address the needs of the communities in which they operate. Mining executives need to think strategically about these issues and integrate these into a sustainable long-term strategy. The TBL approach suggests that organisations need to integrate social, economic and environmental elements into their business model and strategies to address the needs of its various stakeholders. Nicholson (2017) alleges that there has been a natural progression from a TBL focus towards Corporate Social Responsibilities (1950's), which developed into philanthropy, and then led to the rise of SV in 2006. Despite this, Deloitte (2019) states that in many countries the true socio-economic contribution of mines is being questioned. External stakeholders, such as government and communities, believe that historically mining organisations were the sole earners of wealth and that they

continue to prosper often at the expense of the broader society. Hilson, Hilson and Dauda (2019:340) state that the CSR policies and actions implemented at many mines have had minimal positive influences on community wellbeing. In South Africa, many mining organisations also face the challenge of dual compliance with the Mining Charter III of 2018 and the Department of Trade and Industry's broad-based black economic empowerment (BBBEE) scorecard that aims to drive priorities of socioeconomic development, industrialisation and transformation. Mostert, Chisanga, Howard, Mandhu, Van den Berg and Young (2016) further allege that there is no primary legal framework dedicated solely to the regulation of CSR in South Africa. CSR is varyingly voluntary, as mining organisations determine the extent of their involvement in social initiatives. Kvistgaard (2013:18), supported by Hilson et al. (2019:30), elaborate that there is a tendency towards CSR activities being performed purely as a form of window dressing and this "green-washing" can be insensitive towards cultural needs, environmentally destructive and false marketing.

Although mining is a vital component of the development of South Africa, mining has resulted in major impacts, both environmental and social, that have not been fully recognised or dealt with (Chamber of Mines of South Africa 2016). Cosbey, Mann, Maennling, Toledano, Geipel and Brauch (2016) state that mining organisations are often not fully committed to behaving ethically and contributing to economic development while improving the quality of life of the workforce and their families as well as of the local community. South African organisations also face diverse and interlinked business and societal challenges in terms of sustainability and SV creation (Network for Business Sustainability 2016). Pfitzer, Bockstette and Stamp (2013:4) postulate that SV entails incorporating a social mission in the culture of an organisation and effectively channeling resources in a sustainable way to the development of innovations that may assist in solving social problems. SV could benefit society by unleashing the power and ability of organisations to help solve fundamental global social and environmental problems (Porter, Hills, Pfitzer, Patscheke & Hawkins 2011:1). Against this background, the lack of literature and empirical evidence on SV, and specifically the gap in related research in the South African mining industry, the following main research question will be addressed



in this study: *What are the perceptions on SV as well as its antecedents and outcomes within the mining industry in South Africa?*

### **1.3 PURPOSE OF THE STUDY**

The purpose of this study is to investigate relationships between identified antecedents and outcomes of SV, due to limited research regarding this topic within the South Africa mining industry. Through the identification of these antecedents and outcomes it is envisaged that SV could be created in the mining industry. If SV is established it could result in improved organisational performance, competitive advantage and sustainability of South African mines. In addition, this may lead to benefits for other relevant stakeholders, including local communities. It is also envisaged that the results of this study could contribute to the body of knowledge regarding SV, and lead to the replication of similar studies in other industries to create SV.

### **1.4 OBJECTIVES OF THE STUDY**

The objectives of this study are divided into two sections: primary research objectives and secondary research objectives.

#### **1.4.1 Primary research objective**

The primary objective of this study is to investigate perceptions of SV within the mining industry of South Africa. Achieving this objective will entail establishing the current SV perceptions of stakeholders in the mining industry as well as the antecedents and outcomes of SV.

#### **1.4.2 Secondary research objectives**

In order to achieve the primary objective, the following secondary objectives (SO) are put forward:

SO<sub>1</sub>: To gather the current SV perceptions of stakeholders in the South African mining industry.

- SO<sub>2</sub>: To investigate relationships between selected SV antecedents and the SV perceptions of stakeholders in the South African mining industry.
- SO<sub>3</sub>: To investigate relationships between the SV perceptions of stakeholders in the South African mining industry and selected SV outcomes.

### **1.4.3 Methodological objectives**

In order to achieve the above-mentioned primary and secondary objectives, the following methodological objectives have been identified:

- MO<sub>1</sub>: To undertake a detailed literature review on SV and its relevance in the context of the South African mining industry.
- MO<sub>2</sub>: To find support for and formulate several hypotheses summarising the relationships to be tested in the empirical study.
- MO<sub>3</sub>: To determine an appropriate research design and methodology to address the objectives of the research study.
- MO<sub>4</sub>: To source primary data from a sample of stakeholders in the South African mining industry and to test the hypotheses put forward.
- MO<sub>5</sub>: To provide recommendations to stakeholders in the mining industry, based on the results of the research study, in terms of how SV can be effectively implemented to improve organisational performance, competitive advantage and sustainability in the mining industry.

## **1.5 BRIEF LITERATURE OVERVIEW**

### **1.5.1 Evolution of corporate social responsibility**

CSR is a dynamic phenomenon and literature goes as far back as 1953. From the continuing debates of the last decades, CSR has developed and evolved into an umbrella term with multiple, diverse terminologies and definitions and very often with interlinking

implications within both the descriptive and normative aspect of the field (Carroll & Shabana 2010:86). Rahman (2011:166) finds that CSR involves aspects relating to voluntariness/philanthropy, profitability, legalities, ethics and social support. In the 1990's, CSR dimensions included aspects such as stakeholder involvement, environmental stewardship and an organisation's obligation to society through its people, planet and profit obligations.

CSR implicitly refers to the notion of the TBL: a focus on people, planet and profits in the form of a business strategy. The 21<sup>st</sup> century evolution of CSR recognises that organisations and society are co-dependent in their mutual relationship and that organisations have the potential to create economic value by meeting societal goals and aspirations. The World Business Council for Sustainable Development (2008:43) cited in Rahman (2011) defined CSR as the commitment by organisations to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families, as well as of the local community and society at large. The evolution of CSR, in 2006 saw the advent of a new concept called SV. According to Motilewa and Worlu (2016:2443), there is a sizeable shift in the application of CSR from an act of philanthropy to a deliberate corporate strategy with a business model engaged to create a win-win situation through performing societal obligations whilst simultaneously performing economic obligations. CSR can be understood as “an investment in human capital, the environment and stakeholder relationships” (Weber 2008:248).

### **1.5.2 Shared Value concept**

The origin of the SV concept stems from extensive research into CSR, much of which has resulted in criticism (Porter & Kramer 2011:2) and a dissatisfaction with the current roles that global organisations play in providing greater value within society and the environment. Porter and Kramer (2011:5) argue that SV is not about sharing value that has already been created; rather, it is about expanding the pool of economic and social value. SV is more meaningful in underdeveloped countries, in the African context in particular, faced with deep societal challenges that organisations can solve whilst creating economic value. The SV concept, unlike CSR, is relatively in its infancy stage. The

concept was first introduced by Porter in a 2006 publication (Crane, Palazzo, Spence & Matten 2014:131), and since then it developed until an article entitled SV was published by Porter and Kramer in the Harvard Business Review in 2011. There is no absolute definition, but SV is described as a way of thinking about a CSR strategy (Kvistgaard 2013:45). Porter and Kramer (2011:66) state that the SV concept can be defined as *“policies and operating practices that enhance competitiveness of a company while simultaneously advancing the economic and social conditions in the communities in which it operates; value is defined as benefits relative to costs, not just benefits alone”*. CSR is often regarded as the opposite concept of capitalism, whereas SV is considered as a higher form of capitalism (Porter & Kramer 2006:4-6).

Table 1.1 summaries the major distinctions between these two concepts.

**TABLE 1.1: DIFFERENCES BETWEEN CSR AND SV**

CSR	SV
Value: doing good	Value: economic and societal benefits relative to cost
Citizenship, philanthropy, sustainability	Joint corporate and community value creation
Discretionary or in response to the external pressure	Integrated to competing
Separate from profit maximisation	Integrated to profit maximisation
Agenda is determined by external reporting and personal preferences	Agenda is organisation specific and internally generated
Impact limited by corporate footprint and CSR budget	Realigns the entire corporate budget
Example: Fair trade purchasing	Example: Transforming procurement to improve quality and the yield

Source: Adapted from Porter and Kramer (2011:13)

Table 1.1 explains that CSR is concerned about sharing the wealth created by organisations whereas SV is concerned with wealth maximisation whilst also maximising the benefits for the environment and society. The fundamental distinction is that CSR is

usually separate and external from the organisation's economic focus, while SV integrates social and environmental impact into the corporate competitive strategy and it goes beyond legal requirements (Zsolnai 2006:6). SV creates economic and societal benefits relative to cost and it is based on a corporate specific agenda that is integral to competing, essentially for profit maximisation (Porter & Kramer 2011:6). Therefore, CSR is about responsibility (reactive); SV is about creating value (proactive).

### 1.5.3 Ways of creating Shared Value

Sharedvalue Initiative (2019) indicates three ways of creating SV, namely reconceiving products and markets, redefining productivity in the value chain and ensuring local cluster development. The description and examples of these approaches are presented in Table 1.2.

**TABLE 1.2: WAYS OF CREATING SHARED VALUE**

Ways of SV	Description	Example
<b>Reconceiving products and markets</b>	Defining markets in terms of unmet needs or social ills and developing profitable products and services that remedy these conditions	<p><b>Thomson Reuters</b> has developed a service for farmers in India that provides weather and crop-pricing information and agricultural advice for the fee of 5 USD per quarter. The service reaches an estimated 2 million farmers and early research indicates that it has helped increase incomes for more than 60% of them.</p> <p><b>Becton Dickinson</b> developed a new type of safety syringe to reduce healthcare worker needle-stick injuries. This product innovation grew to 2 billion USD, approximately a quarter of the company's revenue.</p>
<b>Redefining productivity in the value chain</b>	Increasing the productivity of the organisation or its suppliers by addressing social and environmental constraints in the value chain	<p><b>Walmart</b> saved millions of US dollars in distribution costs while growing the quantities being shipped by reducing packaging and improving delivery logistics.</p> <p><b>Dow Chemical</b> managed to reduce consumption of fresh water at its largest production site by 1 billion gallons – enough water to supply nearly 40,000 people in the US for a year.</p>
<b>Ensuring local cluster development</b>	Strengthening the competitive context in key regions where the organisation operates in ways that contribute to	<b>Cisco</b> reduced a key constraint to growing its addressable server market by launching the Networking Academy to train over 4 million network administrators globally.

Ways of SV	Description	Example
	growth and higher productivity	<b>Nestlé</b> set out to build agricultural, technical, financial, and logistical firms and capabilities in each coffee region to support efficiency and high-quality local production.

Sources: Adapted from Porter and Kramer (2011); Sharedvalue Initiative (2019)

Christiansen (2014) outlines the following aspects for creating SV in an organisation:

- Publicly state that the organisation's objective is not only creating value for shareholders, but also value for the organisation's key stakeholders including consumers, employees, suppliers, distributors and business partners, as well as the natural environment.
- Align corporate compensation systems with long-term value creation and the SV principle.
- Implement the SV principle throughout all areas of business operations, not just programs or initiatives aimed at social impact.
- Focus on strategic areas crucial to the business.
- Make the SV principle work through all aspects of sustainability, not just through those that are profitable.
- Do not try to replace CSR with SV but implement SV through CSR.

This brief literature overview set the scene to investigate perceptions on SV in the South African mining industry. Further literature was reviewed to consider SV models and thereby identify relevant variables to be studied.

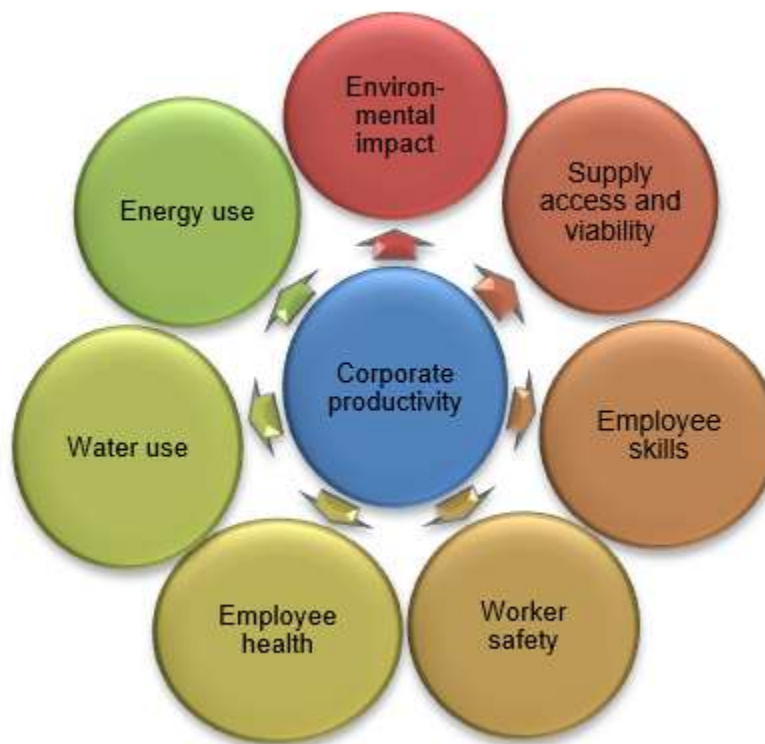
## 1.6 THEORETICAL MODELS ON SHARED VALUE

### 1.6.1 Porter and Kramer's (2011) model

Porter and Kramer (2011:4) enhanced the SV concept in 2011 by stating that "business increasingly has been viewed as a major cause of social, environmental, and economic problems" and "companies are widely perceived to be prospering at the expense of the broader community". Porter and Kramer (2011:6) further expand that the SV framework

presented management, scholars, society and shareholders with a new approach in which organisations create new business opportunities, create new markets, create differentiation-focus niches, maximise profitability and create a sustainable competitive advantage over its rivals by meeting the needs of the society. Porter and Kramer (2011:12) further argue that the government, in developing policies and regulations, may play an active role enabling organisations to create SV. Figure 1.1 depicts the connection between social issues that are influenced by the activities of organisations in pursuit of attaining profits.

**FIGURE 1.1: THE CONNECTION BETWEEN PRODUCTIVITY AND SOCIAL ISSUES**



Source: Adapted from Porter and Kramer (2011:8)

Figure 1.1 indicates that the productivity of organisations influences social issues and the environment in which organisations and communities exist. This also explains congruence between societal progress, environmental protections and organisational productivity. Porter and Kramer (2011:4-6) conceptualise the implementation of SV as the ability to address societal issues as integral to profit maximisation instead of it being

treated outside the profit model, by embracing equal or greater opportunities arising from serving disadvantaged communities and developing countries. To create SV, organisations should focus on developing new skills and knowledge for employees, improving worker safety conditions, ensuring that employees and communities are healthy, improving supplier access and viability, and appreciating and proactively responding to environmental impacts. As is also evident from this model, Bell and Menguc (2002:133) support this and argue that social shortfalls could generate both economic costs and new market opportunities for the organisations as they affect the productivity of the organisations.

### 1.6.2 Nestlé's CSV pyramid model

According to Nestlé's Creating Shared Value Report (2014), creating SV goes beyond compliance and sustainability. Any organisation that thinks long-term and follows sound business principles creates value for shareholders and for society through its activities. Examples of such include job creation and taxes to support public services and economic activity in general. By creating SV an organisation consciously identifies areas of focus, where shareholders' and society's interests strongly intersect and where value creation can be optimised for both (see Figure 1.2).

**FIGURE 1.2: NESTLÉ'S CSV PYRAMID MODEL**



Source: Adapted from Nestlé Creating Shared Value Report (2014:5)

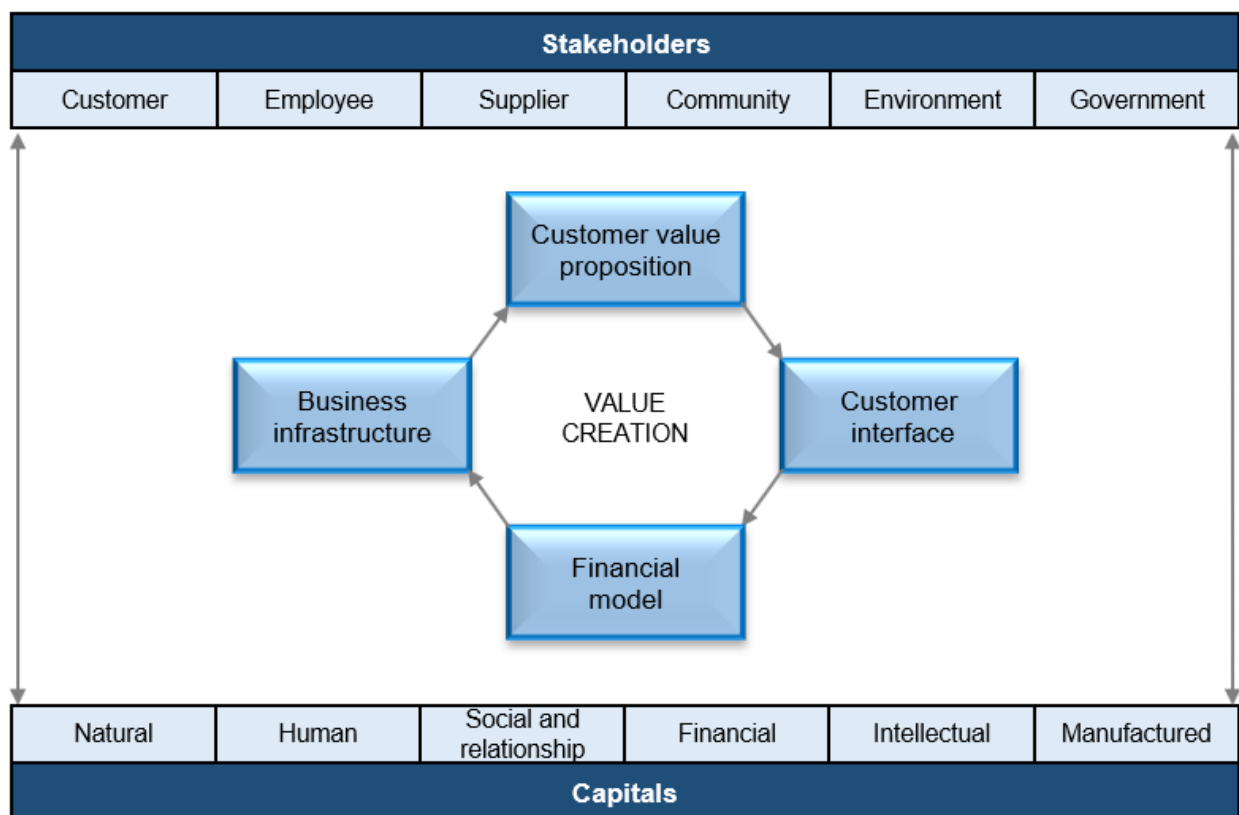


An organisation should invest resources, both in terms of talent and capital, in those areas where the potential for joint value creation is the greatest as well as seek collaborative action with relevant stakeholders in society. Nestlé has analysed its value chain and determined that the areas of greatest potential for joint value optimisation with society (thus creating SV) are nutrition, water and rural development (see Figure 1.2). These activities are core to its business strategy and vital to the welfare of the people in the countries where they operate (Nestlé Creating Shared Value Report 2014).

### 1.6.3 The Hourglass model of business sustainability

The Hourglass model of business sustainability is depicted in Figure 1.3.

**FIGURE 1.3: THE HOURGLASS MODEL OF BUSINESS SUSTAINABILITY**



Source: Network for Business Sustainability (2016)

The Hourglass model of business sustainability (Network for Business Sustainability 2016) is based on three premises:

- A view of business as an engine of societal progress.
- A broader notion of value – from primarily economic to also social and environmental.
- A system-level perspective on value creation – from being predominantly centred on customers and shareholders to embracing all stakeholders.

The hourglass model (Figure 1.3) looks beyond the traditional focus on the organisation and finance, encouraging consideration of value creation across an industry. This “total value creation” perspective recognises that any business (model) depends on various stakeholders that provide diverse forms of capital, such as investors providing financial capital, the environment providing natural capital, and employees providing intellectual and human capital. The hourglass model creates and structures the most important elements of a sustainability-orientation and SV creation within a holistic system. The model highlights the importance of moving from the traditional business model view to an embedded view that positions the business model within the nested system of the natural environment, society, and economy. The model thus shows the stakeholders, business areas and forms of capital necessary for the creation of SV.

#### **1.6.4 Rationale for variable selection**

Some of the variables in these three models were used to construct the hypothetical model of this study (Figure 1.4), whilst others were selected on the basis of an extensive literature study and expert judgement. For example, both the Porter and Kramer and Hourglass models led to the selection of environmental impact, employment conditions and value/supply chain considerations. Based on the content of the Hourglass model, infrastructure development, government regulatory and legislative conditions as well as organisational performance were considered. The Nestlé CSV pyramid model gave reason for this study’s SV and sustainability variables. Based on technological developments, also evident in the mining industry, this study included variables relating to automation and innovation. Finally, since literature states that organisations’ strategies that bring about social benefits could result in competitive advantage (Porter et al. 2011:2), this variable was included as a possible outcome in this study. An in-depth

discussion of all the dimensions for each selected variable falls beyond the scope of this chapter and will be discussed in detail in Chapter Five.

## **1.7 RESEARCH QUESTIONS AND HYPOTHESES**

### **1.7.1 Research questions**

Following the introduction and background, as well as the problem statement (with the main research question formulated), objectives and brief literature overview of this study, the following research questions are formulated:

- What is the influence of *environmental impact* on SV in the South African mining industry?
- What is the influence of *employment conditions* on SV in the South African mining industry?
- What is the influence of *value or supply chain* on SV in the South African mining industry?
- What is the influence of *automation and innovation* on SV in the South African mining industry?
- What is the influence of *infrastructure development* on SV in the South African mining industry?
- What is the influence of *regulations and legislative conditions* on SV in the South African mining industry?
- Does perceived SV influence *organisational performance* in the South African mining industry?
- Does perceived SV influence *competitive advantage* in the South Africa mining industry?
- Does perceived SV influence *sustainability* in the South African mining industry?

The selected variables evident in the research questions is a result of a brief literature review as well as an overview of the SV concept and related theoretical models (as

evident in literature chapters, Chapter Two, Chapter Three and Chapter Four as well as Chapter Five).

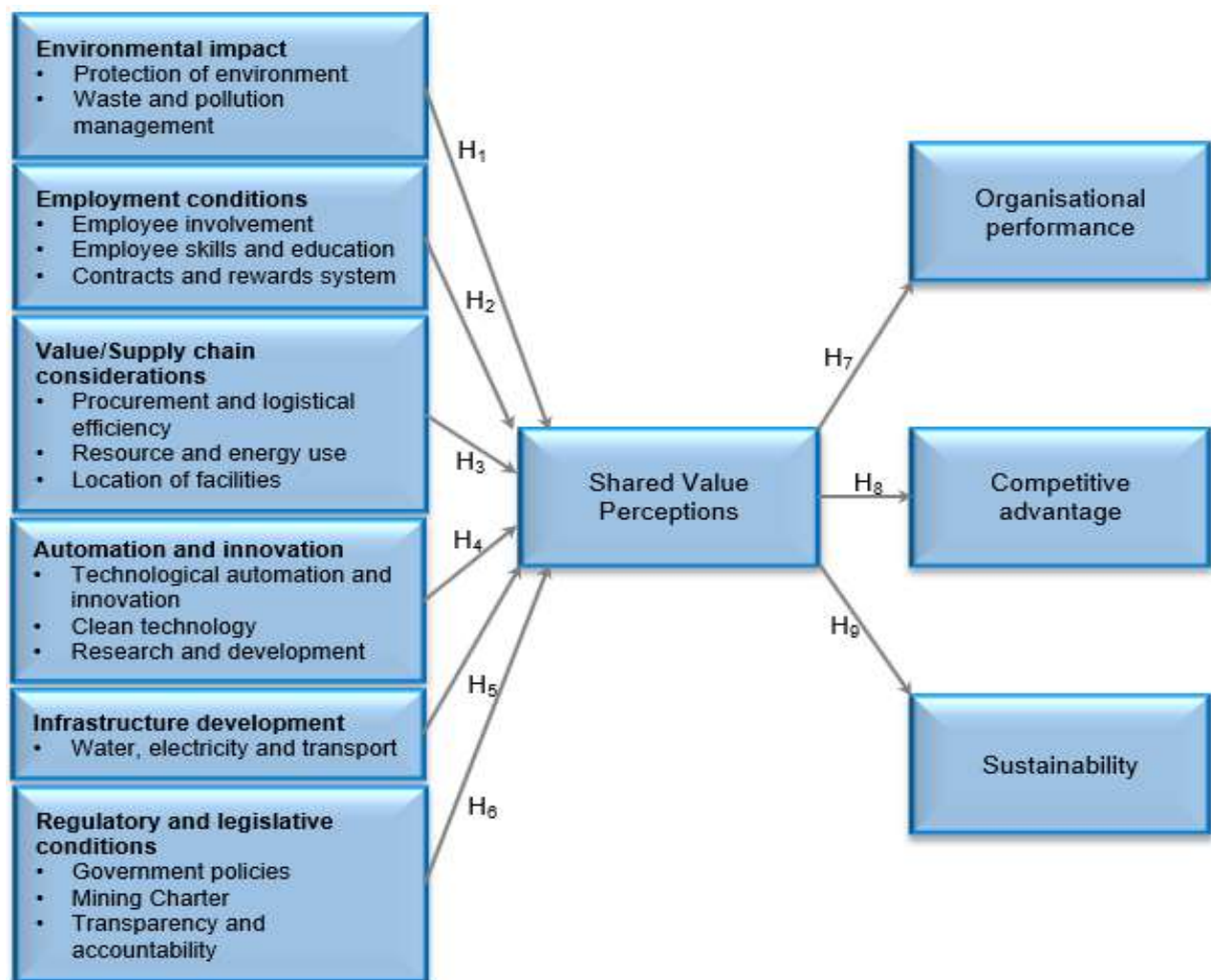
### **1.7.2 Research hypotheses**

Several hypotheses have been formulated to answer the research questions and to represent all the relationships to be tested in this study.

- H<sub>1</sub>: There is a positive relationship between *environmental impact* and perceptions regarding SV in the mining industry in South Africa.
- H<sub>2</sub>: There is a positive relationship between *employment conditions* and perceptions regarding SV in the mining industry in South Africa.
- H<sub>3</sub>: There is positive a relationship between *value/supply chain considerations* and perceptions regarding SV in the mining industry in South Africa.
- H<sub>4</sub>: There is a positive relationship between *automation and innovation* and perceptions regarding SV in the mining industry in South Africa.
- H<sub>5</sub>: There is a positive relationship between *infrastructure development* and perceptions regarding SV in the mining industry in South Africa.
- H<sub>6</sub>: There is a positive relationship between *regulatory and legislative conditions* and perceptions regarding SV in the mining industry in South Africa.
- H<sub>7</sub>: There is a positive relationship between perceptions regarding SV and *organisational performance* in the mining industry in South Africa.
- H<sub>8</sub>: There is a positive relationship between perceptions regarding SV and *competitive advantage* in the mining industry in South Africa.
- H<sub>9</sub>: There is a positive relationship between perceptions regarding SV and *sustainability* in the mining industry in South Africa.

The hypothetical model (Figure 1.4) proposes the various factors influencing SV in the mining industry. The proposed model shows that SV is possibly influenced by six independent variables, namely *environmental impact*, *employment conditions*, *value/supply chain considerations*, *automation and innovation*, *infrastructure development* and *regulatory and legislative conditions*. The proposed model also shows that SV possibly influences three dependent variables, namely *organisational performance*, *competitive advantage* and *sustainability*.

**FIGURE 1.4: PROPOSED HYPOTHESISED MODEL OF THE STUDY**



Source: Researcher's own construction

### 1.7.3 Operationalisation of study variables

Table 1.3 outlines the most important variables depicted in the hypothetical model.

**TABLE 1.3: VARIABLES OF THE HYPOTHESISED MODEL**

Variables	Definitions	Sources
<b>Independent variables</b>		
<i>Environmental impact</i>	Possible adverse effects caused by development or mining projects or by the release of a substance in the environment. Communities tend to suffer severe social dislocation, infrastructure deterioration and environmental destruction as a result of mining activities.	European Environmental Agency (2012:10) Leonard (2017) National Department of Environmental Affairs (1998:8) Schoenberger (2016:119)
<i>Employment conditions</i>	Aspects that both employee and employer agree to at beginning of a worker's employment. It refers to philosophies and operating practices that align expectations and beliefs of employees with those of the employer.	Guest (2004:1) Steinerová and Makovski (2008:5) Mamun and Ahmed (2009:632) Van Emmerik and Sanders (2005:713)
<i>Value chain/Supply chain considerations</i>	Value chain refers to an organisation's productivity, efficiency, energy use, logistics, resource use, procurement, distribution, location and employee productivity. Supply chain is also defined as an integrated approach for managing networks that cover all activities related to the flow of goods and the conversion of materials from the stage of procurement of raw materials to the stage of delivery of final goods to the consumer.	Gyenge, Kozma, Almádi, Szarvas, Villás and Urvölg (2016:122) Ussahawanitchakit (2017:230) Porter and Kramer (2011:68)

Variables	Definitions	Sources
<i>Automation and innovation</i>	Automation is defined as the intelligent management of a system using appropriate technology so that its operation can occur without direct human involvement. Innovation is used to refer to emerging technologies in the mining industry that change how mines operate, focusing on increasing efficiency, capacity and reliability.	Lynas and Horberry (2011:74) PWC (2017:49) Ralston, Hargrave and Dunn (2017:733)
<i>Infrastructure development</i>	Relates to the building of houses, schools, roads, electricity and health care facilities. Infrastructure also refers to projects concerning the design, building of, and operation of energy, information and communications technology, transportation systems, water supply and other urban services.	Kumo (2012:5) Mathfield (2013:6) Holzner (2016) Saghir (2017:2)
<i>Regulatory and legislative conditions</i>	Refer to the regulation, legislation and/or policies put in place by government to stimulate organisations' operations by focusing on measurable social improvement and by setting clear and measurable social goals, resource prices, performance and employment standards to be adhered to.	King IV Report (2016:17) Moczadlo (2015: 249) Sagebien and Lindsay (2013:15) PWC (2017:25)
<b>Intervening variable</b>		
SV	Refers to organisational policies and practices that enhance the economic outcomes of an organisation while simultaneously advancing social and economic conditions in the communities in which it operates. Thus, the process where an organisation's practices create value for all stakeholders.	Kvistgaard (2013:45) Motilewa and Worlu (2016:16) Porter and Kramer (2011:66)
<b>Dependent variables</b>		
<i>Organisational performance</i>	Refers to the result from improvements in organisational stability, financial stability, program quality and corporate growth. Organisational performance is also measured by an organisation's sales growth, return on investment and return on assets.	Alasadi and Abdelrahim (2007:4) McNamara (2008: 181) Thorne, Ferrell and Ferrell (2008:28)

Variables	Definitions	Sources
<i>Competitive advantage</i>	Refers to when an organisation outperforms its rivals. The level of competitiveness of an organisation could mean that it should be able to retain its customer base, enhance its market share, demonstrate growth, and ensure continuous improvement in productivity.	Clulow, Gerstman and Carol (2003:221) Juntunen, Saraniemi, Halttu and Tähtinen (2010:117) Kotabea and Kothari (2016:5) Moon, Parc, Yim and Park (2011:57)
<i>Sustainability</i>	Sustainability is defined as a situation where there is an integration of social, economic and environmental factors into planning, implementation and decision-making, so as to ensure that development serves present and future generations.	Barbier and Burgess (2017:2) Bocken (2017:55) Schroeder, Anggraeni and Weber (2018:79) Tracey, Phillips and Haugh (2005: 330)

Source: Researcher's own construction

## 1.8 RESEARCH DESIGN AND METHODOLOGY

The main aim of this section is to provide a sound basis to justify the research design and methodology adopted for this study.

### 1.8.1 Research paradigm and approach

Collis and Hussey (2003) indicate that there are two main research paradigms, namely positivistic and phenomenological research. The positivistic paradigm uses a quantitative research approach, whilst the phenomenological paradigm uses qualitative research approach. Nayak and Singh (2015:78) and Struwig and Stead (2013:15-19) note that quantitative research is focused on a large sample or numbers, while on the other hand, qualitative research is more concerned with the inductive view of the relationship between theory and research. This study aims to assess perceptions on SV in the mining industry of South Africa, and targeted a relatively large sample using various statistical and data analysis techniques to test the hypotheses. The positivistic paradigm was deemed appropriate, since the phenomenon of SV was investigated and objective perceptions on



SV in the mining industry were gathered from a large sample, and then quantitatively analysed to test relationships.

According to Nayak and Singh (2015:157-158), the nature of a quantitative study could be descriptive, exploratory, experimental and/or quasi-experimental. This analysis is both descriptive and exploratory in nature, given the purpose of this study. De Vos, Strydom, Fouche and Delport (2011:95) state that exploratory research is conducted to gain insight into a phenomenon, individual, community or situation, whilst the major purpose of descriptive research is to describe the characteristics of a population or phenomenon. The perceptions of respondents were assessed and thereafter described in terms of SV within the South African mining industry (descriptive approach). This is a relatively new area of research that will be explored in the South African mining context (exploratory approach).

### **1.8.2 Secondary research**

Secondary data refers to already published data collected for other purposes (Mohajan 2017:5). Secondary sources for this literature review were obtained through international and national data searches for relevant journal articles, books and internet sources. For the purpose of this study, secondary data was sourced from databases accessible via the Nelson Mandela University, and includes literature on CSR, creating SV, organisational performance, competitive strategies, sustainability and the mining industry.

### **1.8.3 Primary research**

The primary research of this study involved an empirical investigation.

#### ***1.8.3.1 Population, sampling technique and sample***

A research population refers to the total number of any precisely defined cases, records, events, units, collection of items, corporation units or individuals who possess specific characteristic and can be included as research subjects (Nayak & Singh 2015:78). A key role of the Minerals Council of South Africa is to facilitate interaction among mining employers to examine policy issues and other matters of mutual concern to clarify and

define desirable industry standpoints. The Council also acts as a principal advocate for mining in South Africa to government, communicating major policies endorsed by its members. Therefore, for the purpose of this study, the population includes all persons involved in the mining categories represented by the Minerals Council of South Africa.

A sample is a small portion of the total set of objects, units, events or persons from which a representative selection is made (Nayak & Singh 2015:78). There are two main approaches to sampling, namely probability sampling and non-probability sampling. In probability sampling, the sample is selected using unbiased processes whereas in non-probability sampling, the possibility of any specific member of the population being selected is unknown (Struwig & Stead 2013:116-117). For the purpose of this study, non-probability sampling was used, specifically convenience and snowball sampling. Convenience sampling gives researchers the freedom to choose respondents based on accessibility and availability (Nayak & Singh 2015:84), whereas in snowball sampling, one person refers the researcher to others who possess similar characteristics, and who, in turn, identify others (Grinnell & Unrau 2005:153). Convenience and snowball sampling were deemed appropriate techniques in this study, as no database (sample frame) is available from the Minerals Council of South Africa. However, according to the Minerals Council of South Africa (2019:1), it has 78 member organisations present in five mine categories (25 base mineral, 18 coal, 13 platinum, eight gold and three diamond mines) and an industry category (consisting of six contractors, three associations and two organisations), thus there are six mining categories. This study aimed to solicit responses from 450 respondents (six mining categories x three membership organisations from each category x 25 respondents from each member organisation). Based on the study's number of variables, a minimum acceptable sample of 250 (10 variables x 5 items per variable x 5 respondents) was arrived at. As mainly management levels will have knowledge of SV and similar strategic imperatives in the mining industry, CEO's, top-, middle- and lower-levels of management and industry were targeted (Albers & Lakens 2018:190-193).

### **1.8.3.2    *Measuring instrument and data collection***

As mentioned, the aim was to target and gather responses from 450 managers and industry members within the six mining categories of the Minerals Council of South Africa. Due to the study being quantitative in nature and since a large sample is required, the primary data for this study was obtained using the survey method by means of self-administered structured questionnaires.

A questionnaire is defined as a list of carefully structured questions, chosen after considerable testing, with a view to solicit reliable responses from a chosen sample (Collis & Hussey 2003:173; Nayak & Singh 2015:65). The questionnaire of this study (see Annexure A) consisted of four sections with closed-ended questions. Section A consists of nominal-scale questions to gather the background information of respondents (biographical and demographical characteristics), such as gender, age, population group, educational background, mining category and employment level. Section B gathered data regarding the six independent variables. Section C focused on perceptions regarding SV. Section D thereafter gathered data regarding the dependent variables.

The seven-point Likert-type scale options on the ordinal scales in Sections B, C and D ranged from strongly disagree (1) to strongly agree (7). The items in the measuring instrument will be based on existing scales and consist of self-developed items based on a thorough literature study.

The current restrictions due to the COVID-19 pandemic led the researcher to decide that the questionnaire would only be distributed electronically with a link via email to potential respondents. Permission was obtained from gatekeepers in the mining industry. Accordingly, Chief Executive Officers/Directors/Human Resources/Research and Development Departments of mining organisations were contacted via email (available from the Mineral Council of South Africa) to allow their managers and employees to participate in this study (see information on attached cover letter, part of Annexure A). Once an email confirmation on “willingness to participate” was received from a CEO, the researcher sent an email with a link to the electronic questionnaire to the CEO which he/she distributed to the respondents. The questionnaire was therefore distributed

electronically (link in emails) to potential participants in the mining industry. However, prior to the main study, a pilot study was conducted among 10 potential respondents. According to Bryman and Bell (2007:273) and Nayak and Singh (2015:37), the purpose of a pilot study is to confirm that the survey operates well, to ensure that the research process as a whole function well, and to refine questions, the research instrument or procedures.

#### **1.8.3.3    *Ethical considerations***

Full ethics clearance was obtained from the Nelson Mandela University's Research Ethics Committee-Human (REC-H) via the Faculty of Business and Economic Sciences (see Annexure B). Permission was also obtained from the Minerals Council of South Africa to conduct the study among its member organisations as well as from CEO's and top management of each participating member organisation (mine or industry member) to invite individuals. The questionnaire was accompanied by a cover letter explaining the purpose of the study, ensuring that participation is voluntary and anonymous, responses are confidential, no individual results will be published, and respondents can withdraw at any stage without penalty. Informed consent was obtained from respondents before data collection.

#### **1.8.3.4    *Data analysis***

According to Nayak and Singh (2015:246), data obtained needs to be analysed in order to reach deductions. The data from the questionnaires was captured on an Excel spreadsheet and the computer programme Statistica (Version 13) used to analyse the data. During the first step, an Exploratory Factor Analysis (EFA) was conducted to assess construct validity (Struwig & Stead 2013:149). Secondly, Cronbach's alpha coefficients were used to assess internal reliability (Collis & Hussey 2014:275). During the third data analysis stage, descriptive statistics (e.g. mean, mode, median and standard deviation) and frequency distributions were calculated to summarise the results. Following the descriptive statistics, the following data analysis steps involved inferential statistics. The correlation (Pearson Product Moment Correlations) (Collis & Hussey 2014:270) and regression analyses (multiple regression) (Struwig & Stead 2013:168) were used in order

to test relationships between the study's variables to test the stated hypotheses. The literature review further revealed that demographic aspects influence SV perceptions. As a result, this necessitated further analysis to determine relationships between respondents' demographic aspects and their perceptions on SV. Analysis of variance (ANOVA) tests (Cooper & Schindler 2011:492) were used to test relationships between demographical variables and the intervening variable in the study's hypothetical model namely SV.

#### **1.8.3.5    *Validity and reliability of the measuring instrument***

As will be discussed in Chapter Six, as part of the data analysis steps, the validity and reliability of the measuring instrument were assessed. Validity means that the data collected to address the research questions is a close representation of the aspects of social reality of the study in question (Matthews & Ross 2010:53). The validity of the measuring instrument was tested by assessing face, content and construct validity. According to Punch (2005:97), face and content validity tests if the scale measures what it is supposed to measure. In this study it was assessed by means of a comprehensive literature review, expert judgement of researchers in the field of management when scrutinising the measuring instrument, and by conducting a pilot study before the main empirical investigation. The EFA assessed construct validity through both convergent and discriminant validity (Wiid & Diggins 2013:161, 241-242; Hair, Babin, Money & Samouel 2003:174), and items with factor loadings of at least 0.4 were considered as valid. On the other hand, reliability is a measure of quality and consistency (Salkind 2006:118) to estimate the reliability of a given test (Gliem & Gliem 2003:84). In this study, Cronbach's alpha coefficients were calculated to measure the internal reliability of the measuring instrument and to evaluate its internal consistency (where coefficients equal to or greater than 0.70 were regarded as reliable).

### **1.9        SCOPE AND DEMARCATION OF THE STUDY**

The study seeks to critically investigate SV perceptions within the mining industry of South Africa. The study focused mainly on the influence of aspects like the environment, employment conditions, value chain, automation and innovation, infrastructure

development as well as regulatory and legislative conditions, on SV. The impact of SV on outcomes, namely, organisational performance, competitive advantage and sustainability were also assessed. The empirical study was conducted within the six mining categories of the Minerals Council of South Africa, targeting 25 respondents from three member organisations within each of the six categories (total sample size 450). The study only gathered responses from those in management who are knowledgeable about stakeholders in the mining industry.

### **1.10 SIGNIFICANCE AND CONTRIBUTION OF THE STUDY**

The main purpose of this study is to investigate perceptions regarding SV within the mining industry in South Africa by investigating SV antecedents and outcomes. Although various South African publication databases were consulted to consider previous studies on SV, limited research was found on SV within the mining industry in South Africa. A previous SV study in South Africa focused on assessing the SV created by a wildlife and tourism organisation through a protected area, and its unique relationship with local communities (Nicholson 2017). Studies conducted in the South African mining industry include, amongst others, a study on the impact of acid mine drainage (McCarthy 2011). Another South African mining study focused on prospects and challenges for small-scale mining entrepreneurs (Mkubukeli & Tengeh 2016). Hills, Russell, Borgonovi, Doty and Iyer (2012:10) postulate that businesses in South Africa need to be encouraged to formulate strategies that reduce social problems and simultaneously result in a financial gain. This justifies the need for studies focused on SV. According to Nicholson (2017:41), some organisations in South Africa are beginning to investigate SV; however, a paradigm shift from corporate philanthropy to the adoption of strategies that advance corporate and social conditions simultaneously (thus SV) is required. This study's significance is embedded in the fact that it fills a research gap in the SV mining literature. On completion, the results of this study could assist mining organisations and other related industries to create SV and ensure benefits for mines and relevant stakeholders. This study will thus add to the body of knowledge of SV and the creation of SV-related strategies, especially in mining industries.

## 1.11 THE STRUCTURE OF THE STUDY

The study follows a logical structure and consists of the following eight chapters:

- **Chapter One** serves as the introductory chapter where the study's background, problem statement, research objectives, research hypotheses and research methodology are outlined. The scope and significance of the study are also highlighted.
- **Chapter Two** presents an overview of the South African mining industry and environment. Aspects covered include the mining environment, its characteristics and functions and challenges and trends in the mining industry. A comparison of the South African mining industry with other mining industries is conducted.
- **Chapter Three** examines theories related to SV, such as those on CSR, stakeholder theory, natural capitalism theory and green economics.
- **Chapter Four** provides a comprehensive overview of SV and will cover aspects such as the history of SV, the evolvement of the concept, SV challenges and benefits to organisations as well as processes and case studies related to SV.
- **Chapter Five** presents the proposed hypothetical model of SV in the South African mining industry and operationalises the study's independent variables. The chapter also elaborates on the proposed dependent variables. Literature and anecdotal evidence supporting the proposed relationships is presented. The variables are discussed in the context of the South African mining industry.
- **Chapter Six** presents the research design and methodology adopted in this study, outlining aspects such as the research paradigm, approaches, study population, sampling techniques and sample, as well as aspects related to the ethical aspects, measuring instrument, data collection and data analysis.
- **Chapter Seven** analyses and interprets the results of the empirical study.

- **Chapter Eight** concludes the study by presenting the main conclusions and implications. The chapter offers recommendations through strategies that mining industries can adopt to encourage the creation of SV in order to improve organisational performance, create and maintain competitive advantage, and achieve sustainability. The chapter also concludes by discussing the limitations and future search areas.

## **1.12 CHAPTER SUMMARY**

This chapter provided the framework and scope of the entire study. A brief introduction and background of the study was discussed so as to enlighten readers on the topic of the discourse. Furthermore, the problem statement of the study were highlighted and discussed. According to the problem statement presented, there was a need to conduct the study. The study sought to determine the perceptions on SV as well as its antecedents and outcomes within the mining industry in South Africa. In order to achieve the overall purpose of the study, the primary and secondary objectives were presented. The research questions and hypotheses were formulated and presented to provide insights into the study. Furthermore, an overview of the mining industry and SV was also presented. This discussion led to the development of the hypothetical model of the study.

This chapter also provided brief discussions on all the variables considered in the study. In addition, the research design and methodology for this study were also briefly discussed. Furthermore, the discussions of the quantitative research method, population, sampling, data collection, research instrument, pilot study and reliability and validity (as well as other data analysis steps) of the research instrument were presented in this chapter. The chapter concludes by discussing the significance and contribution of the study as well as the scope of the study.

The ensuing chapter provides a comprehensive discussion on the landscape of the mining industry of South Africa.



## **CHAPTER TWO**

### **AN OVERVIEW OF THE SOUTH AFRICAN MINING INDUSTRY**

#### **2.1 INTRODUCTION**

This study is concerned about SV in the South African mining industry. Therefore, a chapter discussing mining is critical. Mining is a key economic industry in over 100 nations across the globe, with 50 countries worldwide being considered to be 'mining countries'. South Africa is one of the African countries included amongst those nations whose mining industry is the largest contributor to the international export market (International Council on Mining and Metals 2014; Sarupria, Manjare & Girap 2018:19). In many countries, the mining industry is recognised as an integral part of their economies that does not only generate taxes and royalties for the governments but also contribute towards socio-economic development (Kotsadam, Østby & Rustad 2016:53). The legitimacy of the South African mining industry has been under increased economic, social and environmental scrutiny since around 2012 due to its presumed role in shaping socio-economic development and environmental protection at locations where mining operations take place. This chapter explores the unique contribution of the mining industry, its history and importance, and further examines the role of the industry in communities and its contribution to sustainable development and economic growth.

In general, the industry itself recognises the position and role of the industry towards communities. According to Ngobese (2015), although the industry understands its role towards communities, the focus tends to be on short-term risk mitigation rather than creating long-term benefits for communities and mining organisations. This suggests that some of the issues affecting communities remain unresolved, and therefore there is a persistent gap between reality and efforts that are geared towards development and mutual success. Some of the social challenges affecting the nation and mining industry are epidemic chronic diseases, illiteracy, shortage of skills and competence, poverty and unemployment (Fauconnier & Mathur-Helm 2008:8). This is despite the government of South Africa adopting transformational policies and legislation inclined to redress the injustices of the apartheid government which barred and excluded the black majority from

participating in the mainstream economy and stimulating economic growth and community development (Krüger 2011:208).

This chapter also discusses factors affecting the mining industry using a PESTEL framework: the political, environmental, social, technological, economic and legislative environments. The chapter then concludes with a discussion on fundamental challenges faced by mining organisations in general and the state of CSR and SV in the industry.

## **2.2 THE LANDSCAPE OF THE SOUTH AFRICAN MINING INDUSTRY**

According to Brand South Africa (2019), South Africa is a leading producer of platinum, gold and other minerals or precious metals. In addition, South Africa holds the highest reserves of mineral ores, chrome, vanadium, titanium and other lesser minerals valuable for economic, social and environmental development. As a result of mining being the core of the economy, South Africa is one of the few middle-income economies competing in global markets against developed nations (World Bank 2018). Since the discovery of the first mine a century ago, mining continues to drive the South African economy, while at the same time playing the central role of modelling the country's socio-political and cultural development processes and systems (Brand South Africa 2019; Department of Mineral Resources 2017:15-17). The history and significance of the mining industry are discussed in order to establish the industrial landscape.

### **2.2.1 History of mining in South Africa**

The South African mining history is one that is characterised by key events and milestones (MCSA 2017). Mining began in 1852 with the discovery of copper in Springbokfontein. In 1867, the first diamond was discovered near Hopetown (Eureka) weighing 21.25 carats and this propelled a mineral 'rush', with more minerals being discovered in the ensuing years. Gold was discovered by Goerge Harrison in 1886, leading to the Witwatersrand gold 'rush'. This turned the province into a commonplace for job seekers from all over Africa. The Coalbrook mine disaster that killed 435 miners took place on 21 January 1960. In 1982, the National Union of Mineworkers (NUM) was formed as a sole union representing African mineworkers and this was followed by the largest

strike to ever occur in South African mining history wherein approximately 340,000 mine employees downed their tools. The Vaal Reefs mine disaster killed 104 mine employees, in the worst shaft incident and this led to the 1996 promulgation of Mine Health and Safety Act (MHSA).

The organised labour environment evolved and saw the launch of the Association of Mineworkers and Construction Union (AMCU) in 2001 following the dismissal of those who had expressed dissatisfaction with the relationship between the NUM, Congress of South African Trade Unions (COSATU) and the ruling African National Congress (ANC). Post-apartheid, to stimulate social transformation and economic growth, the South African government signed into legislation the Minerals and Petroleum Resources Development Act (MPRDA) in 2002, establishing government to be the sole custodian of all mineral rights. The first Mining Charter was launched in 2004 in support of the MPRDA and Black Economic Empowerment Act. In 2012, the Marikana tragedy on the platinum 'belt' occurred and this was followed by a 5 month strike in 2014 wherein miners demanded R12 500 as a basic monthly salary (MCSA 2019:4). The Marikana tragedy and 2014 strike on platinum 'belt' brought the South African mining industry and the role of government and communities under immense scrutiny and pressure accumulated from both local stakeholders and those abroad. A remarkable moment in the history of the mining industry was that of 2018, when the revised Mining Charter III was published after years of negotiations and consultations between government, mining organisations and the public (DMR 2018). Over a century, the mining industry has undergone a variety of reforms in its mining practices and legislation, the extent of economic contribution to the economy and community development, as well as the environmental impact. The industry has numerous mines in different sizes and types across the nine provinces and with a variety of mining methods.

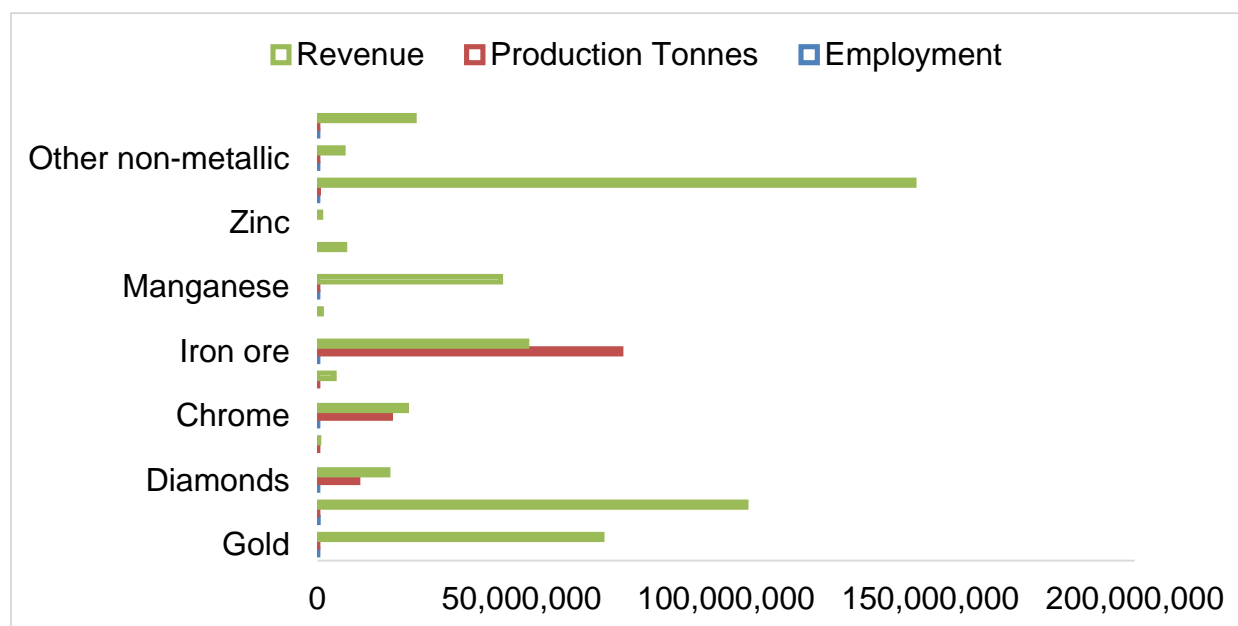
### **2.2.2 Mines and resources in South Africa**

South Africa has different mines at different stages, ranging from those in a prospecting phase to those considered as operational. The mineral profile of South Africa is broad and diverse, including coal, copper, diamond, gold, industrial, iron ore, lead, manganese,

nickel, platinum group metals (PGM), phosphate, silica, uranium, zinc and others. Although the country is renowned as the world's largest producer of platinum (1<sup>st</sup>), coal (3<sup>rd</sup>), gold (6<sup>th</sup>) and diamonds (7<sup>th</sup>) (Brand South Africa 2019), most of the industry's income and employment comes from coal, PGM, gold, iron ore and manganese as well as diamonds (see Figure 2.1). In addition, though there are more than 1,000 mines across the country, only a handful are active, most of which are underground and surface mines or a combination of both (Mineral Council South Africa 2019; Department of Mineral Resources 2019a; Projectsia.co.za 2019). According to Mining-technology.com (2019), South Africa boasts 6 of the world's 10 deepest operational mines followed by the United States of America which has four located in Canada.

Figure 2.1 shows the resources from which South Africa derives most of its income and employment, compared to the level of efficiency (in terms of revenue generation, production level and employment creation) (Mining-technology 2019).

**FIGURE 2.1: ECONOMIC CONTRIBUTION PER COMMODITY IN 2018**



Source: Researcher's own construction

The resources shown in Figure 2.1 are distributed nationwide. During 2018, it is evident that other non-metallic minerals, gold, manganese, iron ore and diamonds were the largest employment contributors, while at the same time remaining as amongst the top revenue earning minerals. Furthermore, production in iron ore, chrome and diamond was high compared to other minerals. This suggests that different minerals provide varying levels of contributions to employment, production, and revenue as well as the GDP.

Table 2.1 provides an overview of operational mines, the geographic locations and their socio-economic contribution at a provincial sphere. Mines in Table 2.1 are synthesised from the DMR database with a focus on active mining.

**TABLE 2.1: PROVINCIAL OVERVIEW OF SELECTED MINES AND THEIR CONTRIBUTION**

CLASSIFICATION	EASTERN CAPE	FREE STATE	GAUTENG	KWAZULU NATA	LIMPOPO	MPUMALANGA	NORTHERN CAPE	NORTH WEST	WESTERN CAPE
<b>Operational Mines</b>									
Gold	-	5	29	-	1	12	-	10	-
Chrome	-	-	-	-	4	10	-	23	-
Coal	1	2	9	14	5	128	-	-	-
Diamond	-	18	5	-	5	-	193	199	-
Iron	-	-	-	2	4	-	12	1	-
Manganese	-	-	1	1	3	3	22	2	-
PGM	-	-	2	-	17	7	-	30	-
Other	177	-	2	2	5	8	22	6	11
<b>Socio-economic contribution</b>									
Compensation of employees (million)	210	13,370	21,471	3,584	39,688	23,163	44,681	8,645	683
Gross fixed capital investment (R' million)	117,467	4,948	8,127	2,098	20,714	16,785	23,352	4,432	305
Employment	1,723	38,431	54,467	9,554	48,782	91,414	193,177	14,969	1,531
Population (2017 census)	6,499,180	2,866,704	14,278,351	11,074,546	5,778,533	4,444,073	3,856,169	1,213,998	6,510,394
Contribution to provincial economies (GDP value added)	0.2	10.8	2.4	1.6	28.3	23.6	33	22	0.3

Adapted from Mineral Council South Africa (2019:12); Department of Mineral Resources (2019a)

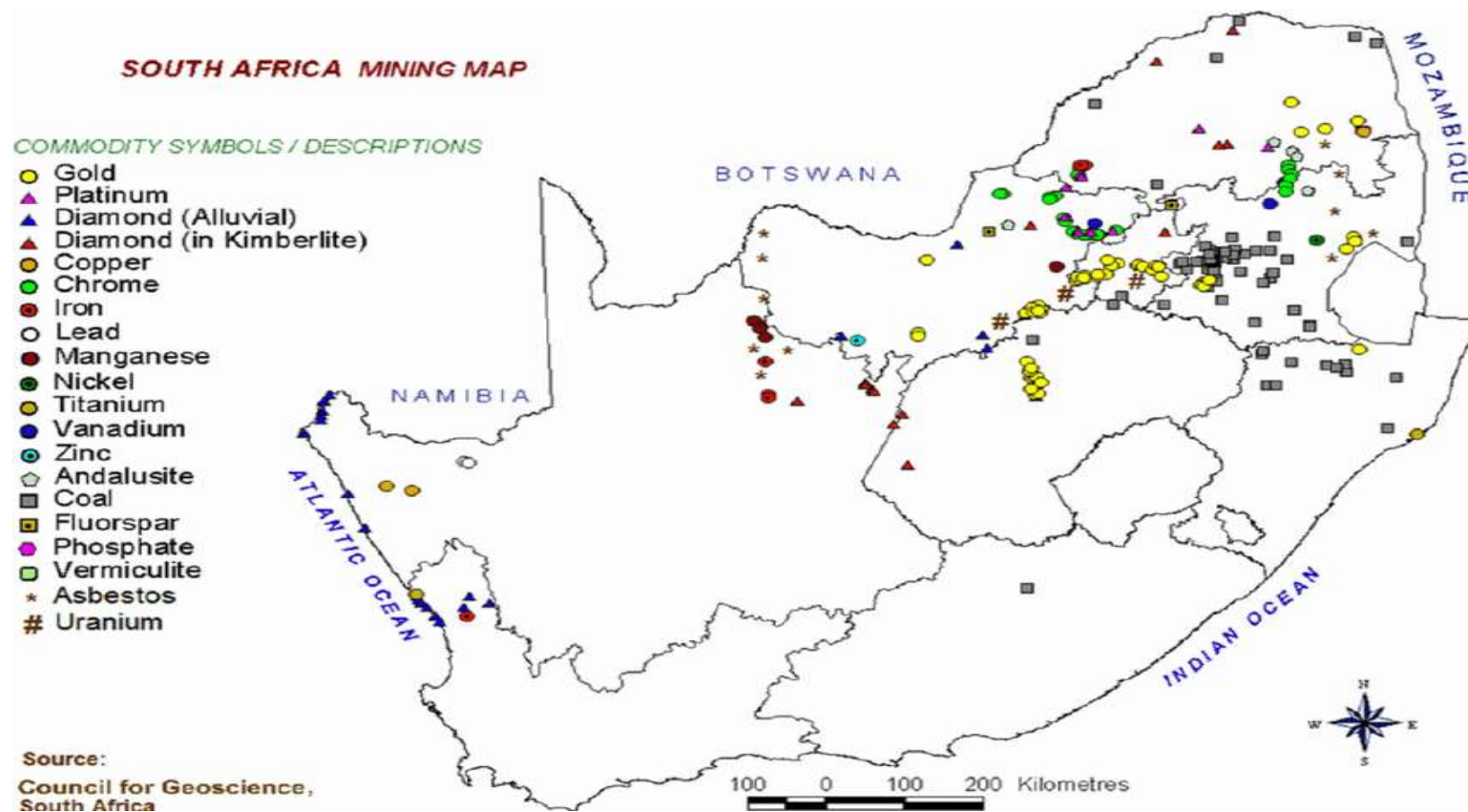
In line with Table 2.1, gold, coal, platinum and manganese are the most prevalent minerals in the country. Although different mines belong to different organisations, industry leaders are usually subscribed as esteemed members of South Africa's Mineral Council

The Mineral Council of South Africa has a total of 78 members made up of mining organisations for various minerals and mining contractors as well as associations which operate in a manner consistent with the Code of Ethics prescribed by the Compact. All members are expected to operate in ways that build multiparty social impact based on trust, transform the South African mining industry into an investment destination of choice and facilitate collaboration between host (countries/areas where mining takes place) communities, government and mining organisations (MCSA 2019a).

The socioeconomic and environmental importance of the mining industry is affirmed by the integral role mining is expected to play towards the achievement of the National Development Plan objectives and priorities (National Planning Commission 2012:54). The industry is therefore central to provincial economies, not only in providing employment but also in supporting the development of provincial infrastructure (South African Institute of Race and Relations 2019). Mining organisations have developed schools, hospitals and other social infrastructure in the communities where they operate to improve social mobility (MCSA 2019:12).

In addition, Figure 2.2 provides a geographical map of the locations of various minerals that are mined across the nine provinces. Moreover, the mining organisations that are members of the Minerals Council of South Africa have also been identified.

**FIGURE 2.2: SOUTH AFRICAN MINING MAP AND ACTIVE MEMBERS OF MINERALS COUNCIL OF SOUTH AFRICA**



Types of Minerals	Base minerals	Coal	Gold / Uranium	Diamond	Platinum	Manganese	Mining Contractors	Associations
MCSA Membership	18	17	8	3	13	9	6	3

Source: Adapted from Mineral Council South Africa (2019); Council for Geoscience (2019)



Admittedly, South Africa has more than 1,000 operational mines (DMR 2019), which differ in terms of the scale of operations and the level of contribution to the social and economic development of the local communities and the country as a whole. In line with Table 2.1 and Figure 2.2, Eastern Cape and Western Cape are the provinces with the least mining activities. In addition, Limpopo, Mpumalanga, Northern Cape and North West are the provinces with the largest GDP contribution from mining activities. These GDP figures are in parity with the statistics on employment and census. Although Gauteng is the centre of mining activities, the contribution of mining to its GDP is only 2.4%. Notably, only 78 mining organisations are members of the Mineral Council of South Africa (2019:1). While a geographical map of mines is presented in Figure 2.2, their contribution to GDP and employment is presented in Figure 2.1.

Coal mines have a significant role to play in generating foreign revenues and providing 77% (224 million tons) of the primary energy needed for the country's socio-economic development (Figure 2.1). The coal mines export approximately one-quarter of the total production to India, China and Europe, and directly employ over 89,647 people, constituting 19% of total mining jobs (MCSA 2019:21-22). The Highveld accounts for about 31% of all coal mines, while the Witbank and Ermelo areas account for 30% and 13% respectively. Approximately 85% of all coal mines in South Africa are owned and operated by Thermal Coal (Anglo-American), Ingwe Collieries (BHP Billiton), Sasol Mines, Eyesizwe and Kumba Resources, representing about over 18 mining projects taking place in Mpumalanga and Limpopo (MCSA 2020).

South Africa accounts for 72% of the world's chrome resources and in 2018 (see Figure 2.1) the country produced 17,853,383 tonnes, exported 4,065,101 tonnes worth R10 billion and increased employment to 19,000 people (MCSA 2019:33-34). Although the Department of Mineral Resources has recorded 37 mining organisations as active mines, in the processing of chromite and ferrochrome resources Glencore-Merafe Chrome, Samancor Chrome, and Hernic Ferrochrome are the most dominate organisations. The industry has also experienced growth over the last 10 years (MCSA 2020).

Furthermore, the Department of Mineral Resources has recorded approximately 420 diamond mines as operational across all the nine provinces (Department of Mineral Resources 2020). South Africa is, however, generally known for the big three mines located in Limpopo, Gauteng and Kimberly (MCSA 2020; Projectsia.co.za 2019). After more than 150 years of intensive mining following the discovery of the first diamond, South Africa's diamond industry remains among the top 5 largest producers in the world, namely, De Beer's Venetia Mine in Limpopo, the Petra Diamonds' Finsch Mine in the Northern Cape as well as Petra Diamonds' Finsch Mine which own mines in Gauteng, Free State and Kimberly. In 2017, over 60% of South Africa's diamonds came from the Venetia Mine in Limpopo Province, the Finsch Mine in the Northern Cape (which also has other projects in the pipeline) and the Cullinan Diamond in Gauteng. Amongst the expansion projects in Northern Cape, the Trans Hex leads with three projects, followed by the Lower Orange River Diamonds with one project and lastly, Koffiefontein in the Free State. Diamond mining operations are already expanding, as shown by an increase in production from 920 000 carats to 2, 6 million carats in 2019 (MCSA 2020).

In 2019, South Africa accounted for 4.2% of global gold output, of which the Witwatersrand Basin remains the largest contributor. This industry has decreased dramatically given that South Africa produced more than 40% of the world's gold in 1975 (MCSA 2019:27-28). Apart from most viable gold mines operating in Johannesburg and the West Rand, this resource can also be found in the Free State and Northwest Provinces. In 2019, gold sales rose by 3.7% to R72.6 billion (R70 billion in 2018), while employment declined over the years, decreasing to 95,130 compared to 100,189 people in 2018 (MCSA 2019:27; DMR 2019).

The country accounts for approximately 80% of the world's reserves of PGM, with over 80 PGM mining projects, with the majority held by only 11 platinum mining companies. PGM is located in the 2 billion-year-old Bushveld Igneous Complex of South Africa, particularly across clusters in the provinces of Limpopo and the North West. Gross nominal revenues in the PGM market increased to R104 billion in 2018, compared to R97 billion in 2017. The PGM industry employed 167,041 people in 2018. The highest number of jobs achieved in the last 10 years was 197,752 employees in 2012.

Iron ore is the most prolific resource in the world, containing most of the inner and outer core of the earth. Gross revenues for iron ore increased by 3.7% in 2018 compared to the previous year. During 2017 and 2018, jobs in the iron ore industry increased by 6.2 % to 18,613, and export revenue increased to R45 million. The Northern Cape and Limpopo are the leading provinces (MCSA 2019:29-30).

Global reserves of manganese were estimated to be 680 million tonnes in 2017 and South Africa as a world leader in the production of manganese accounts for about 78% of the resource (DMR 2019:148). Most manganese mines are located in the provinces of the Northern Cape and Limpopo. Production increased from 14.3 million tonnes in 2017 to over 14.9 million tons in 2018. Similarly, export revenues increased to R43 billion in 2018 compared to R30 billion in 2017. Approximately 9,352 people are employed by the manganese industry (MCSA 2019:31-32).

These minerals include copper, silver, uranium, aggregate and sand. The construction industry is inextricably related to the aggregate and sand market. This mining sub-industry is the smallest contributor to employment and GDP, having employed only 6,121 people in 2018 (MCSA 2019:37-44). It can be argued that quarries be considered a sub-industry of mining as they operate in the form of an open-cast mine.

### **2.2.3 The importance of the South African mining industry**

The mining industry of South Africa remains largely underexplored even though the first discovery was made in 1852 and opportunities for further exploration still exist (South African Institute of Race and Relations 2019). The industry's workforce is still made up of immigrants and migrant employees, and communities are displaced as a result of mining activities and infrastructure still underdeveloped.

In South Africa, mining is a foundational industry because of its uniqueness and capability to produce basic materials or commodities necessary for development to the supply chains of strategic manufacturing, engineering, construction and other diverse industries (PwC 2015:9), while at the same time supporting socioeconomic priorities of both government and communities (South African Institute of Race and Relations 2019:3).

Accordingly, mining has transformed the South African economy into one that is underpinned by multiple threads of industries (South African Institute of Race and Relations 2019:1). Furthermore, the notable contribution of mining is marked by the founding of the Johannesburg Stock Exchange (JSE), direct contribution to the supply chain of emerging industries such as the manufacturing industry, energy industry, transport industry, and its contribution to the development of cities and provinces as well as skills development and improved technological capabilities (South African Institute of Race and Relations 2019:8-12). In case of communities who are the ordinary consumers, mining improves their standard of living through social benefits which include access to products that would not exist in the absence of minerals (MCSA 2017:22), for example, jewellery, electricity, roads and bridges, fuel, cars, computers, electrical appliances, cell phones, medical equipment and surgical implants. It can be argued that mining is an enabling infrastructure that catalyses the development of other economic industries and social development.

The growth of the secondary and tertiary industries and the diminishing mining production level are among the factors that cause a decrease in the direct mining contribution to the country's GDP. This pattern has been consistent for decades, although this does not necessarily equate to reduced importance of the mining industry's contribution to economic growth and social development as stated in Figure 2.1 and Table 2.2 (see below), most notably in terms of industry's export sales, private and foreign direct investment and employment (South African Institute of Race and Relations 2019; MCSA 2019). Admittedly, in line with Figure 2.1 and Table 2.2, the importance of the mining industry is briefly discussed below using key categories of measuring the economy:

- **GDP contribution**

GDP refers to final value of goods and services produced within the geographic boundaries of South Africa (as a country) during a specific period. South Africa's mining in the 1980s was the second-largest contributor to South Africa's GDP at 21% per annum compared to manufacturing which stood at 22% per annum. By 2016, the composition of GDP had drastically changed with the financial services

industry being the largest contributor at 20%, followed by government at 17%, the trade industry at 15% replaced the manufacturing industry (13%) on the third position and mining consequently took to sixth place at 8% after the transport industry which contributed 10% (South African Institute of Race and Relations 2019:2). Figure 2.1 and Table 2.2 show that GDP declined from 8.2% reported in 2009 to 7.3% attained in 2018. In the interval of 10 years, the highest GDP contribution by the mining industry was in 2009, while all other ensuing years experienced a steady decline. Mining's fixed investment growth rate increased from 5.8% reported in 2009 to 13.2% in 2018. This represents 10% (R91 billion) of total investment in the economy for 2018.

- **Employment contribution**

Mining created even more opportunities for employment in 1987, employing over 760,000 people, declining further down to a low of 400,000 employees in 2001, expanding again to approximately 530,000 in 2008 and then this number followed a constant decline (South African Institute of Race and Relations 2019:3). Mineral Council of South Africa (2018) also states that the mining industry has been responsible for creating approximately 1.4 million jobs in related industries in 2018. In line with Figure 2.1 and Table 2.2 employment declined from 491,794 people in 2009 to 463,901 mining employees reported in 2018, while the highest over the past ten years was in 2012 when mining employed 524,869 employees.

- **Productions and export sales**

South Africa's gold production declined to 145 tonnes (76.5%) in 2017 compared to 619 tonnes of gold produced in 1993. By contrast, the production of platinum group metals (PGM) increased to 218 tonnes, a 19% upward movement in 2017 compared to 176 tonnes produced in 1993. Despite fluctuations in production, sales have constantly increased over the years, with 2016 reporting a 12.9% increase (R437.6 billion) compared to 2015 and an 8.4% increase (R474.5 billion) in 2017. In addition, mining's contribution to the positive balance of trade and

export sales peaked at 44% in 1996 and 2009, and over the years this has been the largest commodity compared to other industries (South African Institute of Race and Relations 2019:3-4). As Table 2.2 shows, however, the mineral export sales declined to 26.7% (R333 billion) in 2018 from 34.9% reported in 2009 (R175 billion), which was the highest level in the previous 10-year period.

- **Investment in mining**

As a percentage of the total investment, investment in mining reduced from 12% reported in 2009 until 2012 to a low of 6% (R53 billion) in 2016. In 2018, with a growth of 10%, mining reported an investment of R91 billion, translating to 13.12% of the total investment, in a show of recovery (South African Institute of Race and Relations 2019:1-3).

- **Exchange rate**

Mining industry's profitability is a product of the interplay between selling prices and costs of production. The industry definitely has no influence on commodity market prices or the rand exchange rate. Practically 50% of intermediate input costs, apart from labour costs (35%), are influenced by the exchange rate and inflation. The prices of commodities are determined by complex patterns of global markets. These include market-specific supply disruptions, increasing US interest rate changes, the US currency inflation, global trade conflicts among advanced economies, and financial market pressures in some emerging and developing economies (World Bank 2018). The Rand / Dollar exchange rate increased in 2018 by 0.6% and in 2019 by 0.9% after years of volatility (MCSA 2019:5). In line with Table 2.2, South Africa last showed good performance against the US dollar in 2010 at R7.3 for each US\$1. Since 2010, the exchange rate had significantly increased to R14.7 in 2016. Table 2.2 presents the key economic statistics showing mining's contribution to economic growth and community development in South Africa for the period 2009 to 2018.

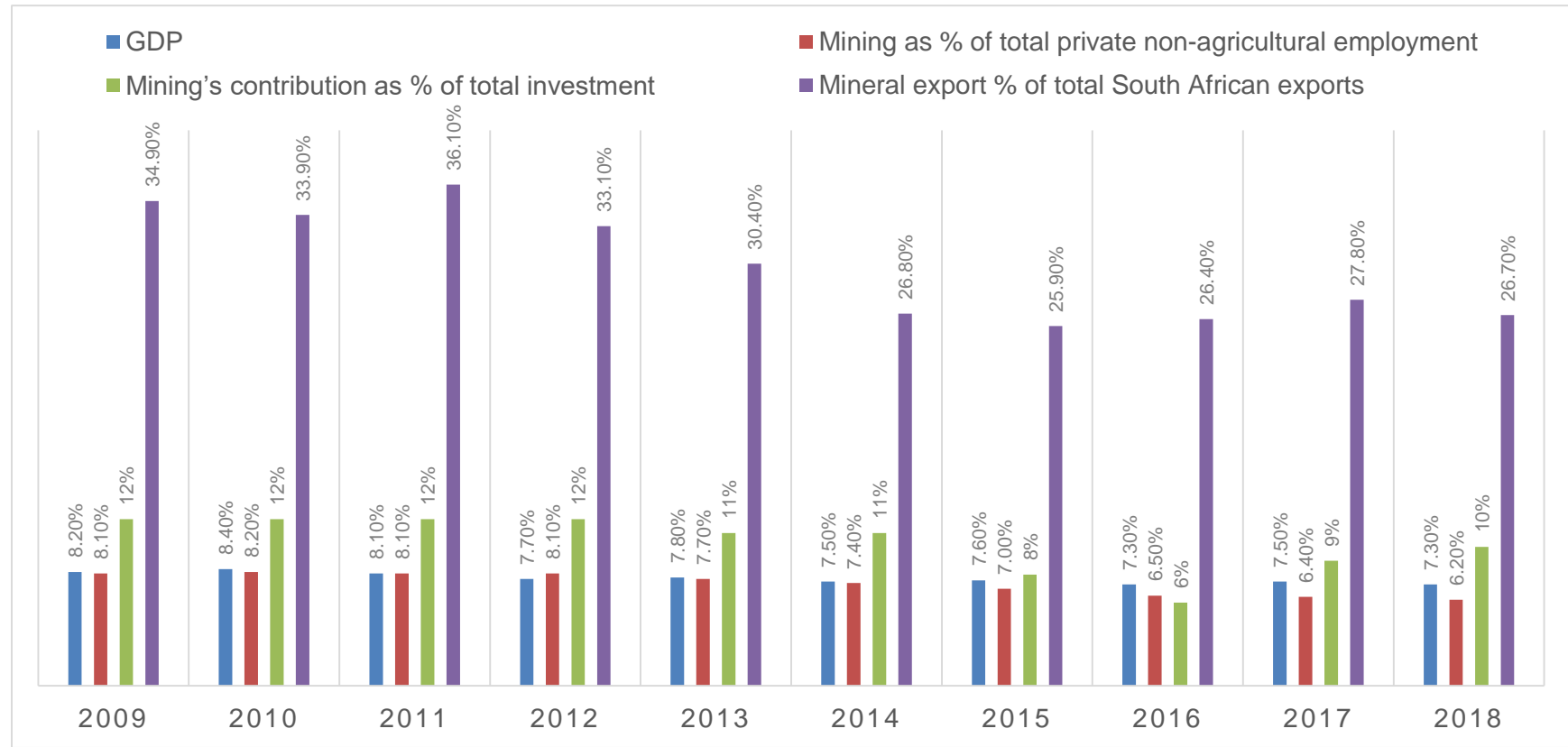
**TABLE 2.2: KEY STATISTICS OF THE SOUTH AFRICAN MINING INDUSTRY FOR PERIOD 2009 TO 2018**

												YEAR-ON - YEAR % CHANGE
DESCRIPTION	UNITS OF MEASURE	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017 TO 2018
<b>Mining GDP contribution</b>												
Mining GDP Contribution (Nominal value)	R millions	200,824	230,350	261,575	267,344	288,300	287,488	281,523	317,724	343,672	350,882	2.1%
GDP Contribution % (Real terms)	%	8.2%	8.4%	8.1%	7.7%	7.8%	7.5%	7.6%	7.3%	7.5%	7.3%	-2.8%
<b>Investment in mining</b>												
Mining Investment (Nominal terms)	R millions	64,574	63,555	68,420	72,106	80,609	85,615	63,791	53,864	77,178	91,098	18.04%
Growth rate of mining Investment	% year-on-year	5.8%	-3.7%	3.8%	-0.8%	2.9%	-0.5%	-27.4%	-20.2%	39.1%	13.2%	- 66%
Mining's proportion as % of total investment	%	12%	12%	12%	12%	11%	11%	8%	6%	9%	10%	11,1%
<b>Mineral exportation</b>												
Mineral exports sales nominal terms	R millions	175,772	224,969	282,2976	269,120	279,673	269,264	266,604	294,897	328,470	333,227	1.4%
mineral exports as % of total SA export merchandise	%	34.9%	33.9%	36.1%	33.1%	30.4%	26.8%	25.9%	26.4%	27.8%	26.7%	-4%
<b>Employment</b>												
Mining industry direct Employment	Numbers	491,794	498,907	512,874	524,869	509,909	492,931	480,205	458,291	463,901	456,438	-1.6%
Average annual remuneration per mine employee	Rand	134,389	148,963	169,578	178,388	197,590	207,223	237,576	262,966	277,123	294,572	6.3%
Frequency of fatalities	Rate per million hours worked	0.16	0.12	0.11	0.10	0.09	0.08	0.08	0.08	0.09	0.08	
<b>Currency fluctuations</b>												
Rand per US\$	R/US\$	8.4	7.3	7.3	8.2	9.7	10.8	12.8	14.7	13.3	13.2	-0.6%

Source: Adapted from MCSA (2019)

Figure 2.3 exhibits the graphical representation of the mining industry's contribution to the GDP, employment, investment and balance of trade (export sales).

**FIGURE 2.3: KEY ECONOMIC STATISTICS OF SOUTH AFRICAN MINING INDUSTRY**



Source: Researcher's own construction



Despite the declining GDP and employment figures (Table 2.2 and Figure 2.3) the industry remains central to the improvement of social and economic conditions as well as preserving the environment. Admittedly, the declining GDP contribution of mining is offset by mining associated industries that are experiencing growth, for example, the manufacturing and transport industries. The mining industry is clearly a catalyst for social transformation and development of the local economy. Despite the importance of the mining industry, there is a global perception that the South African mining industry is no longer an attractive destination for foreign direct investments due to policy uncertainties. In the African continent for the period between 2013 and 2017, South Africa was ranked the third-worst country in which to own mining interests, behind the Democratic Republic of Congo and Zimbabwe, and ranks at number 81 out of 91 countries assessed globally (South African Institute of Race and Relations 2019:1-2). In light of this negative perception about the policy uncertainties and the global challenges such as poverty, climate change, rapidly increasing inequality, degradation of natural resources and other social issues, the mining industry should reconsider its mining methods and value chains in order to create value for all stakeholders.

## **2.3 FACTORS AFFECTING THE NATURE OF THE SOUTH AFRICAN MINING INDUSTRY**

Anis, Idrus, Amijaya and Subagyo (2017:141) state that the mining industry should consider both macro and micro environmental factors that affect its operations and conversely affect communities and environmental sustainability. The factors influencing the nature and importance of the mining industry are discussed in terms of the PESTEL framework conditions.

### **2.3.1 Political factors**

Political conditions and perspectives shape socio-economic and environmental policies. Mining organisations are to recognise the key political dynamics to inform their responses to both social and environmental issues (Stirling, Wilson-Prangley, Hamilton & Olivier 2016:526).

### **2.3.1.1     *Political debate on land expropriation and nationalisation of mines***

Modimoeng (2017) asserts that given the perceived slow pace of transformation since the end of apartheid, there is a call for the nationalisation of mines in South Africa, and this is largely championed by civil society, mining communities and members of the ANC calling for the implementation of the Charter of Freedom.

Although the call for radical economic transformation was initiated by the ANC Youth League during 2008, in 2012 the ANC resolved not to nationalise the mines, and instead elected to adopt alternatives (ANC Conference Resolution 2012). The use of the tax system as a first alternative means that government would have to increase or develop a new tax regime that stimulates economic growth and transformation. A second alternative offered is intervention by means of legislating environmental and employee health and safety. The third alternative suggests enhancing industry-based mining education in line with the industry's capacity requirements. Furthermore, the ANC's (2019) 54th National Conference did not only reaffirm the resolutions of the 53rd National Conference but rather resolved that it would guide the South African economy in accordance with the ideals of the Freedom Charter. Although the position of the ANC of pursuing policies such as the expropriation of land without reparation has gained momentum, it would have to be done without threatening food security and without putting the economy and jobs at risk (ANC Conference Resolution 2018). If the redistribution of land is not handled properly, it could threaten mining (claims relating to mining rights, prospecting and exploration) and agriculture since they are land and thereby scare investors off.

On the other hand, in the lead up to the 2019 elections, the Economic Freedom Fighters (EFF) called for the nationalisation of key industries that influence the economy. The EFF (2019) policy position is centred on the principle of state custodianship, which would be achieved through the compulsory acquisition of property and land as well as the nationalisation of the key levers of the economy such as the mineral (mines) and financial (banks) industries. In addition to the above, the EFF (2019) campaigned strongly on a need for the state to set a national minimum wage to bridge the inequality gap.

According to Maswanganyi (2012), the nationalisation of mines is a highly contentious debate amongst the politicians, within the mining industry and the communities. There is no unified position amongst the stakeholders in this debate. The nationalisation of mines and other industries of the economy would exhibit a significant shift from the country's neoliberal economic policy. Arguing against the nationalisation of mines, Du Plessis (2013) elaborates that the industry is not monopolised and neither does it dominate the economy nor temper with the exchange rate. In line with this thinking, it can be argued that industry is regulated by free-market conditions and open for investing by those with access to the capital. In addition, it can be argued that it would be more expensive for the government to run mining operations than to collect taxes.

Within the African continent, this debate is premised on a countries' lack of a strongly integrated mining legal and regulatory framework that supports the sustainable growth of the economy while responding to the challenges of the communities. As a result, amongst African nations, there is a growing call to review colonial agreements so that ownership of mines and the associated benefits return to the citizens of the host nations (Olowu, Ijeoma & Masu 2018). Economic growth and development are rapidly achieved where minerals are better managed (World Bank 2018a). Therefore, similar to the government, mining organisations have the responsibility to respond to the multifaceted needs and expectations of the stakeholders who are a microcosm of the ever-changing political environment (Olowu et al. 2018).

### **2.3.1.2    *The role of trade unions in the South African mining industry***

Since 1948, the mining workforce has been shaped according to the patterns of capitalism which seeks to keep costs at a bare minimum to maximise profits. The black South Africans and migrant employees are still paid less than their white counterparts. Accordingly, the mine employees' activism has its origins in the 1900s with the most memorable incident being the 1920 mineworkers' strike during which thousands of employees of African origin downed tools as they demanded better pay (Gentle, Callinicos, Jansen, Nieftagodien & Jordi 2018:1-8). NUM, formed in 1982, became the first successful labour union for black people after the African Mineworkers Union failed

to see any growth. Patel (2012) claims that NUM improved the lives of mine employees in this country, particularly black people. NUM through its trust, produced a total of 1 121 graduates between 1997 and 2018 (JB Marks Education Trust Fund 2018).

Labour legislations enacted post-1994 prompted an increase in the number of unions registered in various industries (Bhorat, Naidoo & Yu 2014:16). The perceived political influence and authority union, growing unemployment and job creation, inequality gap and minimum wage, and labour brokers raised seminal debates in the terrain of organised labour and the National Economic and Labour Council (NEDLAC) (Bhorat et al. 2014:16). NEDLAC is an interplanetary organisation where recognised and affiliated labour federations such as COSATU play an important part in engaging with government, business community and communities on policies (Bhorat et al. 2014:16).

As organised labour environment evolves, new unions are conceived. Marrian (2014) contends that massive defection from the NUM to the Association of Mineworkers and Construction Union (AMCU) was brought about by divisions within COSATU and NUM. In line with this thinking, Marais and Prinsloo (2013) also credit the origins and launch of AMCU in 2001 to divisions within NUM in 1999. There was also a perception that COSATU had neglected the working poor in favour of unions representing employees of the state (Gentle et al. 2018:30). It is also claimed that employees have lost confidence in unions due to the growing culture of corruption, mismanagement, compromised political leadership, policy ambiguity and other social ills (Gentle et al. 2018:29). Following the recognition of AMCU as a majority union (a position previously held by NUM) by Anglo American Platinum, Impala Platinum and Lonmin, and despite the real wage increase in 2014, AMCU did not reach an agreement on the improvement of conditions of service and salaries. This led to another platinum strike, which lasted for about five months, costing the economy millions in lost production. However, unlike the 2012 strike which had caused the Marikana massacre, the strike in 2014 was protected and approximately 70,000 employees demanded R12,500 per month as a minimum wage (Huysamen 2018:273-278).

The Mineral Council of South Africa (2019:4) states that community protests and disruption to mining and strike activities by the union mine workers are a major cause of instability in the mining industry. The need to amend labour legislation has been mooted by various analysts (Huysamen 2018:296). The Labour Relations Amendment Act of 2018 (South Africa 2019), which birthed the National Minimum Wage (NMW) Act, requires that trade unions, federations and employers organisations amend their constitutions to include a requirement for a secret ballot voting to be conducted before participating in strike or lockout. The object of this amendment is to delegitimise strikes carried out without a secret ballot. It can, therefore, be argued that the role of unions in the mining industry needs to be redefined in order to maintain their relevance in light of the complex and ever-changing socioeconomic environment.

### **2.3.2 Environmental factors**

Mining is a primary driver of economic activities of the country and creates employment opportunities and demand for goods and services produced locally at locations where mining operations take place. The contribution of mining to poverty alleviation is undeniable where there is proper environmental, social and mineral resource governance. When societal and environmental problems are not addressed, the relationship between the mining organisations and local mining communities deteriorates, resulting in high costs and reputational damage to mining project sponsors and lenders (Olowu et al. 2018). If not properly managed, mining can threaten humans' existence and the entire ecological system, according to Anis et al. (2017:141).

#### **2.3.2.1 Infrastructure**

The African Mining Vision seeks to build an integrated infrastructure, nationally, locally and at regional levels that will enable African economies to compete in global markets (Busia & Akong 2017:158). While natural resource exploitation successfully attracts increased foreign investment, the people of the African continent are questioning the benefits of natural endowment. This is a call for the prioritisation of infrastructure investment, which promotes development and the creation of jobs. The neoliberal policies

are often criticised for maximising the wealth of the shareholders, executives and politicians at the expense of the citizens (Jensen & Wantchekon 2004:818-828).

Despite South Africa having vast mineral wealth, they are geographically located in mostly remote places. The development of quality transport infrastructure, for example, can increase competitiveness as a result of connecting local mining operations to the regional and global markets, while at the same time creating an enabling environment for community development. Transport infrastructure is therefore regarded as a crucial engine for economic growth and social development. Accordingly, mining which drives infrastructure development is considered to be a key driver of economic growth and social mobility (World Bank 2018a). Infrastructure development includes the building of highways, railway lines, health facilities, houses, energy generation plants and satellites as well as other products that are reliant on minerals (Sarupria, Manjare & Girap 2018:18).

In South Africa, most local communities adjacent to the mining operations are inadequately supplied with public goods and services such as schools, health clinics, roads, poor housing, clean water systems and functional sanitation infrastructure (Malinganya et al. 2013). Saul and Bond (2014) claim that while the government has a sufficient legislative framework to guide the mining industry in its work, mining organisations' consciousness towards local communities is poor. Most if not all public and labour unrest are caused by the failure of organisations and the government to respond to social, economic and environmental problems that face society (Hartford 2012). The Mining Charter III (2018) postulates infrastructure development as a community development imperative for mining organisations.

Reciprocally, mining organisations are significantly influenced by prevailing market realities and infrastructure conditions as an input cost. For example, declining commodity prices herald retrenchments, cost reduction measures being implemented in other operational areas and avoidance of risks (Deloitte 2018:40). The dilapidated energy infrastructure and rapidly increasing cost of electricity provided by Eskom negatively affects mining operations in South Africa (Vottelerl & Brent 2017:2225). Mineral Council of South Africa (2019:14,18) argues that to maintain South Africa's investment-grade

sovereign rating, all efforts must ensure fiscal consolidation including input costs such as electricity prices, restructuring of Eskom, and the overhauling of the rail model. It can be argued that the introduction of greater competition into the railway network will increase competition, improve efficiencies, promote investment, and improve the value chain and ensure growth. Furthermore, reciprocal benefits that accrue to the mining organisations, state and communities can be achieved through innovation and collaboration.

#### **2.3.2.2    *Water quality***

Organisations have often been perceived to be responsible for water management according to best practices. The growing demand for water is driven by the growth of the global population, industrial development and expansion of irrigated agriculture. The concerns around water quality and availability are intensified by civil organisations and communities that are affected by mining operations (Deloitte 2018:36-38). According to Greenpeace Africa (2011), water pollution has negative effects on the economy and leads to the degeneration of the ecosystem.

According to Akcil and Koldas (2006:1139), acid mine drainage refers to contaminated water that streams or runs from mining residues and that pollutes the underground environment and the surface. According to Akcil and Koldas (2006:1139), as a consequence of mining or lack of treatment of acid drainage water, biodiversity can be impaired in the long term. Organisations that comply with the National Water Act (1998) contribute to social and ecological sustainability, which is the primary objective of the Act.

Mining organisations that consider the environment in their operations positively contribute to the availability and quality of water. AMD calls for expensive measures to treat the water, increasing the cost of mining and degrading the quality of life around the mining areas (Zvarivadza 2015:79). As a result, meeting the bare minimum requirements of the environmental legislation does not guarantee sustainability. Therefore, organisations should consider innovations such as water recycling and purification initiatives (Zvarivadza 2015:80). The eMalahleni Water Reclamation plant was constructed as a result of collaboration between Anglo American and BHP. It is the world's first facility to treat acid rock drainage and purify it to potable standards, further,

its water is linked to the municipal water infrastructure (Sharedvalue Initiative 2017; Zvarivadza 2015).

#### **2.3.2.3    *Climate change***

The mining and mineral processing contribute to the degradation of the environment. The emission of greenhouse gases such as methane and carbon dioxide does not only cause health problems but also cause climate change. The manifestation of climate change is not only extreme weather causes damage in a myriad of other ways, including dirty air, health risks, rising seas and imperilled ecosystems (Natural Resources Defense Council 2017). For decades mining activities have been seen as the cause of numerous chronic epidemics from asbestosis to TB and HIV. Asbestosis which refers to malignant mesothelioma is cancerous (Fontaine 2015) and predominantly found in the Northern Cape, Limpopo and Mpumalanga (Braun & Kisting 2006). In South Africa, according to Nall (2013), silicosis is a lung condition caused by inhaling too much silica commonly found from certain types of stone, rock, sand and clay. Smallhorne (2013) states that tuberculosis (TB) and HIV are intertwined, such that most South Africans with HIV are far more likely to develop active TB. Most if not all mine employees, regardless of the reason for the termination of work underground, return to their homes in the labour-sending areas in rural southern Africa. Often, the costs of the silicosis and TB epidemics become externalised, a burden on communities in which former mine employees live, and local healthcare systems have scarce capacity to diagnose and manage these occupational diseases. The families and family structures are similarly compromised as the role of both caregiver and breadwinner fall primarily on women, resulting in a significant physical, psychological and financial burden on them (Open Society Foundation of South Africa 2015:12).

#### **2.3.3    *Social factors***

While the mining industry is inherently affected by social factors, it can also make a significant contribution to community development. Stirling et al. (2016:526) assert that mining cannot control all events, issues and dynamics amongst and within the communities, however, they should redefine their role in directly or indirectly facilitating



community development without deviating from the core function of the organisation (profit-making).

#### **2.3.3.1 *Employment and community development***

Todaro and Smith (2014) refer to community development as a practice of empowering the members of the community in ways that uplift the standard of living, freedom, self-esteem and social mobility. The real community development initiative is one that involves a long-term process where several interdependent microeconomic capabilities are combined with incentives aimed at supporting and improving a community's wellbeing (Roland 2014).

Although mining in South Africa generates massive revenue, the industry has also been associated with negative human and environmental impacts. Admittedly, South Africans continue to face the triple challenges of income inequality, poverty and chronic unemployment (KPMG 2014:3). Obeng-Odoom (2012) asserts that a paradox of benefits and disadvantages coexists, dismissing the assertion that there is a trade-off between resource wealth, economic performance and conflicts. The increasing inequality between citizens continues irrespective of mining developments which predate the democracy (Keetan 2014)

There is a perception among communities that mining does not solve the social problems of the communities in which they operate regardless of the massive income generated (Leon 2012). In light of this thinking, Ross (2001) argues that the industry has a significant role to play in addressing the problems affecting communities and improving the working life of its workforce. According to United Nations (2015), there is also an expectation by governments and local communities that mining organisations will uplift the entrepreneurial activities present in their locality by providing opportunities to supply materials and related commodities and services to mining organisations, miners and their families.

Wankhede (2020) asserts that local communities expect to be offered decent employment and business opportunities by mining organisations that have started operations in their

locality. The mining industry has already made a notable contribution to employment directly within the industry and connected industries such as manufacturing (Smit 2013). Brand South Africa (2019) states that the industry has created over 1.3 million jobs, of which about 520,000 were direct employment opportunities and about 830,000 indirect jobs. Smit (2013) states that one notable achievement of the industry is its ability to hire individuals from diverse educational backgrounds, from a highly expert level to a level of no education at all.

According to Bryceson and MacKinnon (2012:525), “mining creates stark economic variations in wealth and poverty, which has taken racial and sometimes ethnic patterns, as well as creating wealth disparities and tensions between rural agricultural and mining communities in various instances.” The mining industry is also critiqued for being male dominant and taking males away from their families for low wages and short term contracts. In the end, social and family structures are altered (Wolpe 1972). Harington, McGlashan and Chelkowska (2003:65) contend that the mining industry employment practices continue to follow pro-capitalist migratory patterns. Bryceson and MacKinnon (2012:513) claim that mining has caused community displacements resulting in contestations over land and mineral rights. Motshegwa (2015) states that new South African legislation supports female representation in mining. The Mining Charter allocated 10% for the inclusion of females both in ownership and employment opportunities. The industry continues to take deliberate steps to encourage the inclusion of females in management echelons, in 2018 about 17% were already occupying executive positions (MCSA 2018:43)

Finally, Leonard (2018), aligned with Krause (2014), claims that communities are a portrait of the imbalanced relationship between mining organisations and local communities. Government and mining organisations are often critiqued for ignoring the social problems affecting the host communities and the demands of employees for improved working conditions (Krause 2014). It may be inferred that mining activities do not always meet the expectations of the local stakeholders.

### **2.3.3.2    *Small scale mining***

Artisanal mining all over the world is mostly considered illegal, irrespective of the indirect contribution made by the industry to the creation of informal employment opportunities (Ledwaba & Mutemeri 2018:141; Bansah 2019). Mining and possession of precious minerals and metals without an approved license is prohibited under the Mineral and Petroleum Resources Development Act 28 (MPRDA) (2002). In other words, unlicensed mining is a punishable illegal activity of trespassing and burglary. Trading in unwrought gold, platinum, gold-bearing material, rough diamonds, and other precious metals without obtaining a relevant license is also illegal mining.

According to Motala (2014), there is an increase of semi and illiterate miners (referred to as Zama Zamas) who use unconventional methods to carry out illegal gold mining. The dangers of illegal mining are not only the physical collapse of mines, but also that illegal miners themselves may contract diseases, and risk being exploited and killed by criminal syndicates which are heading the operations (Thornton 2014:2). Illegal mining is inherently interlinked with criminal syndicates and loss of taxes and foreign exchange revenue (MCSA 2019:9; 2020).

The lack of a clear regulatory framework does not only undermine the potential economic development opportunities but also endangers communities residing in the nearby regions (MCSA 2018:48; 2020:60). Ledwaba (2017:4-9) and Buxton (2013:5-13) further contend that small mining faces additional challenges compared to large scale mining, for example, the lack of funding, inadequate knowledge about the market, lack of institutional support, lack of access to mining technology and skills. It can be argued that this lack of a clear regulatory framework, skills and necessary mining equipment increases social risks. In an attempt to regulate small-scale mining, Department of Mineral Resources issued a license to a group of illegal miners based in the Northern Cape (MCSA 2018:48). In 2014, in Gauteng, West Rand, Johannesburg illegal miners were trapped below the surface by a group of rival gangs who stole their gold and left them stranded underground. Thirty miners were rescued (Motala 2014). If the site had been

rehabilitated by previous owners (mining organisation), public resources expended on that rescue operation could have been diverted towards addressing other social priorities.

### **2.3.3.3    *The rise of civic organisations in communities around mining areas***

The case of the South African mining industry after 1994 is distinctive in that there is a blurred distinction between the role of government and the role of mining organisations due to increasing inequality. As a result, this has created an environment in which the communities hold mining organisations and government accountable for their actions. Despite communities challenging mining projects, most of these cases have yielded mixed results (Leonard 2018:2).

The previous 20 years saw the industry experience the rise of civic organisations. Given the prevalence of mining operations in Africa, and the particular role that the mining industry plays in shaping several regional economies (and state policy frameworks generally), the issue of transparency has become crucial. Communities in and around mining operations have catalysed the creation of civil society organisations to look at mining licensing and black economic empowerment concerns, but also to campaign against illegal mining practices while holding the government accountable for issuing permits without adequate consultation (Open Society Foundation 2015:29). Whereas the state encourages mining (with a view of creating jobs), communities often contest the issuance of such licenses if they do not see benefits that will accrue to them. As a result, communities often claim that mining projects do not meet their community development vision (Leonard 2018:2).

According to Fin24 (2014), the Mining Affected Communities United in Action marched to the government Mining Lekgotla in Johannesburg in August 2014, where amendments to the MPRDA were discussed to hand over a Memorandum of Demand to the Mineral Council of South Africa. In 2014, Lonmin, responding to the pressures from organised communities of Marikana and the findings of the Farlam Commission, transferred 18% of the operations to three BEE deals with namely the Bapo Ba-Mogale, the Marikana Community and Employee Share Trusts (Lonmin 2014:10). This affirmed the role of civil

society in fostering good relations between communities, mining organisations and the government.

Centre for Environmental Rights (2013:5) asserts that the South African mining industry like in most other mining countries has left trails of negative social and environmental impact. Therefore, the formation of civil society organisations, lobby groupings and NGOs is an indication of mining communities' consolidated position, arguably lack of confidence in political formations, traditional leadership and trade unions and to be able to respond to the needs of a specific community.

#### **2.3.4 Technological innovation and automation factors**

Howell, van Beers, and Doom (2018) consider information technology applications to be the key drivers of economic development which reduces the cost of doing business as a result of innovation. The period between 2000 and 2016 has been historic in the mining industry with operational realities shifting towards embracing the digital revolution (World Bank 2016). In the immediate future, the profitability of mining activities will depend on how the organisations integrate technological innovations and automation into their operations (Deloitte 2018:3).

Automation is central to the modernisation of mining. In South Africa, modernisation is no longer a matter of choice. Given the deepening of underground mining, mining organisations are investing in mining technologies to increase their efficiency, improve the safety of their employees and contribute to the conservation of natural resources (MCSA 2018:46). It is estimated that, with conventional mining, the gold production will decline and be exhausted by 2033. With automation, mines will not only be able to operate 24/7, but also increase employment by about 200,000 jobs by 2030 (MCSA 2018:46).

According to Mineral Council of South Africa (2018:47), technological innovation will be underpinned and driven by research and development in order to find the holistic approach, and in a system and people-centric manner. In addition, the transition to the future digital mines entails focusing on core mining processes with the goal of automating physical operations and digitising assets, thereby adopting autonomous vehicles, drones,

three-dimensional (3D) printing, and wearable technologies which are all operated through a connected network that uses Internet of Things (IoT) sensors to capture data in real-time/artificial intelligence (Deloitte 2018:4; Davis 2016).

Mineral Council of South Africa (2019:23) asserts that, as a result of modernisation, the industry will invest in skills development which will lead to improved remuneration and job creation in related industries as a result of widespread industrialisation and contribute to community development and the protection of natural resources. There are, however, potential barriers to modernisation. Deloitte (2018:10-11) has identified the following four major barriers to technological innovation in the mining industry:

- Overconcentration of focus on profit maximisation (low-risk appetite);
- Preference for short term cash flow;
- Lack of clear vision of the future (transformation); and
- The propensity to operate in isolation as a way to guard against loss of intellectual property (IP) rights and competitive advantage.

The expectations and attitudes of stakeholders towards modernisation and innovation can positively influence the level and pace of investment towards the Fourth Industrial Revolution (4IR) or derail innovation (Deloitte 2018:4-12). In addition, leadership, collaboration and the new skills required to lead the modernisation initiatives cannot be ignored. Mining is critical to the new, modern economy. A new perspective goes beyond technological application; it is a way of thinking that influences how the organisations operate and how they are viewed (MCSA 2020:46). Despite the benefits modernisation, innovations in mining technology and greater mechanisation often lead to the reduction of direct mining jobs (South African Institute of International Affairs (SAIIA) 2018:3). In other words, mining would likely become minimally invasive and driven primarily by new technologies requiring less human input and new types of jobs, such as software developers, engineers and technologists replacing traditional jobs to operate digital mines. While rock drill operators are likely to be replaced by robots, other than in rare cases, prospective mines will also be subterranean from the outset, limiting the environmental impact at surface level (SAIIA 2018:3).

The exact extent of the modernisation implications for the economy as a whole has yet to be determined. This is mostly because when pessimists warn that machines make jobs obsolete and cause social unrest, there are others (utopians) who argue that mechanisation represents an era of abundance and leisure (Belbase & Zulkarnain 2019:1).

### **2.3.5 Economic factors**

Brand South Africa (2019) states that South Africa is one of the prominent mining nations, with a share of world production and reserves valued at US\$2.5 trillion. Lisle (2017:2) asserts that the mining industry remains a primary source of employment, state taxes and export earning although its dominance of the economy has contracted compared to what it was for decades. The review of companies listed on JSE proves that in 2017 listed mining organisations had reduced to less than 50% compared to 1994. According to BusinessTech (2019), from the JSE index of the top 40 best-performing organisations, seven of the South African mining organisations were listed within the top 10, namely, Impala Platinum, Kumba Iron Ore, Anglo Platinum, Gold Fields, Anglo Gold Ashanti, Exxaro, and BHP Billiton. South African mining groups, like all multinational organisations, have had to contend with brewing trade wars between the United States of America and China, political confusion around Brexit, and local electioneering particularly the contentious policy positions such as land redistribution, the mining charter and minimum wage over and above the three challenges that affect the community, poverty, inequality, and unemployment. In line with Table 2.2, investments in mining and export revenues experienced a consistent increase, whereas the GDP contribution and employment experienced a constant decrease for the past 10 years. The economic contribution of the mining industry in 2018 is summarised below (MCSA 2018:16):

- 7.3% to the GDP in 2018 and 6.8% in 2017 representing a growth rate of 1.2% which is slightly above the growth rate of the overall economy, while its highest contribution for the period between 2009 and 2018 was 8.4% achieved in 2010 (Table 2.2);

- Created direct employment for 453,543 people and contributed to the creation of 1.4 million indirect jobs in associated industries, whereas the highest numbers of employment for the period between 2009 and 2018 was 524,869 people employed in 2012 (Table 2.2);
- Over 66% of merchandise exports to the international market represented by export revenue worth R312 billion compared to R307 billion for 2017 in nominal terms;
- Direct fixed investment to a value of R93 billion compared to R81 billion accounted for in 2017;
- Royalties payments worth R7.6 billion;
- Approximately 27.5% of gross investment;
- About 30% of the capital investment inflows; and
- Over 81% of the total electricity generated by Eskom from the use of coal as a primary source of energy.

Lisle (2017:2) contends that the number of mining organisations listed on the JSE reduced from 130 in 1994 to 53 in 2016. The South African mining industry has the potential to address approximately 50% of all 14 priority outcomes of the National Development Plan (NDP) (Chamber of Mines 2016:19). The goals of the NDP (2012) are poverty eradication and reduction of inequality and according to Chamber of Mines (2016) the mining industry can contribute through economic growth and the provision of job opportunities, the development of infrastructure that will serve as the base for social development, economic growth and preservation of the ecological systems, developing the green economy through the modernisation of mining (sustainability), building and integrating the local economy into the global value chains, participating in the global market, improving health facilities and human settlements, and investing in training, education and modernisation.

The importance of the mining industry overlaps into mining associated industries and sub-industries, for example, the manufacturing industry and energy industry. These industries benefit from the supply of minerals and ores, and in turn contribute to the effective running



of the economy. In 2018 manufacturing as a primary mining associated industry accounted for 20.9% of GDP (South African Institute of Race and Relations 2019:5-8).

Therefore, mining can be purported to be the driving force of the South African economy, not only due to the contribution of the country's GDP, but also the influence the industry has on the sub-industries of the economy. For example, the South African economy is heavily dependent on the energy supply of Eskom, and Eskom is dependent on mining organisations for the supply of coal until such time alternative sources of renewable energy gain momentum.

### **2.3.6 Legal and regulatory factors**

After emerging from a legacy of apartheid, South Africa has made substantial efforts to regulate the mining activities in the country. The South African developmental pathway is underpinned by a vision of sustainability which is a vital driver of economic values and societal behaviour (Department of Environmental Affairs, Department of Mineral Resources, Chamber of Mines, South African Mining and Biodiversity Forum, and South African National Biodiversity Institute 2013).

#### **2.3.6.1 *South African environmental legislation***

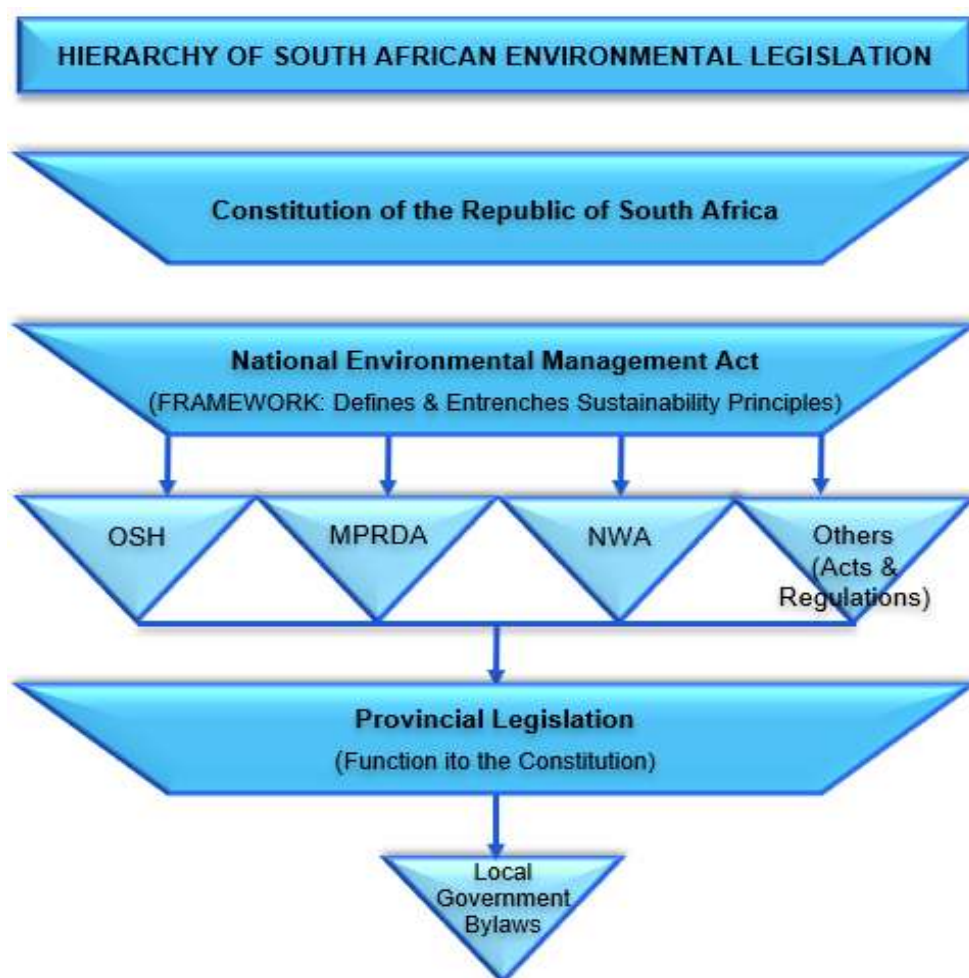
The South African environmental and sustainability legislation are fragmented and dealt with on a piecemeal basis, in the enactment of various legislative frameworks such as the National Environmental Management Act (NEMA) 107 of 1998. These legislative instruments provide governance and management frameworks for mining operations at large (Meyiwa, Nkondo, Chitiga-Mabugu, Sithole & Nyamnjoh 2014). Feris and Kotze (2014) and McKay and Milaras (2017) argue, however, that interpretation and enforcement thereof is a major challenge that confronts the mining industry, government and the communities.

The Constitution of the Republic of South Africa (South Africa 1996) is the supreme law of the country which offers a framework for policy and law-making, as reflected in Figure 2.3 below. The Constitution (South Africa 1996), particularly under Section 24, makes

provision for environmental rights and sustainable development. Kidd (2011:22) argues that Section 38 evenly distributes access to justice to all stakeholders. In line with the provisions of the legislative requirements stipulated in the MRPDA, every mining organisation is responsible for ensuring that their social and environmental impact aspects have been adequately considered before the Department of Mineral Resources awards mining permits (Morris & Baartjes 2010).

Figure 2.4 demonstrates the hierarchical order of the South African environmental legislation and an overview thereof is provided in Table 2.3. Accordingly, Figure 2.4 exhibits the South African environmental legislation framework.

**FIGURE 2.4: THE SOUTH AFRICAN ENVIRONMENTAL LEGISLATION FRAMEWORK**



Source: Bowmans (2019:8-21)

In line with Figure 2.4, NEMA (1998) provides a framework of cooperative and environmental governance with set principles and institutional mechanisms to guide decision-making on environmental issues for sustainable development. NEMA is a primary environmental legislation which is only second to the Constitution. NEMA in Section 2 stipulates that to achieve sustainability, development must consider environmental dilapidation. Kidd (2011:221) argues for integration of social and environmental issues on economic decisions for sustainable development.

The discussion that follows in Table 2.3, is a summary of core legislative frameworks that support sustainable mining in South Africa, in support of both the Constitution and NEMA. According to Muswaka (2017), amongst other acts and regulations that support NEMA is the National Water Act 36 of 1998 (NWA) and the MPRDA 28 of 2002. These Acts, in particular the MPRDA, play a crucial role in this research particularly on issues of ownership, empowerment of Blacks, economic growth and sustainability. While NEMA strongly promotes environmental protection, the MPRDA promotes the optimal exploration of environmental resources (Leonard 2017:330).

Various crucial legislation will be explained below in Table 2.3 and other sections of this research. The provinces have their legislation and municipalities as the third tier of government also set and enforce the local bylaws. The 2018 Mining Charter III and Carbon Tax Act dealing with issues of transformation and sustainability as well as the regulatory ambiguities that beset the mining industry are discussed separately below. These legislative instruments are there to assist mining to utilise natural resources in a way that ensures sustainability (Muswaka 2017).

Table 2.3 provides a brief explanation of the purpose of various legislation, policies and regulations that mining organisations must comply with. Accordingly, Table 2.3 includes legislation fundamental to the mining industry.

**TABLE 2.3: ENVIRONMENTAL LEGISLATION APPLICABLE TO MINING**

LEGISLATION	APPLICABILITY
Constitution of the Republic of South Africa, Act 108 of 1996	Supreme law of the land that serves as a foundation for all legislation and policies. Any law or Act not consistent with it is invalid. Environmental rights and the promotion of sustainable development are entrenched in this Constitution.
National Environmental Management Act 107 of 1998	This legislation operationalises Section 24 of Act 108 of 1996, Constitution. NEMA is only second to the Constitution. Provides for co-operative environmental governance by establishing principles for decision-making.
Minerals and Petroleum Resources Development Act 28 of 2002	The main objective of MPRDA, 2002 is to transform the mining industry in all aspects and promote equitable access to sustainable development. DRM grants mining and prospecting licenses according to this Act.
National Water Act 36 of 1998	The objective of this Act is to protect the water resources of the country, for the benefit of the ecological system.
Mine Health and Safety Act 29 of 1996	Mining occupational health and safety policies are regulated by the MHSA. Therefore, its objective is to ensure the health and safety of mine employees. Mining complies with the Occupational Health and Safety Act 85 of 1993 on administration staff matters.
National Environmental Management: Waste Act 59 of 2008	This Act prescribes how tailings and other dangerous materials should be transported, stored and disposed of.
National Environmental Management: Protected Areas Act 57 of 2003	This Act seeks to protect specific and designated areas from extractive activities or any activities that degrade the environment. Mining in specific areas is prohibited in those designated areas.
National Environmental Management: Air Quality Act 39 of 2004	This Act deals with the deposition of tailings and regulates ambient air quality. It provides guidelines on how organisations can contribute to air quality by managing their operational activities.
Various provincial environmental legislation	Each province has the responsibility to pass legislation relating to the environment. Mines should consider these in the province of their operations.
Local by-laws (local municipal level)	Municipal bylaws are set by the local municipalities, these include waste disposal, use of the municipal infrastructure and other things related to the local communities and environment.

LEGISLATION	APPLICABILITY
Explosives Act 26 of 1956	The objective of the Explosive Act is to provide measures for safe use and disposal of explosives.
National Forests Act 84 of 1998	The protection of biodiversity and ecosystems is at the centre of this Act.
National Road Traffic Act 93 of 1996	NRTA regulates the transportation of dangerous goods on land/natural road transport.
Promotion of Access to Information Act 2 of 2000	PAIA promotes access to information as per the Constitution. Records of environmental impacts and other mining activities must be kept and made available on request.
Promotion of Administrative Justice Act 3 of 2000	PAJA gives effect to Section 33(3) of the Constitution, jointly with PAIA. It provides guidelines on engagements with public authorities.
Protected Disclosures Act 26 of 2000	This legislation serves the purpose of protecting an employee who may blow the whistle on behaviours that violate for example any environmental or financial legislation or corrupt activities.
Water Services Act 108 of 1997	This Act deals with disposal or removal of industrial waste. It regulates waste management to protect the health and safety of the environment.
Other regulations	
GNR 982, 983, 984 in GG 38282 of 4 December 2014 – Environmental impact regulations and listed activities	In these regulations, certain activities are listed which require environmental assessment and authorisation before they may be undertaken. It also assists with environmental impact assessment.

Source: Adapted from Alberts et al. (2017:4-5); DEA, DMR, CMSA & SANBI (2013)

The common element of environmental legislation is their inclination towards the protection of the environment. Notably, the Constitution as founding legislation promotes sustainable development and other legislation such as the Mining Charter III and Carbon Tax Act are complementary to National Environmental Management Act 107 of 1998 and Minerals and Petroleum Resources Development Act 28 of 2002. Furthermore, the South African Institute of Race and Relations (2019:1,11) states that the government is empowering mining organisations to respond to the global issue of climatic change

introduced in new legislation. As a result, South Africa adopted the Carbon Tax Act (South Africa 2019; MCSA 2020:20) to facilitate an economically viable measure to reduce greenhouse gas emissions by offering allowances to organisations in return for compliance with the Act. However, the legislative and policy frameworks can be argued to be successful only to the extent that they facilitate the sustainable use of natural resources for economic and social development.

#### **2.3.6.2 *Broad-Based Socio-Economic Empowerment Mining Charter***

In pursuit of economic transformation, the government implemented the Broad-Based Black Economic Empowerment Act (2003). The primary objective of the BBBEE Act (2003) is to ensure the economic emancipation of the historically disadvantaged communities. The provision is made in the BBBEE Act of 2003 for development of industry-specific charters to fast track effective economic transformation through their implementation (BBBEE 2003; Balshaw & Goldberg 2014; Fauconnier & Mathur-Helm 2008:1-4). The enterprise development and supplier development imperative of BBBEE compared to other aspects is often considered to be a most inclusive and inexpensive way of stimulating economic growth and contributing to community development through encouraging communities to acquire new skills and become enterprise self-sufficient (Verwey 2011).

Although the BBBEE Act was adopted as a mechanism for transforming ownership patterns, including a small share of black ownership, the mining industry remains firmly in the hands of local white and dominant multinational mining organisations with their origins in the United States of America and Europe. The white employees continue to occupy dominant upper-middle management echelons across the private industry and are disproportionately represented in the professional and skilled technical levels (CEE 2016:15-39). In order to enhance and accelerate the pace of transformation, government passed into law the Broad-Based Socio-Economic Empowerment Mining Charter (DMR 2018), which has five main objectives: integrating historically disadvantaged individuals into the economy by changing the ownership patterns, developing and growing the local

economy, promoting employment equity, mine community development, and advancing the industry skills development by making provision for junior miners.

The South African Institute of Race and Relations (2019:5) contends that since the implementation of the MPRDA of 2002, the regulatory uncertainty besets the mineral and related industries. The manufacturing industry is one that is hard hit by the uncertainty created by the Charter (Manufacturing Circle 2017). Over the past years, beneficiation has also been identified as a contributor to regulatory uncertainty. However, the promulgation of the Mining Charter of 2018 is considered to have created stability. Despite the stability, for the past 15 years, the All-Share index has not had significant movement (PwC 2018:8).

According to PwC (2018:21), at the core of the Charter is the empowerment of Black South Africans through compliance to about six elements which are also aligned to the requirements set out in the Preferential Procurement Policy Framework Act, BBBEEA and MPRA (DMR 2018; PWC 2018:21; Noko 2019), namely ownership (empowerment shared of 30% to black person of South Africa, 20% to BEE entrepreneurs, 5% each to employees and community share schemes), inclusive procurement (70% South Africa manufactured and 60% local content), supplier and enterprise development, mineral beneficiation, human resources development, employment equity, local community development and principles for housing and living conditions standards.

The South African Institute of Race and Relations (2019:6) claims that although ideals of the Mining Charter sound good in theory because mining is a marginal business and all decisions create a cost, the regulatory requirements with cost have a likely negative effect of causing disincentives to mining investment. In other words, a slight increase in input cost can result in the closure of mining operations and or retrenchments. Baxter (2018) similarly argues that though the MCSA welcomed the Charter, effective implementation could be impeded by the potential costs. It can be argued that although the objective of the BBBEE Act and the Mining Charter is to give black people access to the mainstream economy through ownership structures, participation in supply chain mining processes, capacity-building projects, and local economic development, the mining organisation fails

to recognise that local communities have limited or no access to the capital needed for these transactions. Fauconnier and Mathur-Helm (2008) claim that despite the BBBEE legislation being in place, the expectations of the majority of South Africans remain unfulfilled, as questions about the real success of BBBEE transactions also remain unanswered. Hence, emerging from the left, the theory has become that the political settlement in South Africa was a triumph for 'white monopoly capital' (foreign multinational organisations with origins in the United States of America and/or Europe) at the expense of the legitimate claims of the black majority (Oosthuizen & Mbeki 2018).

#### **2.3.6.3     *Mining royalties***

African countries have extreme poverty, low levels of literacy and a collapsing health-care system overshadowing their natural and social capital wealth (Ahlerup, Baskaran & Bigsten 2019:3,31; Dwumfour & Ntow-Gyamf 2018:413). While there are some instances of significant industrial capacity growth and policy development, African countries remain behind developed economies in terms of productivity and competitiveness (World Economic Forum 2017). The overall effect of corruption and lack of respect for human rights has significant cyclical consequences for the continent's tax systems. These challenges, in turn, serve as a significant deterrent to mining investment and tax administration (PwC 2017). In addition, flaws in political systems can, however, have a negative impact on the development and implementation of the taxation policy (Huňady & Orviská 2015).

Mining organisations are subjected to special tax systems as their operations are distinct from other industries' economic activities or their impact on the environment and the quality of life of communities (Carels, Maroun & Padia 2013). Similar to other African countries, the tax policy of the government of South Africa is influenced by attempts to correct the historic disenfranchisement of indigenous peoples from mineral wealth. As a result, the mining industry is often seen as a source of national income (Maroun, Turner & Sartorius 2011; Mkandawire 2010), while royalties and taxes on mining are essential socio-political instruments for addressing the effects of imperialism. Royalty compensation is a form of tax on the transfer of ownership and not a tax on operating or



net profits (Otto, Andrews, Cawood, Doggett, Guj, Stermole, Stermole & Tilton 2006). In addition to income taxes and royalties, the South African mining industry must pay value-added tax (VAT), withholding taxes, customs and excise duties as well as any environmental taxes that may be imposed by the government (Deloitte 2018; PwC 2019). The MPRDA (2002) recognises two types of royalties, namely, the government royalties which is defined as the share of revenue owed to the government and the contract royalties which refers to a payment negotiated between mining organisations and landowners for the access to mining and processing activities.

The Mining Charter III specifically states mining organisations should give 8% of required 30% ownership stake to black people/persons or communities through community trusts (DMR 2018). The community trusts, utilised as vehicles for collecting royalties, are often under the leadership of local traditional leaders while it is widely accepted that communities in the vicinity of mining areas should benefit directly from mining activities. On the other hand, the Mining Charter (DMR 2018) does not lay down any provisions on how to structure and regulate community trusts. Mistrust is therefore likely to become the single greatest barrier to enhancing the socioeconomic development of mineral-rich communities, undermining the purpose of royalties (SAIIA 2017:9). Regardless of royalties, the empowerment of mine employees and communities has proved difficult to achieve (SAIIA 2017:2). As a result, there are challenges associated with the use of community trusts to empower local communities stemming from the complexities of the trusteeship system for land ownership that began in the 1860s. Moreover, this arrangement has often led to unresolved disputes within and between communities.

A significant proportion of the mineral endowment of South Africa is underground, the surface of which is controlled under insecure communal tenure. As a result, approximately 17 million South Africans live on land that is kept in tribal trusts and distributed at the whim of the ruling chiefs, including many who allied with the apartheid regime to create these Bantustans (SAIIA 2017:4). It can be argued that this denied communities the freedom to decide how to use or share the mineral wealth of the land they own and inhabited for decades given that a considerable degree of control is in the chieftaincy's ostensibly undemocratic position which serves as the guardian of the communities. In

addition, the local representatives have been accused of exchanging community rights for political benefit and/or shares in mining organisations (Leonard 2019:291), citing that mining deals are made between traditional leaders and/or politicians who benefit from mining (Kane-Berman 2017) while communities are expected to deal with their exposure to pollution, displacement, loss of livelihoods and health problems (Duda 2017; Leonard 2019:292). It is also impossible to consistently identify the common interests of the members of the communities, since those who claim to represent the communities may not be their legitimate representatives (SAIIA 2017:8). Corruption Watch Mining Royalties Report (2018:35) investigated more than 10 cases of corruption in community trust administration in the provinces of Limpopo and North West and found that royalties collected on behalf of communities have been misappropriated. Although the Agency (Mining Transformation and Development Agency) is meant to be a mechanism by which the government collects rents, it is not clear how the Agency will be regulated or controlled (SAIIA 2017:4) and whether such an arrangement will also be different from the existing structure of community trusts under the control of traditional leaders.

#### **2.3.6.4     *Carbon Tax Act***

In the mining industry of South Africa, the the socioeconomic transformation and protection of natural resources remain a key priority (MCSA 2018:42). Apart from the energy industry, the South African mining industry contributes carbon dioxide emissions of about 22.2% of the total CO<sub>2</sub> emission, with the largest contributors being Sasol, BHP Billiton, Arcelor Mittal SA and Anglo-American (National Treasury 2010:17). South Africa introduced the Carbon Tax Act, 15 of 2019 as a mechanism to provide an enabling platform for shifting from the conventional economy to the green economy. Due to mining being a marginal business, this Act may erode profitability through increased costs to an already shrinking industry and job losses which would further exacerbate SA's structurally high unemployment rate. Despite the allowance envisaged for Phase One (01) of the Carbon Tax Act implementation, socioeconomic consequences can be dire given the already weak economic growth and other immense sustainability challenges according to MCSA (2019:1-3; 2020:24). Organisations have less or no regard for the green economy, this is evident by the plans and roll-out of major infrastructure development projects which

increases the emission of CO<sub>2</sub> (Centre for Environmental Rights 2013:21). It can be argued that although the Carbon Tax Act is likely to encourage mining organisations to adopt sustainability principles and practices, the long-term effect on the economy and employment is yet to be determined.

Post-1994, South Africa's latest mining and economic legislation dispensation point to a radical fundamental shift in respect of mineral resources production rights and socio-economic development priorities and environmental sustainability. The nature of the industry has been explained in terms of PESTEL factors in addition to its history and importance. According to Mele and Armengou (2016), the primary purpose of an organisation is to survive, which often necessitates economic prosperity and social legitimacy. Legitimacy comes from the way an organisation's mission, proposition and operations are perceived, whether they are appropriate within the socially constructed framework of standards, ethics and values.

## **2.4 LINK BETWEEN SOUTH AFRICAN MINING LEGISLATION AND SHARED VALUE**

There are various requirements that must be met before mining rights or permits can be awarded by the Department of Mineral Resources as prescribed by the MPRDA (2002). The agenda of sustainability is not new in the South African mining industry. There have been calls for organisational strategies, policies and operations to incorporate sustainable development practices (Muswaka 2017). Muswaka (2017) notes that in responding to the calls for sustainability, industry leaders founded the Global Mining Initiative in 1998 by launching a Mining, Minerals and Sustainable Development Project (MMSD) to examine how mining organisations could contribute to sustainable development. Consequently, the International Institute for Environmental Development (2012) contends that the industry has since achieved sustainable mining, however, organisations require a balanced integration of social equity, environmental standards and priorities as well as economic development in the pursuit of value creation. The Sustainable Development Goals (SDGs) are underpinned by the world's strategy to interlink social inclusion, economic development and environmental sustainability (United Nations 2015). Section

24 of the Constitution and the MPRDA (2002) recognises that the interconnection of development and the environment is integral to sustainability.

Although the Department of Mineral Resources issues mining licenses where legal requirements have been fulfilled per the MPRDA (2004) (Thulo 2015), it is important to note that mining organisations operate in a socio-political environment wherein there are many stakeholders with competing rights and responsibilities. For example, organisations expect the government to issue and protect mining rights (economic), however, the communities (social and environmental), local businesses (economic) and other actors converge in a political arena with a claim to their rights which they expect organisations and government to honour (Boutilier, Black & Thomson 2012). Kemp (2010:2) refers to Social License to Operate (SLO) as the societal endorsement and acceptance of organisations to function, over and above government regulations.

#### **2.4.1 Social License to Operate**

According to Prno and Scott (2012:346), SLO is defined as a continuous endorsement and support of mining project(s) by the host communities and stakeholders within a social network who can influence mining organisations' profitability. Moffat and Zang (2014:65) argue that mining organisations obtain a license to operate from governments after meeting regulatory requirements, whilst at the same time community development in some mining countries is adopted as a legislative requirement (Dupuy 2014). The Fraser Institute (2012) asserts that SLO is integral to fostering the interconnection between organisations, the communities and the government (The Fraser Institute 2012). The concept was formally used to describe the future of the mining industry which is often under the microscope due to the noticeable impact it has on society and the environment (Sustainable Business Council 2013). This definition of SLO can be expanded on by adding that upon approval of the mining operations by the host communities, SLO becomes an agreement that is operationalised by a relationship of mutual trust between the local communities, the government and the mining organisations.

The Bench Marks Foundation (2016) state that an unequal power relation between mining organisations and host communities have often left traces of unfavourable impacts on the

environment and society. Host communities more often than not are at a disadvantage when engaging with organisations due to weak or a lack of mining and environmental expertise. The top-down management approach in which decisions are impressed upon the society without fair engagement processes gives rise to questions about SLO (The Bench Marks Foundation 2012). Organisational legitimacy is, however, primarily influenced by honesty, transparency, accountability, consideration for social equity and environmental priorities (King IV Report on Governance 2016; Thulo 2015).

Communities resist mining projects that do not improve their lives. An example is mine extensions that cause community displacement, projects that increase the cost of living, cause pollutions or cause an influx of migrant mine employees at the expense of the local communities (Fanthrope & Gabelle 2013:16; Wilson 2015). Admittedly, to preserve community acceptance and approval, open dialogue between the organisations and communities on development and environmental problems is necessary. Thambi (2019:481) affirms this thinking by stating that in practice, mining organisations do not proactively consult with communities and employees concerning Social and Labour Plan (SLP) and/or amendments thereto. As a consequence, mining organisations fail to identify and understand the affected communities and align them to the core of their competitive strategies and models (The Columbia Center on Sustainable Investment 2018). The government as a facilitator can bring together the host communities and organisations to actively engage in the open communication channel (The Bench Marks Foundation 2012:2). This would therefore enable the mining organisations to meaningfully identify and respond to the needs of communities.

The Charter (Department of Mineral Resources 2018) clearly states that mining organisations, in collaboration with mining communities, will undertake an audit of the development needs and identify projects utilising the needs framework for their contribution to community development following Integrated Development Plans (IDPs) and the value of which should commensurate to the capital expenditure. The Social and Labour guidelines (Department of Mineral Resources 2010) serve as an instrument for bringing together stakeholders according to the 2002 MPRDA.

#### **2.4.2 Social and Labour Plan Guidelines**

The Social and Labour Plan guidelines (SLP) (Department of Mineral Resources 2010) necessitates that applicants of mining rights develop and implement comprehensive Human Resources Development Programmes, the Mine Community Development Plan, Housing and Living Conditions Plan, Employment Equity Plan, and processes to save jobs in the event of downscaling and/or closure of mining operations. The main objective of SLP is to create employment opportunities and stimulate the advancement of economic growth and social development (Social and Labour Plan guidelines 2012).

SLP regulation 46 was introduced by the MPRDA Act 28 of 2002 as a way of standardising and regulating mining investments towards social development. Mining organisations in South Africa have no option but to comply with the requirements of the SLP guidelines, failing which Department of Mineral Resources (2010) has the prerogative to revoke the legal mining license. According to the SLP guidelines (2012), the following are the objectives:

- Stimulating economic growth and resources development;
- Grow employment opportunities for the improved social and economic welfare of all South Africans;
- Stimulate mining organisation led socio-economic development of local mining area; and
- Investing in the development of human capital.

In contrast to SPL, the SLO has practical potential for creating SV far greater than reactive CSR and SLP. Prno and Scott (2012:346) state that the actual benefits of SLO accrue when the host communities consider mining organisations to be trustworthy and respectful partners. The relational importance is underlined by the proposition of SV, which seeks to create benefits for all stakeholders (Porter & Kramer 2011:4). The host communities should not only view mining activities as a means of improving the national economy, but also view mining organisations as the collaborative partner to bringing about solutions to their development problems (Maliganya, Simon & Paul 2013). KPMG (2014) states that mining organisations and the government should re-think the role of

mining in the country as a whole, considering the complexities of development challenges and the interest of capital owners.

## **2.5 CHALLENGES THAT FACE THE SOUTH AFRICAN MINING INDUSTRY**

Lane, Guzek and van Antwerpen (2015:1) argue that the South African mining is facing multi-faceted challenges that often make it appear to be nearing the end of its lifecycle. Although mining is a long-term business by its very nature, it has a long payback period and at times its socio-economic impact has a long-lasting effect on the community. Organisations have to manage unique South African operational complexities and the socio-political environment that is complex while still operating optimally in the context of global pressures (South African Institute of Race and Relations 2019: MCSA 2020:13). The challenges which prevent the industry from realising its full potential are therefore presented in two categories, globalisation markets and local complexities. The global markets category discusses limitations that are caused by international market conditions, while local challenges represent constraints within the ambit of South African policymakers, communities and mining organisations.

### **2.5.1 Globalisation effect on the South African mining industry**

Globally, mining organisations are inevitably influenced by developments and events at the world stage. The PESTEL review discussed in Section 2.3 of this chapter identified some key factors affecting the industry. South African mining is not excluded from efforts to combat the global phenomenon of climate change or other SDGs, and mining technology advances seem more important than ever. In addition, the African Mining Vision, which includes integrating African mining industries into regional and global industrial and trade networks to establish economic and social links that are beneficial for Africans in Africa, has led to the rise of the paradigm of nationalism policies. Geopolitical tensions negatively affect the market forces for mining commodities, compounding the challenges facing the South African mining industry of slow economic recovery and fluctuations in commodity prices.

The macro-economic growth and foreign market conditions have a substantial influence on profitability (Lane et al. 2015:2). Although some markets have already shown tangible recovery, there is still a mixed signal for future growth in the United States of America and Europe, while the Chinese market rate of growth has slowed down slightly. The economic outlook of these globally developed economies has a significant influence on emerging economies. The United States of America and Europe have a glimpse of the prospect of growth post the recession and this has left African economies looking to China and Russia to drive global demand (Lane et al. 2015:2). PwC (2017:17) assert, however, that the commodity prices and foreign exchange volatilities will continue to influence the profitability of the South African mining industry and the economic growth of the country into the foreseeable future. This is despite the signs of recovery that follow the growing market for minerals from China and Indian economic development (DMR 2019:19). The Department of Mineral Resources (2019:21-22) further states that gold prices have increased by a 2.2% yearly average since 2016, but the geological tensions in North Korea and the Middle East and BREXIT uncertainties affecting European economic structure continue to cause fluctuations in the markets. In addition, the coal export markets are declining because of the Chinese government's effort to curb pollution (MCSA 2020:10). As a result, although the Chinese economic growth was expected at 8.4% in 2013 (Deloitte Market Intelligence 2013), it declined to a level below the pre-recession growth rate at an average of 10.3% between 1999 and 2009 (Lane, Guzek & van Antwerpen 2015:473).

Furthermore, the global economic growth plummeted to 2.4% in 2019, the biggest drop since the economic crisis and in the face of stagnation in trade and investment (World Bank 2020:5). Most commodity prices declined in 2019, largely reflecting a downward trend in demand outlook. Commodity prices are likely to decrease more in 2020 because the trade conflicts between the United State of America and China pose another significant risk to commodity price forecasts. Economies around the world face significantly increased policy instability and complex domestic problems in unique ways (World Bank 2020:5,12). The World Bank (2020:19-20,117) mining organisations favour operating in an environment with political stability, clear public policies, an investment-



friendly regulatory framework, transportation infrastructure that supports economic growth, and balanced fiscal regimes to operate successfully. The relationship between mining organisations and host countries is crucial. However, African political instability does not make the continent an investor-friendly destination. The perception that Africa has weak regulatory structures, the culture of corruption and insurgency as well as civil unrest affects investors' confidence (Lane et al. 2015:3), contributing to the stagnation of investments in mining.

Furthermore, the COVID-19 pandemic has had an immediate impact on the global economy and that impact goes across all industries, including mining. Some industry stakeholders in mining were more affected than others by the new set of challenges facing the industry. In order to stop the spread of COVID-19 and ensuring employees were safe and healthy, the mining organisations had to resume production at 50% level below their optimal level, while other had to close down their operations. The longer-term economic effects are difficult to predict this early, however, millions and lives were lost.

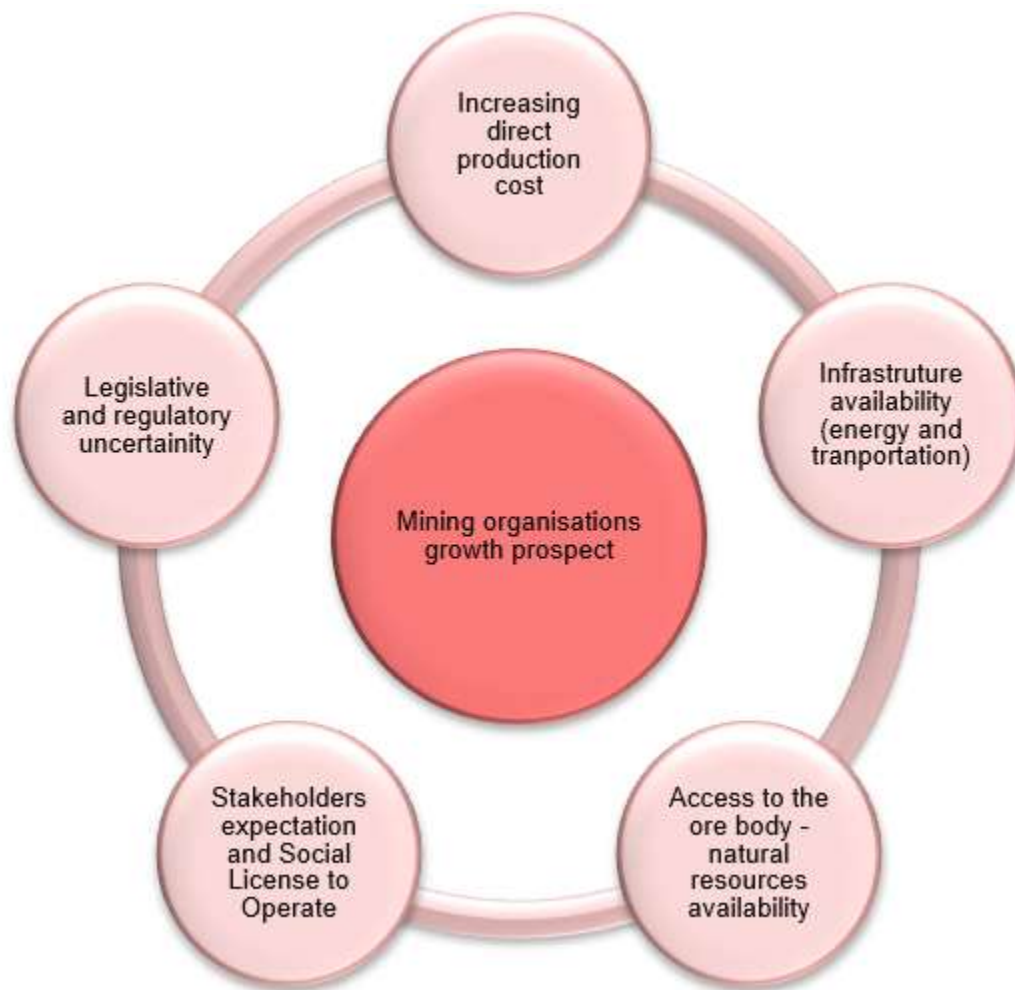
The South African mining industry depends on Eskom for energy supply and Transnet for transportation. The credit ratings or investment grading from the international rating organisations for Eskom and Transnet also influence the competitiveness of the mining industry (South African Institute of Race and Relations 2019:11; MCSA 2019). When the ratings are unfavourable, the operational costs increase as a result of these State-Owned Organisations being unable to raise adequate financing. In addressing the implications of globalisation, mining organisations need to adjust or react appropriately to the internal conditions of the host country.

### **2.5.2 Local complexities undermining the competitiveness of the South Africa mining industry**

According to PwC (2017:17), over and above the complex global factors affecting the mining industry, South African mining organisation operations face further local complexities. The South African mining organisations' margin of profitability is under pressure due to falling global commodity prices and rising production cost (Lane et al. 2015; CMSA 2016:28; MCSA 2019).

Figure 2.5 illustrates five areas of domestic complexities undermining growth opportunities, operational costs, infrastructure, stakeholders' expectations and regulatory uncertainties.

**FIGURE 2.5: SELECTED DOMESTIC GROWTH DETERRENCE FACTORS**



Source: Researcher's own construction

In line with Figure 2.5, direct production costs, particularly wages and energy costs which rise at a rate that is above the inflation rate, negatively affect the prospect of mining. Energy infrastructure constraints (electricity disruptions and shortages/load shedding) since 2007 and rising prices (523% increase in 10 years) and challenges regarding the availability of sustainable rail, and rapidly escalating rail costs limit the growth opportunities of the industry (MCSA 2019).

There is a variety of stakeholders whose interest mining organisations need to balance. For example, employee health and safety, the increasing demand for higher wages by unions which is mostly followed by strikes, the rising demands by the government for mining to fulfil the social needs of the local communities such as infrastructure development, procurement, and small enterprise development, and the host communities' demand for decent jobs, education and health facilities (CMSA 2016:28)

The South African Institute of Race and Relations (2019:11-13) states that mining investment and growth is deterred by uncertainty in the regulatory, political and legal environment. Examples are the Mining Charter, Carbon Tax Bill, MPRDA revisions, Minimum Wage Bill, the perceived low resolve in addressing corruption and governance ailments as well as incoherent sustainability plans. The Mineral Council of South Africa (2019) argues that, as a result of all the global and local challenges, the construction of new mines has decreased by 51% since 2011 and is at the same level as in 2008. It represents a 72% fall in net fixed mining investments since 2008. Furthermore, the mining industry's GDP contribution declined from 15% recorded in 1990 to 8.1% in 2019 (MCSA 2020:1). The effects of globalisation are not exclusive to the mining industry of South Africa, but also experienced elsewhere in Africa, BRICS countries, the United States of America and Europe. Although comparisons can be made with all regional economic blocs and clusters, comparisons within BRICS economies are reasonable due to their shared character as emerging economies.

## **2.6 COMPARISON OF THE SOUTH AFRICAN MINING INDUSTRY WITH THOSE IN THE BRICS MINING COUNTRIES**

BRICS, established in 2006, refers to an economic block of promising economies that is comprised of Brazil, Russia, India, China and South Africa (only South Africa joined later in 2011). BRICS member states cover about 1/4 of the earth and their combined population is almost half the entire population of the globe (Andrew & Christina 2019:1-7). In 2018, BRICS had a combined nominal GDP of US\$18.6 trillion (23% of the world nominal GDP), while their combined GDP purchasing power parity (PPP) was around US\$40.55 trillion, comprising 32% of the world GDP PPP. The BRICS countries also

boast their natural resources endowment and the impact they have on markets (World Bank, 2018). One of the most notable achievements of BRICS is the establishment of the New Development Banks (NDB) and the Asian Infrastructure Investment Bank (AIIB) (Bogoviz, Ragulina, Lobova & Alekseev 2019:244).

In 2011, the mining and quarrying industries of export per BRICS countries varied: Brazil (US\$1 021 million), Russia (US\$228 million), India (US\$17 million), China (US\$28 million) and South Africa (US\$43 million) (Banga & Singh 2019). During the 20th century, South Africa predominantly traded and invested with the United States of America, the United Kingdom and other Europeans countries in particular as the former colonial power. The gold production trends amongst BRICS nations vary, China being the biggest producer. In 2010, China, Brazil, and Russia had already shown growth in annual gold production. Amongst the BRICS countries, China and Russia rival South Africa in terms of mineral reserves (Wenzel, Freund & Graefe 2019:5). However, within BRICS, South Africa possesses high reserves for platinum-group metals (CMSA 2016). Wilson (2015) also asserts that while coal as a resource is prevalent in all BRICS countries, iron and bauxite is commonly produced by Brazil, China and India. In addition, only Russia amongst the BRICS nations is endowed with massive reserves of gas and oil (Andrew & Christina 2019). Warner and Jones (2019) assert that coal is a primary source of energy amongst BRICS nations, except that Russia, Europe, and the United States of America have been the first to industrialise renewable energy transmission. According to Bogoviz et al. (2019:246), the South African and Brazilian economies are more energy-intensive than those of other BRICS nations, while at the same time China and India lead in transferring renewable energy technology (Gu, Renwick & Xue 2018). Banga and Singh (2019) argue that as the world moves towards the 4IR (Digital Economy), BRICS countries have a competitive advantage in terms of quantities and operational scale to lead to the adoption of new economic and political system structures. In other words, BRICS countries have mining expertise, natural resources, human capital and information, communication and technology (ICT). Expertise that, if developed into a unified digital cooperation strategy, could enable the cluster to challenge and influence markets for certain commodities and products around the world.

Prichard (2009) and Stuenkel 2016 claim that governments of most emerging economies the world over have a nationalistic approach to the mining industry in an attempt to address growing inequality. Therefore, it can be argued that the South Africa mining industry is similar to those in the BRICS countries, with differences coming from the levels and availability of natural resources, skills and technology.

## **2.7 CORPORATE SOCIAL RESPONSIBILITY AND SHARED VALUE IN THE SOUTH AFRICAN MINING INDUSTRY**

Communities depend on mining for income and employment and governments depend on taxes collected from the mining organisations. Yet there is a persisting perception that mining activities negatively affect the communities and the environment. The negative effects of mining include loss of agricultural land and displacement of communities, depletion and degradation of natural resources, climate change, and all forms of pollutions that influence the health of people negatively (Moffat & Zhang 2014). Consequently, mining organisations can no longer merely comply with legislative requirements set by government as a way of delivering their social obligations to the society. Instead they need to identify organisational opportunities through solving the issues affecting communities or the environment by integrating those issues with organisational strategies (Porter & Kramer 2011). The scrutiny of the mining industry is deepened by the release of the SDGs in 2015 which can be achieved through public-private partnerships and multi-stakeholder collaboration towards social and environmental sustainability whilst creating economic development opportunities (United Nations 2015).

South Africa faces social challenges which amongst others include persistent inequality, poverty and chronic unemployment and other legacies of the apartheid regime which provide a contextual case for CSR in South Africa (Hamann 2003). Historically (before 1994), mining organisations had no social transformation obligations. As Sørensen (2011) states, post-1994 (apartheid), mining legislation "...has sought to redistribute the mineral wealth of the nation to include those selectively excluded previously by virtue of their ethnicity". Arya and Bassi (2011) argue that though South Africa does not have specific

CSR legislation, the social responsibility imperatives have been accounted for in other legislation, for example, the Broad-Based Black Economic Empowerment scorecards (Hinson & Ndhlovu 2011). Mining organisations undertake CSR and BBBEE transactions as a compliance exercise for certification purposes rather than for real transformation (Patel & Graham 2012). The new Mining Charter takes into account the realities facing the industry and seeks to achieve transformation, economic growth, community development and competitiveness (Department of Mineral Resources 2018).

The United Nations Economic Commission for Africa (ECA 2011) conducted various studies across the African continent on mining sustainability, legislation and CSR and they found the community concerns to be peripheral and CSR contributions as just charity. Considering the influence of mining on the global economy, alongside emerging economies relying on income derived from their minerals, the industry has a potential to significantly contribute towards the realisation of SDGs within the allotted time frame of 2030 if managed and reflected in the strategies of the organisations (Casper, Davidson & Sachs 2016). South African mining organisations have often viewed CSR initiatives as an expression of the transition to broader sustainability (Frynas 2005). Most of CSR activities implemented serve as a medium to influence attitudes and approaches to, and relationships with, stakeholders within a common and appropriate framework of ethics. Modeimeng (2017) argues that CSR is primarily implemented by mining organisations through the environmental dimension that involves reducing pollution of all types with an emphasis on carbon dioxide emissions as well as reducing waste use. Grants and sponsorship, as well as bursaries, are provided as a secondary method of CSR implementation for the benefit of NGOs and young people, respectively. Several studies focused on Integrated Reporting, including social and environmental disclosures, and found that most mining organisations focused on the environmental aspect of adopting CSR in order to build a good reputation and gain legitimacy (Hasbani & Breton 2016; Lanis & Richardson 2013). It is clear that CSR (partly relating to SV) has been considered by South African mining organisations. This study will assist in determining the degree to which the SV concept (a concept broader than CSR) has been applied by the South African mining industry.

## **2.8 CHAPTER SUMMARY**

Chapter Two thus provided an overview of the South African mining industry by discussing the landscape of South African mining industry in the context of history and significance of the mining industry. Anis et al. (2017:141) stated that the mining industry should consider both macro and micro environmental factors that affect its operations and conversely affect communities and environmental sustainability. Accordingly, the chapter discussed the mines and resources available in South Africa, and the chapter also discussed macro and micro factors affecting the industry using PESTEL framework conditions. The chapter presented the linkages between the South African mining legislation and SV. In addition, the chapter briefly explained how CSR and SV in the South African mining industry are implemented, while at the same time presenting the unique South African challenges and global challenges that affect the industry. The chapter focused on highlighting that mines are a necessity to fixing socioeconomic challenges of the communities. It is evident from the literature review that although there is no SV legislation in South Africa, mining organisations could recognise the SV as a new frontier for growth, competitiveness and sustainability. The chapter concluded by comparing the South African mining industry with those in the BRICS mining countries. The comparatives showed the strength of each country and the fact that collaboration could unlock SV in ways that create benefits for all stakeholders.

In addition, the literature review focused on expanding knowledge on the socioeconomic impact of the South African mining industry and the implications of the applicable legislative framework, as well as on the importance and linkages of mining organisations to the socioeconomic development of host communities. Some mining organisations do not seem to have assumed responsibility for addressing social, environmental and economic concerns affecting the communities in which mining operations take place, assuming that it is the sole responsibility of the government to solve social problems. The concept of social legitimacy, the SLO and the ideals of the Mining Charter, MPRDA, and the Constitution clearly define the role of the mining organisation in societies. Although there is limited evidence to suggest that most mining organisations have taken on this role, there are instances where commitment and willingness to resolve social issues have

been reported. CSR has, however, often been pursued by mining organisations as a strategy to address social issues.

Relationships between mining organisations, government, communities and other stakeholders are vital yet fragile because of the burdens of increasing demands from stakeholders (Maliganya, Simon & Paul 2013). While communities consider mining organisations to be their means of achieving sustainable living standards, government views mining as a way of generating revenue for social and capital expenditure. Although stakeholder engagement and collaboration are central to the promotion of socioeconomic development and environmental protection, not all organisations have realised their importance. South Africa is a country with a high unemployment rate and employment in the industry has been steadily declining since 2012 (see Table 2.1). The unemployment problem and the adoption of the Mining Charter III heightened the expectations for employment, new business ventures and investment opportunities, as well as the advancement of the local economy. On the contrary, if not addressed, rising unemployment contributes to socio-political instability, as can be seen from numerous strikes that South Africa experiences every year, cases of illegal mining and other social issues such as crime and violence.

The next chapter examines the theoretical and conceptual basis of SV, defining and linking the concepts of CSR, stakeholder theory (ST), reciprocal and interdependent exchange theory, integrative social contract theory (ISCT), the bottom of pyramid theory (BoP) and social entrepreneurship (SE) to this main subject area of SV.



## **CHAPTER THREE**

### **THEORIES RELATED TO SHARED VALUE**

#### **3.1 INTRODUCTION**

In Chapter Two, the history, importance and nature of the mining industry were discussed, along with the macro environmental factors (through a PESTEL analysis) and the various challenges that impede the growth of the industry. The complexities presented by globalisation include fluctuations in the commodity prices, geopolitical tensions and conflict that affect trade such as trade wars between China and United States of America which negatively impact on demand for minerals and metals as well as technology items. Climate change, poverty and inequality are amongst the major global challenges. Within the continent of Africa and other developing economies, there are growing calls for the nationalisation of mines as a key strategic industry that is not only at the core of economic growth, but also significant for addressing the social issues affecting the host communities. Locally, one of the significant challenges affecting the mining industry apart from the ever-rising operational costs is the constant battle of balancing the competing interests of government, unions, employees and communities. In other words, the implementation of SV in the mining industry is relevant.

This study seeks to investigate the influence of SV on competitive advantage, organisational performance and sustainability within the mining industry of South Africa. There is a perception that SV supersedes CSR and the originality of the former has been a subject of ongoing debate (Crane et al. 2014:130; Beschorner 2014). To enable better understating of the SV concept and the possible influence the concept has on competitiveness, organisational performance, as well as community and economic development (in terms of sustainability), in addition to CSR other theories are also explored. Accordingly, in addition to CSR, the stakeholder theory (ST), the theory of reciprocity and interdependence, an integrative social contract theory (ISCT), the bottom of pyramid theory (BoP) and social entrepreneurship theory (SE) have been explored to highlight their similarities with SV (Dembek, Singh & Bhakoo 2015), thereby contributing to diverse perspectives on the SV theoretical stance.

Although this chapter is focussing on theories related to SV it is necessary to contextualise and differentiate the CSR concept from SV before introducing the various relevant theories. This aspect will also further be outlined in Chapter Four. As was indicated in Chapter One, CSR is mainly concerned about sharing the wealth created by organisations, whereas SV is concerned with wealth maximisation whilst also maximising the benefits for both the environment and society or community. The fundamental distinction thus appears that CSR is usually separate and external from the organisation's economic focus, whilst SV integrates social and environmental impacts into competitive strategies and goes beyond legal requirements. Some of these theories could thus be applicable to both CSR and SV.

## **3.2 CORPORATE SOCIAL RESPONSIBILITY**

Various definitions of CSR are discussed in this section together with the dimensions organisations follow for implementation thereof, and the possible link between CSR and SV (since SV stems from CSR).

### **3.2.1 Defining Corporate Social Responsibility**

Scholars, research institutions, governments and consultancy organisations have often developed and defined CSR differently. Consequently, there is still no consensus on one universally accepted definition (Barlett & Devin 2011; Scherer & Palazzo 2007). What is common, however, in most definitions is a reflection on the necessity for organisations to reconcile their growth with social equity and environmental priorities. To that end, it can be argued that many definitions were developed by various scholars whose views were informed by the socioeconomic, political and environmental conditions of their time. Moreover, all definitions of CSR are underpinned by the relationship between organisations and the communities they serve.

Ghillyer (2008:59) describes CSR as the activities of an organisation designed to achieve a social benefit beyond the objectives of growing its shareholders' wealth and fulfilling all its legal requirements. According to Aguinis and Glavas (2012), CSR refers to organisational actions and policies that take into consideration the interests of

stakeholders and the three-fold economic, social and environmental success outcomes. Freisleben (2011:54) also explains that CSR exists whenever an organisation has a set of moral principles that are expressed not only in its vision, mission and objectives but also in the practices of an organisation to positively influence the communities. For this study, CSR is defined as the organisation's ongoing effort to act ethically and contribute to economic prosperity by improving the quality of life of employees and their families as well as local communities and society as a whole (World Business Council for Sustainable Development 2008). CSR's evolving definitions reflect the shift from the traditional role of strengthening organisational image to addressing issues and legitimacy.

Rahman (2011:176) states that the 1950s marked the establishment of CSR of the modern era, with a proposition of obligation by organisations to communities. In this context, leaders of organisations had to recognise that organisations exist because of and for the society, and organisations have obligations towards the community. Mitigating the negative environmental and social impact caused by the operational activities of organisations is an essential obligation.

In the 1960s issues of morals gained momentum (Rahman 2011:176). Organisations were producing and selling products that were unsafe and harmful to the environment, society driven initiatives were failing to bring about the desired social change, and ethics succumbed to the monetary power derived from bribes (Lantos 2001). Walton (1967) developed the concept of new social responsibility in the 60s. Central to new social responsibility was the realisation that an organisation that has a strong bond with the community is capable of pursuing goals that are beneficial to the organisation and the community (Walton 1967:18; Carroll & Shabana 2010). Rahman (2011:173) referred to the 1960s as the years of reconnecting organisations to society.

During the 1970s, the CSR debate was centred on how organisations responded to social issues and the subsequent influence of CSR initiatives on the performance of the organisations. Expanding on CSR, Frederick (1978) differentiates between 'CSR 1' and 'CSR 2'. CSR 1 emphasised organisations 'assuming' a socially responsible posture, whereas CSR 2 focused on the literal act of responding or achieving a responsive posture

towards society. Rahman (2011) noted the significant contribution by Johnson (1971), who claimed that a socially responsible organisation balances competing interests of various stakeholders. In other words, instead of pursuing shareholders' wealth maximisation, a socially responsible organisation seeks to meet the interest of host communities and governments which may range from social development to the protection of the ecological systems at large.

In the 1980s, interest in CSR continued as a result of organisations being more responsive to their stakeholders. New CSR definitions or alternative or complementary concepts and topics were developed. Jones (1980) maintains that above the legally prescribed requirements, organisations have an obligation to all stakeholders, not only to their shareholders. The obligation must be voluntary, broad, spreading beyond the traditional duty of shareholders' value maximisation to other stakeholders, which include amongst others, employees, customers, suppliers and communities. Accordingly, the issue most important for CSR in the 1980s was developing business practices that were capable of responding to environmental degradation and social equity (Crane, McWilliams, Matten, Moon & Siegel 2008)

The CSR concept in the 1990s was expanded with a direct link to sustainability. Elkington (1997) conceptualised the TBL which integrates the pillars of sustainable development, namely, planet, people and profit. Carroll and Buchholtz (2000), in redefining the CSR concept, advanced a notion that organisations need to consider their impact on a whole social system, which also encompasses the environment or ecological system. Zu (2008) on the other hand asserts that TBL provided some sort of measurement for CSR, which can be used to determine an organisation's ultimate success rather than the traditional measurement of organisational success which was overly concentrated on the financial bottom line or financial profitability, leaving social/ethical and environmental performance to the peripheries.

CSR in the 2000s became a dominant subject in management practices, policies and strategies. Most organisations established CSR departments and employed CSR practitioners. Researchers, universities, accounting, and law organisations started

confronting and reporting on the practice in their areas of expertise (Rahman 2011:172). Carroll and Shabana (2010) argue that by the 2000s, research into ethics, stakeholder theory, sustainability and good 'corporate citizenship' relied on the foundation laid by various studies into the meaning of CSR. Furthermore, during this period of the 2000s, the CSR concept focused on advancing the integration of social equity and environmental concerns into organisational practices and operations through stakeholder engagement voluntarily (Zsolnai 2006:6; Mandl 2009:4; Rahman 2011:173).

There are various dimensions in an organisation relevant for the implementation of CSR identified by previous studies which includes employee orientation, environmentalism, consumerism and stakeholder relations (Mattila & Hanks 2012:664; Santos 2011:497; Visser 2010:315; Zeka 2016). Other studies found that conducting CSR is not limited to the use of finances (grant and sponsorships) to support socially responsible activities (Hohnen 2007:7; Werther & Chandler 2006:180).

The employee orientation dimension amongst others includes the provision of health care to the employees by organisations, the prohibition of child labour, compassionate leave, child care facilities and religious tolerance (Barthorpe 2010:5) to ensure that employees lead a balanced life (Carroll & Buchholtz 2006:560; Shaw 2011:329).

The environmental dimension of CSR is not only concerned with producing environmentally responsible goods, but also in ensuring that goods and/or services do not cause harm to the environment and society (Crane & Matten 2007:349). Therefore emphasis is placed on organisations taking deliberate steps and strategies to contribute to environmental sustainability (Bosch, Tait & Venter 2018:714) such as using energy and materials, creating goods and/or services and discharging waste. Therefore, the environmental impact of organisations' operations should be monitored and mitigated (Shaw 2011:265).

The consumerism dimension refers to the improvement, protection and promotion of consumer welfare in the marketplace (Visser 2010:168; Thorne et al. 2008:266). Carroll

and Buchholtz (2006:387) assert that consumerism creates conditions for organisations to make investments that are not only profitable but also create social and ethical value.

Finally, another important dimension of CSR is stakeholder relations, which is concerned with organisations' capability to listen and balance all stakeholders' formal and informal interests (Werther & Chandler 2006:138; Thorne et al. 2008:68). These stakeholders influence or are influenced by the actions, decisions, practices and policies of the organisation.

### **3.2.2 Linking Corporate Social Responsibility to Shared Value**

The CSR concept offers a framework that defines the role of organisations in society, offers guidelines for ethical behaviour that organisations should practice in order to create social change by seeking to maximise profits through actions that are consistent with the moral value of the social network and environment in which the organisations exist. Strategic CSR is considered to be a pursuit in a unique position of doing things differently from competitors in a way that lowers costs or better serves a particular set of customer needs (Porter & Kramer 2006). The CSR initiatives, however, remain open to wide criticism of their inherent problems and justification, conceptual clarity and possible inconsistency (Zubaidah & Mudrifah 2019:743). Despite the critics, Porter and Kramer (1999) argue that philanthropy and CSR offer the first step towards the integration of social and organisational benefits, thus SV.

According to Porter and Kramer (2011), SV has two motives, improving social conditions and enlarging profits simultaneously. As a consequence, organisations and communities are better off. Carroll and Shabana (2010:102) contend that, because the relationship between CSR and economic value is not always positive, organisations should prioritise CSR initiatives that lead to the realisation of economic value of the organisations as well as the social value of the communities. The identification and exploration of social issues (with the potential for conversion to organisational opportunities) to create SV are at the core of SV theory. It can be argued, therefore, that SV has a positive relationship with financial performance as it is a strategy that can potentially create profits and growth for organisations. SV is an economically efficient way of implementing CSR into practice.

Although CSR is successful and effective at achieving efficiencies and the satisfaction of stakeholders, its initiatives do not always translate to economic value. SV, on the other hand, facilitates the future growth of the organisation and development of the communities (Daood and Menghwar 2019:519). According to this line of thinking, Porter and Kramer (2011) claim that the key distinction between SV and CSR is that the latter is separate from the pursuit of the core business and profit maximisation. However, SV makes a significant contribution to the development of social responsibility practices (The European Commission 2011:6), while focusing on financial benefits.

According to Snider, Hill and Martin (2003), the relationship between financial performance and social impact has been examined within the CSR framework. Awale and Rowlinson (2014) argue that SV is not just a reflection of how organisations operate, instead, it incorporates social and environmental challenges to the core business of organisations. In addition, Daood and Menghwar (2019:520) postulate that SV does not supersede CSR, rather these two concepts are integrated by their ultimate motive of 'doing good by doing well', only that while CSR is focused on being responsible, SV is about creating new values. Porter and Kramer (2011) position SV as an umbrella concept that unifies these divergent concepts into a single framework that entrenches 'shared value capitalism' - dual positive impact capitalism. Daood and Menghwar (2019:513) further state that the SV concept is a framework that unifies essentially fragmented debates of related theories such as CSR, the bottom of pyramid (BoP) and social enterprise (SE).

Some CSR efforts will benefit all stakeholders and therefore avoid infringing certain rights, but some may require compromises between some categories of stakeholders. Similar to CSR, SV approaches include the identification of underserved communities whose interests can be met profitably. Therefore, the relationship between organisations and communities and other stakeholders underpins the principles of CSR and SV. As a result, the stakeholder theory (ST) is fundamental to both concepts and discussed in the section below.

### **3.3 STAKEHOLDER THEORY**

The stakeholder theory is defined and explained in the following section, and the link to SV is also discussed.

#### **3.3.1 Defining stakeholder theory**

Stakeholder theory contests the dictum of conventional conception that an organisation is a closed entity that operates exclusively to create and maximise shareholders' value or interest. Since being introduced by Freeman (1984), stakeholder theory has been analysed from the perspective of an organisation (Amran, Zain, Sulaiman, Sarker & Ooi 2013). According to stakeholder theory, organisations do not operate in a vacuum, as such, they should consider the interests of various stakeholders with the ability to influence their decisions and the operations of organisations or be affected (Freeman, 1984:48; Freeman, Harrison & Wicks 2007). In addition, stakeholder theory recognises the varying interests and rights of all stakeholders as integral in contributing to sustainability (Jones 1995).

A socially responsible organisation is one where decision-making is people-centric. Furthermore, stakeholder theory demystifies the perception that there is only one main objective and one stakeholder in public organisations, which is the shareholders and shareholders' interest (Zubaidah & Mudrifah 2019:745). The stakeholder theory serves as a mechanism of identifying all stakeholders to whom organisations account in recognition of their rights and expectations. Freeman (1984:46) defines a stakeholder as "any group or individual who can affect or is affected by the achievement of the organisation's objectives". On the other hand, the Chamber of Mines refers to stakeholders as individuals, groups and entities directly and indirectly affected by the activities of organisations, and those with whom organisations intend to establish and strengthen relationships in order to build and maintain an enabling environment in which organisations can thrive (CMSA 2016:71). The inclusion of entities, political parties and members of media is notable, considering that these were not previously regarded as primary and secondary stakeholders (Murray & Vogel 1997).



The stakeholder theory presumes that organisations should understand the needs of all stakeholders (O’Riordan & Fairbrass 2008). According to Parboteeah and Cullen (2013), a strong stakeholder management approach aids organisations to gain and sustain a competitive advantage. Notably, the Chamber of Mines (2016:71) affirms that a stakeholder management approach that emphasises cooperation between organisations and their stakeholders is an effective means of value creation. A strong stakeholder management system means that an organisation has a strong relationship with all its stakeholders. Hence, in line with Table 3.1, beyond pursuing the shareholders' interest, organisations should prioritise the needs of all stakeholders, including passive ones (Elijido-Ten 2007).

According to Weiss (2014), the stakeholder management approach is based on an instrumental philosophy that contends that ethical values such as trustworthiness and cooperativeness create a competitive advantage. In 2016, the Chamber of Mines (CMSA 2016:71) extensively invested in the stakeholder mapping process which resulted in the identification of key stakeholders and in refining their roles and the articulation of their primary expectations or priorities. The process also entailed the identification of matters of concern to all stakeholders. The benefits of this comprehensive process of stakeholder identification and mapping includes, amongst others, implementation of enabling and business-friendly policies, improved compliance with legislative requirements, and alignment of the operating environment to sustainable mining (CMSA 2016:71).

The approach encompasses identifying, mapping and evaluating stakeholder management strategies. Table 3.1 is adapted from Chamber of Mines (CMSA 2016:77-81) and Parboteeah and Cullen (2013), and offers an indication of stakeholders and their ethical considerations. Stakeholder engagement and communication should be informed by the roles and ethical expectations of each stakeholder as shown in Table 3.1.

**TABLE 3.1: TYPICAL STAKEHOLDERS AND THEIR ROLES AND EXPECTATIONS**

STAKEHOLDER	ROLE	EXPECTATIONS
Customers	Purchasing and consuming of goods and services that solves their underserved needs.	<ul style="list-style-type: none"><li>• Product and service safety</li><li>• Capacity to meet their needs</li><li>• Fair value and pricing</li></ul>
Employees	Selling their services to the organisations in anticipation of rewards.	<ul style="list-style-type: none"><li>• Fair rewards</li><li>• Job satisfaction and involvement in the decision-making process</li><li>• Observation of human and employment rights</li></ul>
Media and independent analyst or thoughts leaders/think tanks	Create publicity with a view of enforcing transparency and accountability and creating a dialogue amongst value-creating stakeholders.	<ul style="list-style-type: none"><li>• Transparency and accountability for commitments, financial and social outcomes</li><li>• Compliance with standards and acceptable practices and principles (ethics)</li></ul>
Organised labour	Engaging with employees, organised business community, organisations and government on labour or employment relations issues.	<ul style="list-style-type: none"><li>• Higher wages</li><li>• Creation of sustainable, decent jobs</li><li>• Delivery on the commitments of government and organisations</li></ul>
Non-Governmental Organisations	Organise and mobilise the communities for or against a specific course and lobby both organisations and government for development and implementation of policies and initiatives that support social change.	<ul style="list-style-type: none"><li>• Transparency and accountability</li><li>• Integration of social and environmental issues to strategies, operations and reporting (for example included in the annual report)</li><li>• Social change/impact</li></ul>

STAKEHOLDER	ROLE	EXPECTATIONS
Host communities	Acceptance and approval of organisations and providing the social capital for use by organisations and government.	<ul style="list-style-type: none"> <li>• Infrastructure development</li> <li>• Compensation</li> <li>• Redress of legacy issues/community development</li> <li>• Employment</li> <li>• Local cluster (economy) development opportunities</li> </ul>
Business (including suppliers) and investors	Invest and collaborate with communities and government and participating in the value chain.	<ul style="list-style-type: none"> <li>• Win-win opportunities</li> <li>• Equitable return on investment</li> <li>• Adequate management and governance of organisations</li> <li>• Accurate, complete and transparent financial reporting</li> <li>• Suppliers and enterprise development initiatives</li> </ul>
Political parties	Debate and influence government policies on socioeconomic and environmental matters as well as influencing the communities and organisations on socio-political issues.	<ul style="list-style-type: none"> <li>• Socioeconomic development opportunities created by organisations and government</li> <li>• Creation of conditions that strengthen safety and environmentally-friendly operations</li> <li>• Being lobbied by government and industry on issues of mutual concern</li> </ul>
Government	Creation of an environment that is conducive of economic growth, community development and environmental sustainability.	<ul style="list-style-type: none"> <li>• Economic growth</li> <li>• Community development/social transformation</li> <li>• Environmental sustainability</li> </ul>

Source: Adapted from CMSA (2016:77-81) and Parboteeah and Cullen (2013).

In addition to the stakeholders identified in Table 3.1, Freeman (1984) postulates that organisations should concentrate on building a broad set of stakeholder relationships rather than a narrow set of economic relationships and tailor policies to meet the needs and expectations of their constituencies, with primary stakeholders not just being shareholders but also including employees, customers, suppliers, government, local communities and civil organisations (Carroll & Buchholtz 2012). The classification of stakeholders, primary or secondary, is informed by their level of influence on organisations' survival (Miles 2015), irrespective of the existence of a formal contractual agreement or lack thereof (Savage, Nix, Whitehead & Blair 1991). According to Carroll and Buchholtz (2012), the primary stakeholders are ones upon whom organisations depend for their survival as they also hold a direct stake in an organisation. Although the survival of organisations is not essentially dependent on secondary stakeholders because of their indirect stake, they can still influence. They are, however, also susceptible to being influenced by the organisations (Thijssens, Bollen & Hassink 2015). Secondary stakeholders may include governments, independent regulators, civic organisation, media, academic researchers and analysts, professional and trade bodies, and rivals (Carroll & Buchholtz 2012). It can be argued, however, that ignoring passive stakeholders such as the media is detrimental to the survival of organisations.

The derivative legitimate stakeholders, such as members of the media, warrant careful consideration by organisations since they have the potential to influence normative stakeholders (Benn, Abratt & O'Leary 2016). Pepper and Gore (2015) reveal that both in groups and individually, the stakeholders share different interests and expectations for the organisations. For example, shareholders or owners want the organisations to maximise profits, employees expect a high salary level and job security, while customers certainly want the organisation to provide quality customer goods and/or services.

Salmones and Basque (2011) and Abbasi and Moezzi (2012) claim that by integrating stakeholder management principles into daily operations organisations would attract competent employees who will consistently enhance and maintain quality of service and products necessary for new market penetration while retaining the existing market. Consequently, a positive relationship generates employee commitment, retention and

attracting of new employees (Kim & Park 2011). The local communities often expect organisations to give sponsorships and donations, develop facilities and allocate time for humanitarian missions. When organisations fail to deliver these services at desired levels, communities will not consider them to be unethical as long as a commitment is demonstrated. While these expectations are the discretionary obligations of the organisation (Carroll & Buchholtz 2012:44), Nwokocha and Iheriohanma (2012:202) indicate that employees and communities in a turbulent and competitive global economic market must be involved in decision-making.

Weiss (2014) notes that the most prevailing criticism of stakeholder theory is that it weakens organisations and changes the vital feature that has defined capitalism for decades (profit maximisation motive). Amann, Pirson, Dierksmeier, Von Kimakowitz and Spitzeck (2011) criticise stakeholder theory for the lack of a measure of success. This means that there is a lack of performance benchmark, and without an objective measure of performance, accountability will be inadequate. The theory is often critiqued for being susceptible to bribery, fraud and corruption due to the extreme powers it is perceived to confer on agents who, in turn, take it as an opportunity to redirect wealth to a selected few rather than the majority of stakeholders. The stakeholder theory also finds itself susceptible to going against the fiduciary duty owed to shareholders (Fernando 2009).

The concept of stakeholder theory underlines that for successful management of stakeholders, organisations must ensure that their primary stakeholders are satisfied, secondary stakeholders are dealt with ethically all the while ensuring that profits are made through the process (Buchholtz & Carroll 2012). Passive stakeholders, such as the media, should also be prioritised.

### **3.3.2 Linking stakeholder theory to Shared Value**

According to Donaldson and Preston (1992:65), stakeholder management is considered to be commonplace in management literature, both academically and professionally because organisations depend on it for survival. The SV concept is considered to be effective because it advocates for the creation of economic and social value, for the benefit of all stakeholders, without devaluing the interest of other stakeholders (Tantalo

& Priem 2014). Crane et al. (2014) examine and conceptualise SV as a stakeholder management approach, though it is not limited to it since it can also be considered to be a competitive strategy (Porter and Kramer 2011). For example, an organisation may invest in a developing nation as a way of creating demand for its products without the active participation of all stakeholders. Beschorner (2014:110) argues that SV is a strategy, as it is about normative organisational philosophy in determining values of the organisations, how the organisations respond to social issues and strategies to making profits. In line with this thinking, Daood and Menghwar (2019) assert that SV is a stakeholder management practice and can be pursued as a competitive strategy. In addition, when SV is pursued as a strategy, managers of organisations invariably meet their fiduciary responsibility to shareholders (creating economic value) without compromising social value (social issues affecting local communities, government and employees).

Further review of existing management literature on SV shows that the SV concept overlaps with stakeholder theory (Dembek, Singh & Bhakoo 2016). Similarities between SV and stakeholder theory lay in the values of the stakeholder model. In this model, the instrumental value of the stakeholder is a key aspect that requires consideration and refers to the relationship between the management of stakeholders and the consequential performance of the organisations, thereby instrumentally linking the organisational strategy and performance management system. In this strategic approach, organisations are concerned about the stakeholders' influence on profits (Harrison & Freeman 1999). This view undoubtedly supports the assertion made by Porter et al. (2011) that organisations gain profit from the relationship with communities and that for the relationship to be sustainable, mutual benefits must have been created.

The relationship between organisations and stakeholders is at the core of the capitalist market system, as organisations primarily increase profits to increase the shareholder's return by selling goods that satisfy the underserved needs of customers (communities). The organisations need communities (consumers, suppliers and employees) to grow profits. Similarly, organisations need to create sustainable SV for communities in order to grow sustainable profits. The common goal of stakeholder theory and SV is that both

theories aim to make profits at different levels, with the stakeholder management process being a common feature. Also, in examining a framework for the implementation of SV, focusing on the relational aspect of the concept, the stakeholder theory, stakeholder management and multi-party collaboration play an integral role. While the ST focuses on the identification of stakeholders into different power groups, it can be argued that the extent to which stakeholders and organisations influence each other depends on the principles of trust and reciprocity. The theory of reciprocity and interdependence is therefore interlinked with the stakeholder theory.

### **3.4 THEORY OF RECIPROCITY AND INTERDEPENDENT EXCHANGE**

The reciprocity and interdependent exchange are concepts that have their foundations in the social exchange theory. In this section, the social exchange theory as the foundational theory is defined. The reciprocity and interdependent exchange constructs are also defined and explained, whilst the link with SV is also established.

#### **3.4.1 Defining the theory of reciprocity and interdependent exchange**

The social exchange theory affirms that social exchange involves a series of mutually dependent actions that cause obligations. In other words, mutual dependence can build quality relationships (Blau 2017), that eventually evolve into trust and shared commitments and all parties comply with rules of exchange, which Cropanzano and Mitchell (2005) define as guidelines and procedures of the exchange process with one such guideline being reciprocity. This concept of social exchange creates a platform through which one party offers benefits to the other party or parties. Consequentially, the party receiving the benefits carries an obligation to reciprocate (Blau 2017). Subsequently, as both parties value what they receive from each other, they become motivated to continue to receive more benefits by fulfilling their commitments to each other and preventing debt (Blau 2017). The principle of reciprocity is that the exchange is not forced but deliberately voluntary.

The social exchange varies significantly from economic exchange. In an economic exchange, which commitments and the exact quantities to be exchanged are explicitly stated, whilst social exchange has unspecified commitments and qualities to be exchanged. Hence the social exchange concept builds feelings and approaches of trust, duties and responsibilities and rewards (Blau 2017). According to Blau (2017), social exchange and economic exchange are not mutually exclusive. Due to social exchange being able to create benefits of trust and rewards, it can superimpose economic exchange. The economic exchange in nature creates agreements and specified and quantified requirements. For example, in the social exchange theory, financial institutions can offer loans to micro-enterprises without the necessary guarantees to back up the loan, thereby inferring the level of trust on the part of the banks towards the role players (entrepreneurs) of emerging organisations (Blau 2017).

In other words, the theory of reciprocity proposes that organisations reward the performance of specific obligations and penalise the unfulfilled commitments (Isonia & Sugden 2019:219). In a way, the real value of actions is determined not only by the outcome(s) of actions but by the underlying rationale for the actions. Admittedly, when intentions are considered to be dishonest or carry self-interest, the kind of reciprocal exchange can be destroyed (Isonia & Sugden 2019:219; Falk & Fischbacher 2006).

On the other hand, an interdependent exchange is a concept in which the results are grounded on the efforts of all parties or stakeholders including the organisations. Reciprocal interdependence exchange ignores negotiations (Molm, Peterson, & Takahashi 1999; Balliet, Tybur & Van Lange 2017:361-388). Reciprocity and interdependence exchange inspire collaboration between parties or stakeholders (Cropanzano & Mitchell 2005).

Trust as a precursor to reciprocal and interdependent exchange is defined as “a physiological state compromising the intention to accept vulnerability based upon positive expectations of the intentions or behaviour of another” (Lucas 2005:89). In addition, Hasnain (2019:27) found that for trust to exist, there must firstly be a risk or probability for loss existence which creates an opportunity for more risk-taking and then



interdependence. In other words, where trust and mutual dependence coexist, the prosperity of communities is dependent on the efforts of organisations or that the success of organisations leads to the success of communities. Therefore, trust is the point of confluence for the existence of risk and interdependence (Hasnain 2019:28). Aligned with this line of thinking, it can be argued that mutually dependent stakeholders (like mines and communities) need trust as an enabler for reciprocal interdependent exchange.

According to Bowen, Newenham-Kahindi and Heremans (2010), who studied the antecedents and subsequent consequences of various community engagement strategies, there are three approaches to community engagement, namely, transactional, transitional and transformational. The transformational engagement is predisposed towards greater value for all stakeholders, although rarely used. The nature of trust between the proposed approaches is different and it is only through transformational engagement that opportunity exists for the organisations and communities to benefit and share in benefit (Bowen, Newenham-Kahindi & Herremans 2010). The communities are considered to be an influential primary stakeholder of the social exchange relations (Carroll & Buchholtz 2012). Organisations have lost profits due to their failure to recognise the influence and power of host communities (Humphreys 2000). As an example, due to community violence and strikes, mining organisations and the industry as a whole lost billions during the 2012 and 2014 platinum belt strikes. It can, therefore, be argued that the social exchange between stakeholders was not substantially elevated to a stakeholder engagement strategy (Kemp & Owen 2013).

Finally, it can be argued that trust and reciprocal interdependent exchange are entwined. One leads to the other and one cannot exist without the other. The key point is that connections between organisations and stakeholders, communities, in particular, should move away from dependence to interdependence to create mutual benefits (Erdiaw-Kwasie, Alam & Shahiduzzaman 2017).

### **3.4.2 Linking the theory of reciprocity and interdependent exchange to Shared Value**

In operationalising SV, organisations create the benefits of social exchange beyond the traditional economic exchange, the foundation of capitalism. Organisations that apply reciprocal interdependent exchange become catalysts of innovative solutions that bridge gaps within the communities, particularly between communities, governments and the organisations themselves. When multi-parties collaborate towards creating SV, they are considered to have some form of economic exchange. Applying Blau's (2017) theory, however, an economic and social exchange may not be mutually exclusive. Organisations can identify social issues within the communities surrounding their operations and find ways to superimpose social exchange onto economic exchange to develop the relational aspect of the process and render it more sustainable and ultimately, more successful (Porter 2014:3).

The theory of reciprocal exchange is primarily centred on interdependence, trust, obligation and cooperation. It can be inferred that these are key characteristics (pillars of the theory) that build the foundation for creating and maintaining SV between communities and organisations by including potential relational aspects. Similar to the SV theory, the government must actively collaborate in the multi-party effort as both organisations and communities depend on the government for certain enabling policies and services. Porter and Kramer's (2011) framework for the implementation of SV may not have a real impact when the relational aspects are not addressed in some form. In other words, the real solution to societal issues should be developed on the tenets of social exchange theory and the reciprocity exchange (Bignetti 2011:8). This view is aligned with the recommendation made by Porter et al. (2011) that SV postulates that all parties should benefit from the relationship between the organisation and the community.

Accordingly, concentrating on attracting and maintaining the attention of stakeholders by generating energy within and outside the organisation to improve relationships is a necessity (Bowen et al. 2010), as lack of trust is seen as a barrier to this relational enabler (Stirling, Wilson-Prangley, Hamilton & Olivier 2016). Whichever approach is used to

interpret trust, it is a vital precursor to reciprocal interdependent exchange for multi-party collaboration to create SV. As governments claim to be resource-constrained, they shift the social transformation and community development responsibilities to private organisations (private sector/investors) (Bhattacharya, Sen & Korschun 2011), necessitating the paradigm shift from the traditional function (profit-making) of organisations to SV.

Therefore, the concept of SV, where organisations could make profits and become more competitive through its local communities, becomes very attractive. Pathways to create long term competitive advantage are the essentials of organisational strategy. If, therefore, businesses could find ways to enhance their competitiveness through their communities, communities would then become the core of the strategy and execution thereof. Drawing on the core competencies of government, organisations and communities can yield not only benefits for communities and organisations and help the government attain its development goals for the country, but these outcomes can be sustainable. In this case, the concept of SV is widely respected amongst other theories for articulating the role of governments, communities and organisations in the advancement of SV (Crane et al. 2014:133-134).

Admittedly, trust and reciprocity can lead to a social contract which takes into account the interest and moral values of the communities. Similarly, integrative social contract theory (ISCT) provides a framework for aligning organisational decision-making with the values and expectations of communities.

### **3.5 INTEGRATIVE SOCIAL CONTRACT THEORY**

The ISCT is defined and explained, and the link to SV is also discussed in the following section.

#### **3.5.1 Defining integrative social contract theory**

Irrespective of challenges associated with concepts in business and society, the SV concept offers new integrated thinking about organisational interactions and social

development (Crane et al. 2014). Laasch and Connaway (2015:25) define a socially responsible organisation as one that integrates TBL (its focus on sustainability), stakeholder value (linked to its responsibility), and moral dilemmas (its perspective on ethics) in decision-making. Organisations operate with the approbation of society (Donaldson & Dunfee 1994) and need to adapt to the changing societal and environmental conditions (Hilliard 2013:365). As pointed out by various studies, Laasch and Conaway (2015) claim that responsible organisations conduct their operations ethically and have morally desirable decision-making processes embedded in the culture of their organisations. Organisations with an improved decision-making technique have been able to balance conflicting expectations of stakeholders as a consequence (Kaptein 1998:42), primarily because the ethical practice of leaders of organisations serves a role-model function (Laasch & Connaway 2015:140) and positively affects organisational performance (Kalshoven, den Hartog & de Hoogh 2011).

Social contract theory provides a methodology to study organisational ethics. As an extension of social contract theory, integrative social contract theory (ISCT) provides an intelligible framework for resolving moral issues arising from different communities (Dunfee, Smith & Ross 1999). ISCT was first described in 1994 by Dunfee (2006:303), cited by Laasch and Connaway (2015:140). The ISCT is focused on the ethical perspective of an organisation (Wempe 2009). The ISCT provides a theoretical foundation for organisational ethics and practical guidelines that improve decision-making within functional areas and cultural contexts (Donaldson & Dunfee 1999). Notably, ISCT normatively grounds ethics by formulating hyper norms that govern economic communities and prescribe the overall terms by which the macro social contract works among members of economic systems and organisations. Further, the norms are based on universal moral principles, endorsed by ISCT as deontological criteria for organisations.

Most scholars hold a view that Donaldson and Dunfee's (1999) ISCT has been grounded in addressing ethics at a global level (Frederick 2000; Sollars 2002; Wempe 2009). Organisations are concerned with the significance of norms when determining the morality of decisions and potential actions in relation to minimum standards acceptable

to the community. In the ISCT, managers' primary roles are to determine if the decisions and actions of the organisations are appropriate and compatible with micro and macro social contact (Phillips & Johnson-Cramer 2006:283).

Dunfee (2006:304) and Donaldson and Dunfee (1999:235) claim that the expression "integrative" suggests the nature of the theory is based on the idea of a macro social contract that lays a foundation for enforceable ethical obligations through the recognition of real standards followed in the communities. ISCT balances out the conflicts between stakeholders with competing interests, assuming that communities and organisations understand their obligations towards each other (Donaldson & Dunfee 2000:436). In support of stakeholder theory, ISCT suggests that every action and interaction of stakeholders are guided by practices that have been or could have been adopted voluntarily (Heugens, van Oosterhout & Kaptein 2006:213).

The ISCT has been applied to natural life issues and problems such as gender discrimination (Mayer & Cava 1995); differences in moral reasoning and ethical standards across cultures (McCarthy & Puffer 2008; Spicer, Dunfee & Bailey 2004), including bribery (Dunfee et al. 1999:14–32); delivery of chronic pharmaceuticals in underdeveloped communities (Danis & Sepinwall 2002); downsizing (Van Buren III 2001); and deviant behaviour in organisations (Warren 2003). Although most scholars undoubtedly acknowledge the contribution of ISCT to organisational ethics, critics record insufficient justification of substantive hyper norms as a significant limitation (Boatright 2000; Douglas 2000; Gilbert & Behnam 2006).

Gilbert and Behnam (2008:219) argue that in the absence of suitable justification, there are no absolute norms and values to be observed in interacting with stakeholders. The lack of practical guidance for organisations (Phillips & Johnson-Cramer 2006) and the lack of practical approaches used for the development of organisational ethics guidelines (Husted 1999) present an additional limitation to the theory.

### **3.5.2 Linking integrative social contract theory to Shared Value**

The mere existence of an organisation in an environment, directly or indirectly, means a contract with the community also exists. Organisations are bound by the existing system of values and norms in society, and therefore their operations must be in harmony with existing social contracts. The conditions deteriorate when decisions and operations of organisations do not resonate with the norms and expectations of the stakeholders (Schaltegger, Hörisch & Freeman 2019). Tantaló and Priem (2014) in favour of SV state that to create economic and social value, organisations ought to have recognised the needs of the various stakeholders. In the main, ISCT empowers managers to elect the social norms to be applied to different situations from a pool of norms that are considered to be binding and legitimate (de los Reyes, Scholz, & Smith 2017).

Crane et al. (2014) argue that SV is a useful stakeholder management approach which creates a social impact. It can be argued that fulfilling the terms of social contracts is underpinned by the identification and integration of values and expectations of the communities into the decision-making processes and operations of the organisations. This makes SV and ISCT theory complementary rather than competing theories. Both theories are underpinned by identification of various stakeholders of an organisations and their interest.

The United Nations (2018:14; 2019:2-4) and Bec, Moyle and Moyle (2018:1-3) state that the transition to more sustainable and resilient communities often necessitates an integrated approach that acknowledges the linkages between social issues and solutions. ISCT provides a framework for organisations pursuing the bottom of pyramid (BoP) strategies, in which it helps organisations to acknowledge the importance of developing goods and/or services that meet the needs of underserved customers at the base of the economic pyramid, rather than exploiting them.

## **3.6 BOTTOM OF THE PYRAMID THEORY**

The BoP theory is described and explained in the following section, and the relationship to SV is also discussed.

### **3.6.1 Defining the bottom of pyramid theory**

BoP refers to the development of a low-income segment into a highly profitable market by responding to social development needs of the underdeveloped region(s). BoP is also defined as the largest and lowest socio-economic group, which globally is made up of over 5 billion consumers who spend approximately \$2.5 (ZAR35.25) per day (World Bank 2013, 2017; Polak & Warwick 2013; Raj & Aithal 2018:45). The extreme poverty line of \$2.5 (ZAR35.25) per day has been updated to \$1.90 (ZAR26.79) per day (World Bank (2015)). Further, Chikweche and Fletcher (2012) refers to the BoP as the major and fastest-growing market which accounts for 2/3 of the world population. This study has adopted a definition by Ansari, Muniri and Gregg (2012) who through a capitalism perspective assert that BoP is the coinciding pursuit of profit and the common good by crafting markets for the low-income community.

There are essential factors for growth and sustenance of individuals and organisations, especially for organisations that are serving the markets where consumers have very low incomes and have several unmet needs (Raj & Aithal 2018:44). According to Prahalad (2014), the BoP concept presents a business case for the pursuit of the largely untapped purchasing power at the bottom of the world's economic pyramid. Williams, Omar and Ensar (2010) and Das, Behera, Mishra and Pradhan (2020:41) assert that by viewing consumers in the bottom segment as resourceful entrepreneurs and value-conscious consumers rather than as victims, they can create a new market and competitive advantage.

The BoP concept is widely acceptable considering its proposition of transformation of the poor through the involvement of organisations as key partners. BoP therefore proposes the transformation of the lives of poor people through participation and collaboration with organisations as key partners for sustainable development. Further, by adopting BoP strategies organisations can gain competitive advantage and sustain profitability as a result of targeting the poor segment (Raj & Aithal 2018:45).

Raj and Aithal (2018:49), aligned with Martinez and Carbonell (2007), state that organisations searching for new opportunities and markets should target customers at

the bottom of the pyramid because this market segment has value due to large numbers of customers and their need for consuming luxury goods. Some of the first organisations to adopt the BoP practice include Procter and Gamble and Unilever. These organisations developed affordable products for the poorest regions of the world and simultaneously targeted prevalent social issues such as water pollution and iodine deficiency (Kamala, Gupta & Bork 2010). Raj and Aithal (2018:49) contend against the widely held view that to assist the poor the government, foundations and other organisations should provide free goods and services as well as donations. In other words, organisations can empower the poor to help themselves, while at the same time pursuing their economic interests.

The economic pyramid groups the world population into three main categories based on the level of income that one earns or spends per year (Gupta & Pirsch 2014). When converted to the South African Rand at an average rand-dollar conversion (1 US\$ = 14,10 ZAR) at April 2019 (Moneyweb April 2019; South African Reserve Bank 2019), Figure 3.1 shows that the bottom of the pyramid (tier 3 & 4) includes all those people who spend less than US\$ 1500 (R21,156.60) per year, while the middle-income group spends between US\$1500- 20,000 (R21,156.60 - R282,087.45) per year (tier 2) and at the top is the population that spends more than US\$20,000 (R282,087.45) per year (tier 1). Figure 3.1 demonstrates the various economic tiers of the world with BoP being at the lowest (tier 3 & 4). Topmost of the pyramid (TOP) marked as (1) has a population of 75-100 million, the middle-income group marked as (2) has 1.5 billion people while the last income group marked as (3 & 4) has a population of over 4-5 billion people.

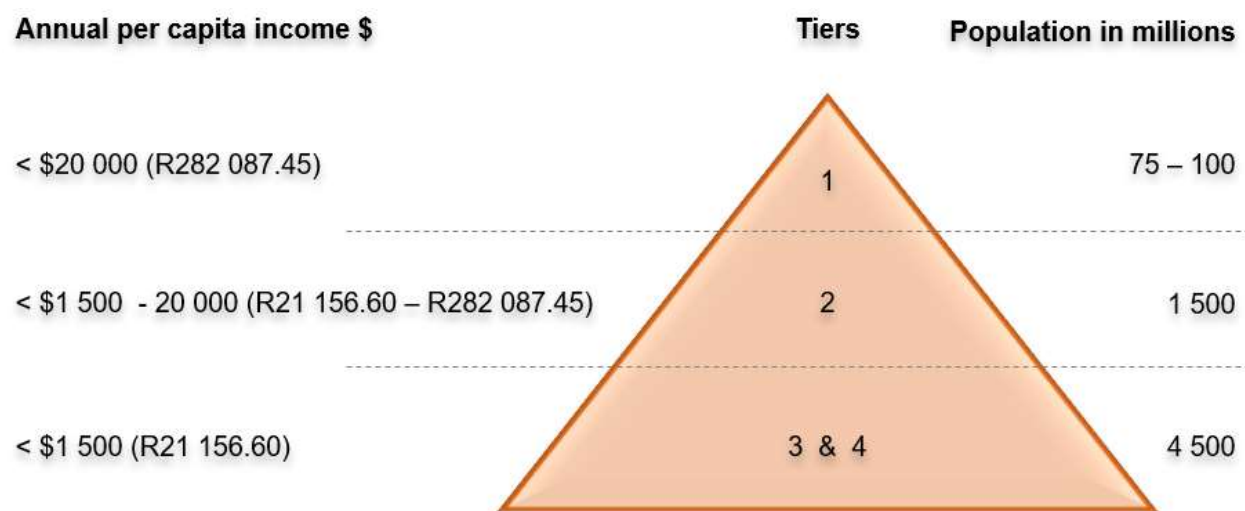
South Africa is estimated to have an estimated population of about 30 million, and two out of three people are living at the base of the economic pyramid (tier 3 & 4 of Figure 3.1). In 2015, nine out of every ten poor people in South Africa were Black (93%) while the White people had the lowest level of poverty (1%) (Statistics South Africa 2015). Poverty levels between population groups of South Africa vary. This study adopts the poverty line established by the South African National Planning Commission (2012), which defines the South African poverty line as households with a monthly income of less than R432 per household member, at around US\$52.50. This view is also confirmed by various scholars who assert that South Africa's BoP ranges from an average income



below \$80 per month to a household income below US\$540 per month (Duvenage, Schonfeldt & Kruger 2010; Jacobs & Smit 2010; Simpson & Lappeman 2017). In addition, South Africa's Poverty Trends (Statistics South Africa 2015) defines poverty levels according to the regularly adjusted cost of living as a way of sustaining credibility and viability. In 2019, there were the following categories of the adjusted national poverty lines (Statistics South Africa 2019:1-3): the food poverty line in which a person needs R561 per month as the minimum income to afford food for survival, the lower-bound poverty line in which R810 per person per month translates to the food poverty line plus the average amount of non-food items and lastly, an upper-bound poverty line wherein a person need a minimum of R1,227 per month to afford food plus other essentials

Figure 3.1 demonstrates the economic groups arranged according to the spread of the population using three main classifications in terms of per capita income.

**FIGURE 3.1: ECONOMIC PYRAMID OF WORLD POPULATION**



Source: Adapted from Jun, Lee and Park (2013)

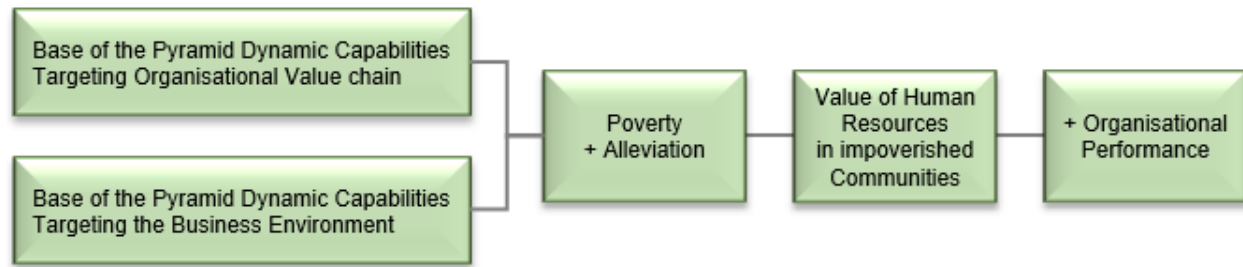
In line with Figure 3.1, the World Bank (2013) states that the purchasing power of bottom of the pyramid (BoP) consumers accounts for US\$1,500-2,500 (R21,156.60 - R282,087.45) per year and consumers living with less than US\$1,500 (R21,156.60) per year are considered extremely poor, requiring other approaches such as philanthropy to assist. Prahalad (2010:6) noted that global conglomerates and private organisations have

all commonly forgone the BoP market segment investing in the middle and top tier market. This often ignored market segment (BoP) is where there is a need for organisations to invest through the production of unique and affordable goods and services. The concept of BoP is relatively new in strategic management and acknowledged due to its proposition of alleviating poverty in the underdeveloped world.

The BoP market is mostly inundated with numerous socio-political issues such as bribery, dilapidated infrastructure, weak or nonexistent value chains, discrimination, gender-based violence, crimes, low incomes, high inflation, foreign exchange shortages and reduced private capital inflows which all call for unique solutions to tackle this challenge of global poverty (Chikweche & Fletcher 2012.; Raj & Aithal 2018:45,50). Kamala, Gupta and Bork (2010) and Mahajan (2019:10-12) assert that many organisations have accepted the responsibility to take a leading role in improving the quality of life of BoP consumers in a mutually beneficial manner. Organisations should not, however, see customers at the BoP as poor and vulnerable, but rather recognise communities in this segment as a pool of consumers whose high consumption translates into profitability and serve them ethically in an attempt to reduce poverty (Jaiswal 2007).

Accordingly, organisations should develop creative and innovative strategies that will enhance value for all stakeholders (Prahalad 2010:7-12; Tashman & Marano 2013). Tashman and Marano (2013) demonstrate how the performance of an organisation is affected by the relationship between BoP strategies and other organisational capabilities (including human resources capabilities). Figure 3.2 establishes the linkage between BoP strategies, organisational competencies and their entire connection in improving organisational performance.

**FIGURE 3.2: DYNAMIC CAPABILITIES AND BASE OF THE PYRAMID BUSINESS STRATEGIES**



Source: Tashman and Marano (2013)

The dynamic capabilities refer to the development of core competencies that lead to a competitive advantage. Tashman and Murano's (2013:596) model, as per Figure 3.2, shows the relationship between BoP strategies, dynamic capabilities and organisational performance. The Tashman and Marano (2013:609) model is influenced by Anderson and Billou's (2007) model which claims that affordability of goods and/or services, acceptability of product, availability at the market and awareness of the goods and/or services are key BoP strategies to develop BoP markets and achieve growth in this market (Bates & Buckles 2017).

### **3.6.2 Linking the bottom of pyramid and Shared Value**

The operations of an organisation must be premised on the principle of preserving sensitivity to 'local' contexts to ensure interventions are appealing to, and ultimately used by the targeted end-user. This is based on four critical components, namely communications, pricing, logistics and partnerships (Wong, Zlotkin, Ho & Perumal 2014). Simanis and Duke (2014:87) argue that though the mantra of making profits by resolving the pressing needs of low-income communities appears compelling and appealing, in reality it is difficult to put into practice. The SDGs identified poverty eradication as the greatest global challenge and a fundamental requirement for sustainability, however. Hence, the legitimate global resolve to collaborate with the common intent of freeing the human race from the tyranny of poverty makes a business case for the BOP (United Nations 2015) and SV. Therefore, the BOP concept proposes that organisations have the

opportunity to alleviate poverty and other social ills whilst creating economic value in the form of profits and rapid growth, which is the essence of SV.

Michellini (2012), in exploring the models of creating mutual benefits at the bottom of the pyramid, finds that the approach narrowly restricts the organisation in servicing the low-income market segment while SV as an extension of BoP theory targets the whole economic pyramid. It can be argued that the BoP concept and approaches fit strongly with the SV strategy of reconceiving products, services and the markets. Therefore, organisations that implement BoP practice can claim to have contributed to the creation of SV. The BoP theory in itself, however, is not exclusive to profit-orientated organisations but also applicable to any other form of organisations.

Premised on social innovation, organisations have new technologies, operational methods and management strategies to improve efficiency, gain productivity and grow market share by meeting new needs. Accordingly, the theory of social entrepreneurship (SE) is focused on seeking innovative solutions that meet the societies' environmental and social interests.

### **3.7 SOCIAL ENTREPRENEURSHIP THEORY**

The SE theory is explained in the section that ensues, and a description of the relationship between SE and SV is also explored.

#### **3.7.1 Defining the social entrepreneurship theory**

SE is defined differently by different scholars. Despite the lack of one universally accepted definition of SE, there is consensus that SE is underpinned by the capability to control and direct the allocation of resources that address both environmental and social problems (Zahra, Gedajlovic, Neubaum & Shulman 2009; Battilana & Lee 2014; Saebi, Foss & Linder 2018). Austin, Stevenson & Wei-Skillern (2006) define SE as a process established when the governments or NGOs redefine their models to drive their operations in accordance with business principles. Aligned with Pomerantz (2003), Korosec and Berman (2006) define SE in theory and practice as creative and innovative

ways of addressing social problems using business-like approaches wherein the core objective is addressing societal problems to generate economic returns. Thompson and Doherty (2006:362) also define SE as organisations that seek solutions to social problems. The concept recognises social issues as a source of opportunities that can be exploited for economic gains.

The SE definition describes, according to Foss and Saebi (2017:211), an innovative organisation with a social purpose, operating in an economic industry dedicated to social change rather than profit-orientation. The process and resources employed by SE organisations must be centred on their mission. According to this theory, organisations act as change agents who create and sustain social value without being limited to resources currently in hand (Sharir & Lerner 2006:3). The SE organisations are not held up by narrow traditional business models and thinking, instead, by business opportunities from social challenges (Porter & Kramer 2011; Elkington & Hartigan 2008). In fact, Tate and Bals (2016) assert that the primary goal of the SE organisations is to deploy resources, capabilities and competence to gain economic value, while contributing to positive environmental sustainability (reduce impact), and engender social benefits that will improve the standard of living of the local communities.

There appears to be a need to differentiate between conventional forms of organisations and the SE organisations (Saebi, Foss & Linder 2018:4). The distinction of SE from other forms of organisations has led scholars to direct their attention to finding a true meaning of the term social and how the term can distinguish social entrepreneurship from other forms of organisations (Saebi, Foss & Linder 2018:4-5). Abu-Saifan (2012) argues, however, that SE should not be viewed as restricted to the non-profit industry. Mort, Weerawardena and Carnegie (2003) admit that SE strives to harmonise the interests of the various stakeholders without deviating from the social objectives, whilst pursuing opportunities that will lead to profits.

Therefore, SE pursues profits by offering social innovative solutions to the challenges of the communities irrespective of the form of the organisation.

### **3.7.2 Linking the social entrepreneurship theory to Shared Value**

In contrast to SV, SE theory suggests that not all revenue-generating activities lead to the creation of economic value. Furthermore, hypothetically a profit-oriented organisation does not need a social mission to be able to create SV. Maltz and Schein (2012:63-65) differentiate economics-first and mission-driven perceptions based on the orientation of the organisation. As a result, SV does not apply only to civil society organisations and NGOs because of their social-oriented core objectives. Rather, it can also be applied as the core objective of profit-oriented organisations. Thompson (2002), for example, positioned SE as applicable to NGOs, claiming that their mission is to change people's lives. Saebi, Foss and Linder (2018) argue instead that managers of profit-oriented organisations should not lose focus based on emerging social issues. Simms and Robinson (2009) claim that an individual manager's character is what truly defines SE over the form or type of an institution, be it NGOs or organisations in pursuit of profit. Therefore, creating SV does not necessarily require organisations to be driven by a social mission as their core business. Any social orientated business model which integrates environmental, economic and social elements, through transformative stakeholder engagement has the potential to create SV (Boons & Luedeke-Freund 2013).

SE also varies between social and commercial organisations, based on their mission. However, for the benefit of the communities, social entrepreneurs unlock the opportunities to create and maximise value for communities (Porter & Kramer 2011:10), and this is the sole difference between social and conventional entrepreneurship (Pirson 2012:35). SV solves social challenges by integrating them into core organisational strategies that have the potential to generate social benefits for communities and profits for organisations, while SE uses profits generated from the pursuit of business opportunities for effective social change (Saebi, Foss & Linder 2018:7). SV does not depend on commercial or social entrepreneurship but depends on the strategies and policies adopted by an organisation of any type.

Instead of concentrating on existing debates about the originality of SV, the focus should perhaps be on understanding the fundamentals and complementary contribution SV

provides to other theories. Hence, it can be argued that SV is a framework that integrates elements of different theories, namely the CSR, ST, the theory of reciprocity and interdependence, ISCT, BoP and SE for enhanced success.

### **3.8 CHAPTER SUMMARY**

This chapter analysed the foundations of SV from concepts and links with other frameworks. The literature review shows that the interpretation and implementation of various concepts are overlapping despite their differences. The debate on CSR and SV is ongoing between academics and management professionals. Admittedly, SV is an umbrella term that incorporates CSR and has attributes to become an ultimate competitive strategy for organisations (Porter & Kramer 2011); hence, it was discussed as a first concept to provide the foundation for other theories. The stakeholder theory was explored secondary to CSR. Stakeholder theory assumes that the success of any organisation depends on how it relates to its major stakeholders. The third theory examined was that of reciprocity and interdependence. This theory suggests that organisations and communities help each other and that their relationship is underpinned by trust and reciprocity. Fourthly, integrative social contract theory was examined. Integrative social contract theory acknowledges that the success of any organisation depends on the extent to which organisations integrate values and desires of communities into the decision-making process. The fifth theory to be explored was the BoP theory. This theory claims that organisations can create value by serving the untapped market of communities at the base of the economic pyramid. The sixth theory examined thereafter was the concept of SE which is focused on creating social innovative solutions.

As a main conclusion to this chapter, although there may be different theories and approaches underpinning the concept of SV, the theories examined have been discovered to intersect with SV. Each of these theories discussed has its unique focus, but their combined perspectives can lead to a more balanced view of SV. The overlaps were found upon defining the boundaries and responsibilities of each (Blombäck & Wigren 2009:3), and linking it to SV.

The next chapter, Chapter Four, provides a comprehensive overview of SV and covers aspects such as the history of SV, the evolution of the concept, SV challenges and benefits to organisations as well as processes and case studies related to SV.



## **CHAPTER FOUR**

### **THEORETICAL PERSPECTIVES ON SHARED VALUE**

#### **4.1 INTRODUCTION**

Most developing countries have limited or no economic resources to meet their basic education and healthcare needs (World Bank 2015). As a result, communities in underdeveloped countries remain trapped and unable to move out of poverty, inequality, and unemployment. Post-1994, South Africa is yet to address inequality, chronic poverty and unemployment. The government is looking for policies and interventions that boost economic growth and accelerate social development in collaboration with private investors and the communities themselves. Given the central role of mining in the South African economy, the government and communities have socio-economic expectations that the mining industry should meet (South African Institute of Race and Relations 2019:3; Deloitte 2019). As a result, the role of organisations in communities is one of several influential discussions in politics, academia and civil society. From this point of view, organisations are considered to be well-positioned and well-resourced to achieve the positive social impact that governments and NGOs have scarcely achieved (Blowfield & Dolan 2014:28). Organisations as development agents can help to resolve social issues affecting communities in which they operate profitably (Porter & Kramer 2011:4). Hence, the primary objective of this study is to investigate the influence of SV on competitive advantage, organisational performance and sustainability of the mining industry of South Africa.

This chapter provides a comprehensive review of Shared Value (SV) against the background of conflicting views and criticisms of the concept of SV in relation to Corporate Social responsibility (CSR) and links it with other supporting theories discussed in Chapter Three. In addition to conceptualising SV, this chapter reviews the case studies of organisations that adopted SV strategies and discusses the current limitations linked to the concept, in an attempt to develop the framework of SV operationalisation.

## **4.2 CONCEPTUALISING SHARED VALUE**

In an article titled “Creating Shared Value. How to reinvent capitalism and unleash a wave of innovation and growth” Porter and Kramer (2011) presented SV as the concept that reinvents capitalism and shifts the paradigm on the relationship between organisations and communities (Beschorner 2014:106; Porter & Kramer 2011:15). SV focuses on creating greater value for all stakeholders of organisations, rather than relying on the singular pursuit of short-term economic gains at the detriment of the interests and concerns of the communities. Given the lack of a clear definition of what SV stands for, it is also explained as a way of rethinking the organisational strategy (Kvistgaard 2013:45). As a result, this study adopts Porter and Kramer's (2011) definition of SV, which describes it as a strategy or policy that improves the economic value of organisations while concurrently improving the conditions of the communities around which organisations operate.

In the same way, Michelini and Fiorentino (2012) argue that SV refers to the reciprocal dependence between organisations and communities with the choice made by either party to benefit all parties through integrating the social context into their core competitive strategies. Lee, Moon, Cho, Kang and Jeon (2014) emphasise that the cornerstone of SV is the expansion of economic benefits for organisations by creating social value that leads to social change within the communities of coexistence. In the absence of a single universally accepted definition, the overlapping elements of most definitions of SV are the economic and social value simultaneously created by the organisations.

Although scholars in favour of the SV concept argue that organisations should implement SV strategies over CSR, critiques of the concept claim that SV is simply unoriginal and plain CSR (Crane et al. 2014). While debating the merits of SV, researchers commend the concept of SV for its proposition of integrating organisations into society through the identification of social concerns, which can also create economic value for organisations when addressed. Furthermore, it is argued that organisations must align their economic interests with the needs of the communities since their prosperity and existence are interlinked. SV is believed to be a practice that identifies and transforms social ills into

new market opportunities (Porter & Kramer 2011). Increased attention to social issues is, however, according to Crane et al. (2014) considered to be a shortcoming. Awale and Rowlinson (2014) aligned with Osburg and Schmidpeter (2013) emphasise that sustainable development or social sustainability is an enabler of achieving long-term competitiveness and sustainable growth for organisations. Since 75% of organisational success is attributed to investing in addressing community problems (Pot & Vaas 2008), it can be argued that while contributing to the promotion and protection of the welfare of the communities, SV maximises profits for organisations.

According to Porter and Kramer (2011:17), SV represents a major step towards reconnecting organisations with communities and the environment. When SV is implemented properly, it becomes the standard or principle for all features of organisational strategy (Porter & Kramer 2011:16). As a result, SV is beyond business ethics of doing good and philanthropy (Porter & Kramer 2011:15). Instead, SV can also be seen as the rational outcome of a deeper understanding of the conditions of the competitive environment and the creation of economic value through addressing social issues (Porter & Kramer 2011:16-17). Moreover, unlike CSR, which is separate from maximisation and outside the core business of the organisation, SV distinctly integrates social issues and environmental concerns into the core of the organisational strategy (Moore 2014), turning social concerns into business opportunities that guide the development of business models and competitive strategies.

The SV concept also innovatively synthesises and integrates diverse theoretical positions on the role of organisations in society and development. SV unifies itself to stakeholder theory by linking increased organisational benefits to the contribution of organisations to the achievement of societal objectives or to meeting the needs of all stakeholders (Daood & Menghwar 2019:520). In addition, the focus on addressing the social issues affecting communities within which organisations operate unifies the SV concept with the concept of BoP, social innovation and the theories of social exchange (Daood & Menghwar 2019:521).

### **4.3 EVOLVEMENT OF SHARED VALUE**

The emergence of SV is demonstrated by examining at the historical context of CSR and capitalism, as well as how SV differs from these foundational concepts.

#### **4.3.1 Evolution of corporate social responsibility into Shared Value**

The CSR construct and its practice originated alongside the existence of organisations. Existing literature suggests, however, that the concept of CSR is more than 60 years old, with its origins in the 1950s. Since then, the concept has been further refined to maintain relevance (Aguinis & Glavas 2012). CSR debates cut through decades of CSR evolution into a paragliding concept with wide-ranging, varied terminologies and definitions, very often interlinking implications both within the field's descriptive and normative aspects (Carroll & Shabana 2010:86). In assessing the evolution of CSR, Rahman (2011:166-176) finds that in the 19th century, the concept evolved to include stakeholders, social obligations, planet protection, profit and sustainability.

During the 21st century, organisations have been under immense pressure from communities, governments, civil organisations and trade associations to become more transparent and accountable for the impact of their operations, manage their reputational risks and increase competitiveness (Van Marrewijk 2003:95). CSR has been seen as a way to respond to sustainability challenges that include three pillars, people, planet and profits that generate value for communities. Accordingly, the World Business Council for Sustainable Development (2012) declare CSR is an unceasing promise by organisations to make a moral and valuable contribution to economic growth while improving the quality of life of employees, their households and communities. In line with this thinking, Linnenluecke and Griffiths (2010:358) explain sustainability as a task of simultaneously increasing human and social welfare whilst reducing environmental impact and ensuring the successful achievement of organisational goals.

Although previous studies have attempted to determine the correlation between CSR and the organisations' economic performance (McWilliams, Siegel & Wright 2006:3), the findings have not been consistent. In reality, it has been difficult to determine the value of

social investment returns for shareholders (Barnett 2007:797). CSR can be argued to create value beyond profits, but this raises the query of whether organisations should spend on CSR or rather rely on income generation to increase investor wealth (Friedman 1970). CSR is, however, acclaimed for its ability to provide strategic concepts to link the achievement of the needs of stakeholders to compliance with social obligations (Clarkson 1995:112). CSR also allows organisations to pick and choose and control their scope of social and environmental issues to address on a basis of ethics (Porter & Kramer 2011:16). Similarly, Bosch-Badia, Montllor-Serrats and Tarrazon (2013:12-13), claim that some of the practices implemented by organisations contribute to the development of communities and the preservation of natural resources beyond complying with legal requirements.

The global economy requires organisations to acknowledge their evolving role in the economy, society and the environment. Organisations should, therefore, redefine their role and transform organisational strategies to incorporate objectives of social responsibility not only to project a positive brand image or the prospect of gaining a competitive advantage, but also as a means of contributing to sustainability (Doz & Kosonen 2010; Ganescu 2012). Mihaela (2016:73) affirms this by stating that by integrating CSR (ISO 26000) core subjects into organisational strategies, organisations will be able to attain sustainability. Although credited with attempts to systematically respond to social issues and declining quality of life of the communities, environmental degradation and pollution caused by the operations of the organisations, conflict between economic value and the evolving needs of the stakeholders always exist (Hahn 2013). To this end, organisations depend on meeting the needs of the communities (Smith & Langford 2011:426; Smith & Richards 2015) and the environmental priorities for competitive advantage and sustainability (Aguinis & Glavas 2012).

During the first attempt at SV conceptualisation, Porter and Kramer (2006:8) state that organisations can generate valuable social impacts while at the same time gaining competitiveness as an organisational collateral activity or competitive strategy. In 2011 Porter and Kramer (2011) reiterated that assertion through the article "The big idea: Creating Shared Value." What led to the invention of the term was the analysis of how

CSR could be integrated to the organisational strategy (Crane, Palazzo, Spence & Matten 2014:131). This came after extensive research into CSR, the outcome of which is mixed and with a lot of criticism (Porter & Kramer 2011:2) and great displeasure with the role played by multinational organisations in providing greater value to the community and environment. In this article, Porter and Kramer further developed the theory of SV by positioning the concept as a mitigating factor for the diminishing legitimacy of capitalism. SV was conceptualised as a new sophisticated form of capitalism concerned “about creating economic value in a way that also creates value for society by addressing its needs and challenges” (Porter & Kramer 2011:4).

Motilewa and Worlu (2015:2443) state that CSR evolved into SV, which is about principles, policies, practices and approaches that stimulate the competitiveness of organisations through solving the social problems of their communities. SV does not postulate sharing value already created; rather, the concept proposes the expansion of benefits for the communities and organisations (Porter & Kramer 2011:5). Likewise, SV is not CSR nor philanthropy or sustainability but a sophisticated means of creating profits for the organisations by solving the problems of the communities (Porter & Kramer 2011:1). Finally, SV is more meaningful in underdeveloped countries, particularly in the African continent which is contending with stagnant economic growth and political and social instability challenges.

#### **4.3.2 Differentiating Shared Value from Corporate Social Responsibility**

There are ongoing debates and myriad opinions amongst scholars, business practitioners and professionals about how SV is distinct from CSR (Akundwe & Salihagic 2018:11). Despite the multiple arguments, a clear distinction of the concept is required to enable correct interpretation of SV and how the concept may be applied effectively (Crane et al. 2014:134-135). Whereas some scholars describe CSR as an ethical obligation to respond to social and environmental concerns or a solution to factors that could negatively affect profits and reputation (Fombrun, Gardberg & Barnett 2000; Scherer & Palazzo 2011; Scherer, Palazzo & Matten 2017), SV helps organisations perceive environmental and

social concerns not as isolated and driven by external pressure, but viewed as targets for pursuit of legitimate profits.

Brown and Knudsen (2013) argue that SV supplants and broadens the concept of CSR, which has become too often synonymous with misplaced campaigns, expensive side-shows and superficial public relations efforts as a practice. Camilleri (2012) claims that the 'invisible hand' of Adam Smith appears to be at the core of the SV conceptualisation, whose proposition is that organisations create social benefits for communities by pursuing their primary objective of profit maximisation. Adam Smith's idea in 1776 was that communities should not consider organisations to provide for their needs as an act of goodwill, but instead view the actions of organisations as a pursuit of self-interest. Moczadlo (2015) also argues that, in the light of the cases cited in Porter and Kramer's 2011 article, interpretation of SV seems aligned with strategic CSR to some extent. Strategic CSR focuses on rigid adherence to laws and regulations or a strong 'corporate citizenship' (Windsor 2013). However, SV goes far beyond the business case approach of CSR by incorporating social concerns into the core competencies and long-term strategies of the organisations. Porter and Kramer (2011) therefore argue that the philosophy of SV is based on CSR, the importance of co-creation, social innovation and an inclusive business model.

Table 4.1 compares SV and CSR using criteria adopted from the literature review, namely, motivation, relationship with the organisation, frequency of implementation, beneficiaries, nature of beneficiaries, and financial implications.

**TABLE 4.1: COMPARISON OF CORPORATE SOCIAL RESPONSIBILITY AND SHARED VALUE**

NO	BASIS	CSR	SV
1	Definition	Contributes to sustainability / triple bottom line (people, planet and profits)	Simultaneously create economic growth and social development/sustainability (inclusive of environmental imperatives)
2	Motivation	Organisational reputation and external pressure	Market advantage - differentiation and cost leadership benefits
3	Key Driver	Pressures from outside the organisation	Organisational strategy
4	Methodology	Discretionary, reactive and defensive, and project based	Proactively integrated to the strategy or core business model
5	Outcomes/ Dimensions	CSR expenditure, CSI investment, standard ESG metrics	Economic benefits and social change/impact
6	Governance/ Administration	CSR Office/PR and Ethic Committee	Organisation wide
7	Organisational value	Safeguarding profitability and reputation/brand	New venture and market opportunities
8	Community value	Completion of the CSR projects	Large scale, sustainable and inclusive value chains, and social change
9	Beneficiaries	Communities	Organisations, communities and government
10	Worth	Doing good	Financial and social value
11	Nature	Citizenship, philanthropy, sustainability	Joint/Collaboration between organisations and stakeholders
12	Basic model	Isolated from economic value creation	Integral to maximisation of economic value – profits
14	Financial implications	Budget is influenced by organisation's footprint (discretionary) and mostly result in an expenditure	Integrated to the strategy and organisational budget, therefore, it either increases revenue or reduces operational costs



NO	BASIS	CSR	SV
15	Programme	Defined by external reporting and personal preference	Organisation's specific and internal guidelines, while building on existing systems
17	Example	Fair trade purchasing	Transforming procurement to increase quality and yield
16	Government role	Voluntary adherence to the rules and guidelines set by the Government, professional associations and international standard bodies	Enact and enforce strict and observable socio-economic legislation and priorities, without over-regulation the industries

Source: Adapted from Porter and Kramer (2011)

In line with Table 4.1, SV reaches beyond CSR by providing long-term opportunities for an organisation's profitability and competitive market position, whereas CSR is a short-term intervention which is unsustainable in a long run. Although CSR focuses on charity, philanthropy and sustainability, the results are far too shallow for real social change, which includes the advancement of communities and an increase in the organisation's earnings or savings potential. By contrast, SV has become a re-adjustment of the organisation's underlying activities and processes in order to produce greater value. While SV reflects the long-term orientation demonstrated by integration into the organisational strategy, core competence, competitive advantage and overall mission, CSR is mostly project-based. However, both CSR and SV promote compliance with legislation and ethics, and reduction of harm caused by an organisation's operating practices.

In line with Table 4.1, Moore (2014) based on Michael Porter's interview which took place in 2012, proposed that CSR is essentially about organisations taking their resources from profit-generating activities and investing those resources into citizenship, philanthropy or sustainability initiatives: "recycling, giving money to social causes, reporting on social and environmental impacts, and engaging employee in community work" (Moon & Parc 2019:115). Furthermore, CSR is separate from the organisation and isolated from profit maximisation whereas SV incorporates social and environmental issues to the core business of the organisations or organisational competitive strategy, which generate

profits by solving such social problems (Crane et. al. 2014:139; Mazzucato 2016:153; Moon & Parc 2019:115); Porter & Kramer 2011:6). SV views social issues as an opportunity to create economic benefits for organisations (Porter & Kramer 2011:6).

Since SV is not doing good or charity (Porter & Kramer 2011:6), another clear distinction from CSR is that through SV organisations can recognise opportunities made possible by addressing the needs of communities (Mazzucato 2016:153; Meyer 2018:20). Moreover, it can be argued that SV is about creating value for organisations and communities rather than sharing the value already generated, as proposed by CSR. Therefore, as juxtaposed in Table 4.1, CSR is a zero-sum game, whereas SV is more of a positive-sum approach.

#### **4.3.3 Shared Value as a new form of capitalism**

After industrialisation and capitalism, the world has undeniably experienced unprecedented prosperity. While globalisation and the free-market system have produced economic growth and wealth for some, increasing levels of inequality, erosion of environmental values, unprecedented levels of commodification and alienated communities have resulted (Ringmar 2005). Fulcher (2004:23) defines capitalism as essentially the investment of capital into organisational venture with a deliberate motive of generating profits for shareholders' wealth maximisation. As a result, traditional capitalism does not value natural resources and social capital (employees) that interact together to generate profit (Liodakis 2010:2609). Due to this kind of thinking, organisations compelled to operate within traditional capitalism often fail to recognise the opportunities of finding innovative solutions for community development and environmental sustainability issues in collaboration with governments and civil society organisations (Porter & Kramer 2011:4).

SV is widely welcomed by several stakeholders (Hills et al. 2012; Pfitzer et al. 2013; Visser 2013), primarily for reconciling the success of organisations with social development, particularly in advancing social issues to strategic level, defining government's position in enhancing SV and deepening understanding of capitalism as the 'caring or conscious capitalism'. Porter and Kramer (2011:6) conceptualised SV and defined it "as policies and operating practices that enhance the competitiveness of a

company while simultaneously advancing the economic and social conditions in the communities in which it operates” (Porter & Kramer 2011:6). Porter and Kramer (2011:7-15) further argue that there are different approaches to creating SV through reconceiving products and markets, redefining value chain productivity and cluster development.

Although CSR is an inevitable target for organisations in developing countries (Jean & Yazdanifard 2015), organisations are continually blamed for community weaknesses (Porter & Kramer 2011) and often accused of increasing profits for shareholders at the expense of communities' dire poverty, unemployment, inequality, illiteracy, ill-health and other challenges. This does not in any manner suggest that SV is capable of solving all social problems faced by the communities, however, SV enables organisations to utilise their influence, resources and competencies to contribute towards the advancement of communities (Moore 2014). This is seldom achieved by government and civil society on their own (Bosch-Badia et al. 2013:12). Elkington (2012) and Parrish (2010:512) affirm this idea by stating that organisations must reconcile community development and organisational objectives since profit-making opportunities are met with scalable solutions to universal issues that affect the communities, which amongst other societal challenges includes poverty, low levels of education, unemployment, global warming, emission of greenhouse gases.

Many multinational organisations, including but not limited to Nestlé, Novartis, Unilever, Discovery Group, Coca-Cola and Walmart, are early adopters of SV strategies (Porter & Kramer 2011:4) and have been considered to be supporting SV theory through the implementation of their organisational strategies (Sharedvalue Initiative 2017). In acknowledging the importance of SV, the Inter-American Development Bank developed its definition of SV by explaining that an organisation creates SV by addressing socioeconomic issues, and creating benefits for employees while engendering competition (IDB 2013). Discovery Health claims that healthier people live longer, enjoy a better quality of life and require less medical attention. The Vitality model promotes, supports and tracks healthier behaviour which ultimately translates into less illness, fewer deaths and lower insurance costs. This model increases the value as well as health of its members, reduces the number of claims directed to the organisation, whilst promoting a

society with a healthier and more productive workforce. Discovery Group defines SV as a business model that addresses social needs in a profitable way (Savai.Africa 2019). A critical success factor for the implementation of SV strategies is, however, dependent on a strong organisational value of embracing new thinking (Porter & Kramer 2011) and integration of such strategic choices with the main organisational competitive strategy (Schmitt & Renken 2012:81). It can also be argued that SV represents the next evolution in organisational strategy.

SV presents itself as a competitive strategy that turns social challenges and concerns into new profit-maximising market opportunities. Hence, SV is known to activate the next wave of growth and innovation opportunities and to reconnect organisational stability with community success (Porter & Kramer 2011:4,16). This means that SV leads to reinforcing beneficially reciprocal relationships between organisations and communities (Porter et al. 2011). Fundamentally, the concept of SV is not necessarily about changing the primary purpose of the organisations; instead, it proposes innovations and paradigm shifts based on the existing foundations of capitalism's competitive strategies or organisational operating approaches. Therefore, each organisation should be able to identify SV opportunities that could be central to its core business (Porter & Kramer 2011:13-14). Hence, in the new dispensation, only those organisations that strategically tackle social issues and recognise organisation-to-society interdependence will have sustainable success (Bockstette & Stamp 2015). However, since SV stems from CSR, it is important to first discuss CSR in detail.

#### **4.4 CORPORATE SOCIAL RESPONSIBILITY APPROACHES**

There is no absolute universally accepted approach or form of conducting or implementing CSR. As a result, CSR implementation can adopt several forms and dimensions. Carroll (1979) suggests that organisations may have four CSR responsibilities to become good corporate citizens: economic, legal, ethical and philanthropy (Carroll 2000:187). Lantos (2001; 2002) classifies CSR in ways that take into account the fact that organisations can undertake CSR on a voluntary or mandatory basis.

Table 4.2 exhibits different ways of implementing CSR.

**TABLE 4.2: CORPORATE SOCIAL RESPONSIBILITY APPROACHES**

<b>CARROLL'S (2000:187) APPROACHES</b>	<b>LANTOS' (2002:2) APPROACHES</b>
Ethical CSR: requires organisations to conduct their activities morally, moving further than meeting the basic terms of contracts and regulations. This approach includes treatment of suppliers and employees.	Ethical CSR: morally mandatory execution of organisations' economic, environmental, legal and moral responsibilities
Philanthropic CSR: is a duty of giving back to the communities, discretionary in nature, but still significant, for example, charitable donations, employee time on projects.	Philanthropic CSR: focuses on accomplishing organisations' humanitarian responsibilities, going beyond ethical CSR by improving the social welfare of the communities irrespective of potential benefits that may accrue to the organisations
Legal CSR: focuses on complying with laws and other regulations, such as employment equity, competition regulations, health and safety laws and other legislative requirements.	Strategic CSR: integrates philanthropy and ethical CSR which will create economic value for the organisation. Organisations create synergistic value when they undertake social responsibility initiatives that are integrated with their strategic business goals.
Economic approach: obliges organisations to focus on making profits for their survival and benefit of communities	

Source: Adapted from Lanto (2002:2)

The idea that the organisation has obligations towards communities is firmly embedded, as demonstrated by some shift in people's perception of the relationship between organisations and communities over the past decades. The key difference between any of these approaches to CSR application is that Lantos' (2002:2) CSR approaches are voluntary, whereas Carroll's (2000:187) approaches are more inclined towards mandatory obligations.

#### **4.5 CRITIQUES AND DEBATES AROUND CORPORATE SOCIAL RESPONSIBILITY**

There are positive perceptions about the value and contribution of CSR despite many criticisms the concept faces. In this section, the literature explains some of the views in favour of CSR by examining its influence on the performance of the organisation, community development and sustainability. An example is the importance and influence

of CSR on positive public perceptions of organisations transformed management practices for years (Carroll & Shabana 2010; Kotler & Lee 2008). It is due to this that scholars dedicated efforts to studying the relationship between CSR and economic outcomes (Becchetti, Solferino & Tessitorey 2016:52). The results have not been without unambiguity, much as some contributions found a positive correlation between CSR and economic returns of organisations (Konar & Cohen 2001; John & Thomas 2008).

According to Davis (1973:313), organisations that empower and improve the lives of local communities gain long-term profit maximisation. CSR offers leaders of organisations, politicians, leaders of communities and organisations an opportunity to respond to society's needs (Margolis & Walsh 2003:270; Blombäck & Wigren 2009:6; Maignan & Ferrell 2004:4). McWilliams and Siegel (2011) claim that organisations with strategic CSR can create both economic value and social value. In concurrence with this line of thinking, synergistic value creation through strategic CSR was emphasised by Juscius and Jonikas (2013). Porter and Kramer (2006) claim that CSR (strategic) builds organisational legitimacy, reputation, and trust, improves economic performance, minimises risks and creates competitive advantage. This is achieved, according to Porter and Kramer (2011:4), by examining social responsibility through frameworks used for core business strategic choices. Organisations would learn that rather than considering CSR as an expenditure, charitable deed or compliance or public relations exercise, it has the potential to become a primary source of innovation and competitive advantage. What is common from those in support of CSR, is that by the adoption of CSR organisations gain legitimacy, improve their reputation, gain competitive advantage, and increase long-term profitability and viability (Williams 2014; Zubaidah & Mudrifah 2019:746).

Although there are gains that accrue to CSR, the concept has also generated criticism from academic researchers and management professionals. CSR evidence in South Africa suggests that there are also instances where there is no relationship at all or where negative relationships exist between CSR and financial performance (Gladyssek & Chipeta 2012; Turyakira, Venter & Smith 2014). The critiques of CSR gain momentum in the claim made by Carroll and Shabana (2010:88) that beyond good intentions, organisations must account for reality which dictates that the purpose of an organisation is to maximise

profits. The reality that faces organisations is one characterised by hyper-competition and immense pressure to reduce the cost of doing business, compels organisations to seek for alternative growth opportunities, and dwindles real initiatives that are consistent with the philosophy of CSR (Perrini, Pogutz & Tencani 2006:6; Davis 1973:318).

The question of the primary purpose of organisations dilutes the purpose and strategies for CSR. Carroll and Shabana (2010:88) note Friedman's view that organisations should be developing key competencies to specialise on their respective areas of competitive advantage and leave the social problems to the mechanisms of the free market system. Friedman, without denying the existence of social problems, proposes it should be the sole responsibility (obligation) of government to address the social problems (Margolis & Walsh 2003:272).

Littlewood (2014) states that despite CSR being a strategic imperative, it has become a cover (green wash) for 'business as usual'. This is due to philanthropic initiatives having not been able to contribute positively to community development (Hamann 2014). Despite, CSR initiatives failing to create a positive impact, organisations still project a positive image, while very little has been done to improve the lives of the communities (Mullerat 2009; Aras & Crowther 2010). Furthermore, some CSR activities undertaken by most organisations are not consistent with the organisations' business, policies and strategies. For example, organisations address inequality, diversity, and equity for employees within their premises, without taking into account the working conditions of employees in developing countries and outsource organisations. In fact, not all organisations value equality and human rights at the workplace (Horrigan 2010).

Tracey et al. (2005) argue that CSR reduces social innovation and induces dependency mentality that government or organisations will solve all community development problems. Even, then, the motive of the organisations that fund any initiative is more inclined towards initiatives that will create a good public image and increase profits, undermining the social change that may be in the best interest of communities (Esteves & Barclay 2011). Hence, Gordon, Schirmer, Lockwood, Vanclay and Hanson (2013)

argue that to minimise the time spent on the needs of the community and resources (CSR expenditure), organisations should adopt transformative community engagements.

The criticism of CSR strongly revolves around its failure to make a real impact of social change, because it ignores the core issues affecting the communities, is reactive and outside the core business of the organisations' competitive strategies and lacks foresight due to its focus and budget being determined at the discretion of the organisations. It can also be argued that the CSR concept has become outdated considering many organisational scandals and the global social and environmental challenges that have persisted since the emergence of the concept in 1953.

#### **4.6 CRITIQUES AND DEBATES AROUND SHARED VALUE**

In the same way as with CSR, SV (developed from CSR) also causes some debate. The SV concept has generated huge interest and appreciation from scholars to NGOs and multinational organisations. Amongst the scholars, a view is held that SV goes beyond sustainability to strategically integrate social demission into an organisation's competitive strategy and business models thereby turning societal problems into opportunities for commercialisation, according to Wójcik (2016). Some of the multinational organisations such as Nestlé, Walmart, Discovery and Coca-Cola have been unequivocal in declaring their support for the concept and formulation of SV inspired strategies (Corazza et al. 2017:2). The SV concept being resonant with academics has been cited many times. Crane et al. (2014:146) state that academic literature has generally taken an affirmative posture towards SV. Mostly, emphasis has been placed on positive cases wherein SV led to a win-win situation (Schmitt & Renken 2012).

The SV concept is furthermore acclaimed for its strong appeal amongst the leaders of organisations, due to the relative use of conventional business and managerial language (Beschoner 2014:108; Crane et al. 2014:132-134). The SV concept's effort of integrating societal problems to organisational strategy level is lauded for having engendered seminal debates in the realm of leaders of organisations to an extent that far exceeds the expectations (Strand et al. 2015:9). Compared to CSR, stakeholder theory, the theory of reciprocity and interdependence exchange, integrative social contract theory, the bottom



of pyramid theory, social entrepreneurship and social innovation, SV is acclaimed for being the sole umbrella construct that contributes significantly to discussions on the interface between social issues and capitalism, while at the same time being articulate of the role of government in relation to reconnecting the organisations back to the communities and the overall promotion of creation of value (Crane et al. 2014:133-134). What also makes the SV concept distinct to CSR and more appealing is the proposition that at the core of SV it converts social issues into profitable opportunities, therefore creating a dual positive impact (Porter & Kramer 2011).

Admittedly, SV responds to help resolve the shortfalls of CSR. The pursuit of SV epitomises the significant evolution of capitalism and management thinking which is characterised in identification of social ills and the integration of such social ills into strategy and operations of organisations (Porter & Kramer 2011:16-72). Some academic researchers have, however, been critical of the concept (Corazza, Scagnelli & Mio 2017). To some extent, Corazza et al. (2017) claim that some organisations that adopted SV have stated that they have done so because of the Porter label and not because of the concept itself. Although Porter and Kramer (2011) claim that SV is 'the big idea' representing the 'reinvention of capitalism' and will replace prevailing discourses of CSR, they ignored the fact that the concept builds on four existing theories, namely social innovation, BoP, CSR, TBL and stakeholder theory (Aakhus & Bzdak 2012:237; Spitzeck & Chapman 2012:502; Corazza et al. 2017:8). This view is exposed in the manner in which Porter and Kramer (2011) compare SV and CSR, for example, SV is considered to be integral to organisations' business strategy, while CSR is labelled as philanthropic 'add-on' projects. This suggestion overlooks the extensive history of research and organisational sustainability policies which made the business case for CSR and incorporating CSR to organisational strategies (Beschorner 2013:109; Bodruzic 2015:131; Crane et al. 2014:134-135).

The TBL concept proposed incorporating socio-economic and environmental value creation (Elkington 2004). The development of strategic CSR, also called synergistic value creation, is about the integration of CSR in organisations' business models and the integration of the interest of various stakeholders into daily operations of the organisations

(Hamann 2003:238-239; Kurucz, Barry & David 2008:91). Despite SV having achieved a change of mindsets, in practice, it superficially exhibits nothing new, but modified existing policies and ideas to rather bring about substantial transformation (Corazza, Scagnelli & Mio 2017:16).

Classical capitalist economic theories were never purposed for accomplishing community welfare but aimed at creating economic value in the form of return on investment (Kuhn & Deetz 2008:177). In this view, it can be argued that SV primarily perpetuates capitalism or neoliberal thinking by commercialising social and environmental issues, making them become the new frontiers of profits and wealth maximisation (Blowfield & Dolan 2014:28; Voltan, Hervieux & Mills 2017:359). The SV theory also unwittingly proposes that macro-problems of the communities are solved through relatively minor organisational modifications. This view ignores interrogating the structural dimensions of issues affecting communities (Crane et al. 2014:140). Recognising social issues through the lens of market opportunities, production processes and products or services can convolute issues, if not causing obliviousness of their intricacy. This leaves the claim of SV reinventing capitalism as rhetoric.

In critiquing the SV concept, Crane et al. (2014:134) claim that SV is not original, but rather blurry, shallow and filled with wishful thinking which makes it practically impossible to apply the concept in the real business environment. Critics argue that SV distorts complex organisation-community relations and discounts the unavoidable conflicts and trade-offs between economic, social and environmental goals as well as the contending interests of stakeholders (Beschorner 2013; Voltan et al. 2017:350). The complexities of value chains, for example, go beyond energy and water consumption, supply chain management and throughput of employees because of influential factors such as conditions in parallel industries and high cost attributed to top-class suppliers in a bid to improve living wage (Moon et al. 2011). Despite several examples in support of the win-win situations that were presented by Porter and Kramer (2011), the business case approach to development issues has not gained much support (Barnett 2016; Wieland 2017:15). Porter and Kramer (2011) give no guidance on how to deal with diverging interests or potential trade-offs or how to prioritise between different stakeholders. The

SV concept according to Beschorner (2013), aligned with the views of Crane et al. (2014), is too narrow to achieve the vital task of reconnecting organisations with communities.

The concept is considered to be fairly new and without a strong body of knowledge that supports its practical application. There is less research in this area. As a result, a clear definition of SV is yet to be conceptualised (Wójcik 2016) and this leads to too many subjective interpretations. According to research done by Corazza et al. (2017), organisations appear to interpret SV in various ways, which in other instances involve sustainability approaches, relational approaches and integrating it to CSR strategies. Hence, researchers claim that there is no clear distinction of SV from CSR. This research should help bring clarity to the interpretation of these concepts since there is currently limited knowledge and academic research on how organisations interpret and implement SV (Corazza et al. 2017). Moreover, given the limited research, there is a need for organisations to understand the connection that should exist between the organisation, environment, and community (Dembek et al. 2016).

The major distinction of SV from CSR apart from the latter being separate (outside) from the profit maximisation model, is that the former, according to Porter and Kramer (2011: 66), is founded on the “premise that both economic and social progress must be addressed using value principles [and] value is defined as benefits relative to costs, not just benefits alone”. Therefore, SV constitutes a significant step forward in organisational responsibility and capitalism as it simultaneously views both the performance of organisations and social concerns from the value creation perspective, a phenomenon that constitutes a central point in economics and management.

#### **4.7 SHARED VALUE PERSPECTIVES AND APPROACHES**

Maltz and Schein (2012:65) conducted a study of SV initiatives carried out by multinational organisations. The study examined different factors that positively impacts communities and organisations through SV. The sections below discuss the perspectives of implementation of SV and various factors affecting the creation of SV in addition to generic approaches.

#### **4.7.1 Shared Value perspectives**

Maltz and Schein (2012), upon expanding on Porter and Kramer's (2011) original SV construct, identified dimensions to consider the viewpoints of SV benefits.

##### **4.7.1.1 *Economic perceptive***

Economic perspective is a dimension in which the organisations' primary focus is economic return. Although it integrates social considerations, this is viewed as secondary. Therefore, organisations that follow this dimension tend to focus on short-term profitability with little or no regard for the sustainability of benefits.

##### **4.7.1.2 *Mission-driven perspective***

Organisations tend to pursue opportunities that are underpinned by ethics and sustainability imperatives. The focus of organisations in this perspective is not just the expected financial returns. Instead, they invest their capital in opportunities that will create lasting value. In fact, their SV approaches are concerned with increasing inputs and reducing costs by partnering with other organisations, such as non-profit organisations, local communities and governments (Tate & Bals 2016).

These two perspectives are most relevant in how organisations operationalise SV practice, either by adopting SV as a competitive strategy or business model or integrated to the organisational strategy, even undertaking SV at an operational level as a core business-related initiative. However, Porter and Kramer (2011) state that organisations with the "economics-first perspective" are the ones facing too many challenges in implementing SV compared to organisations that make SV their mission.

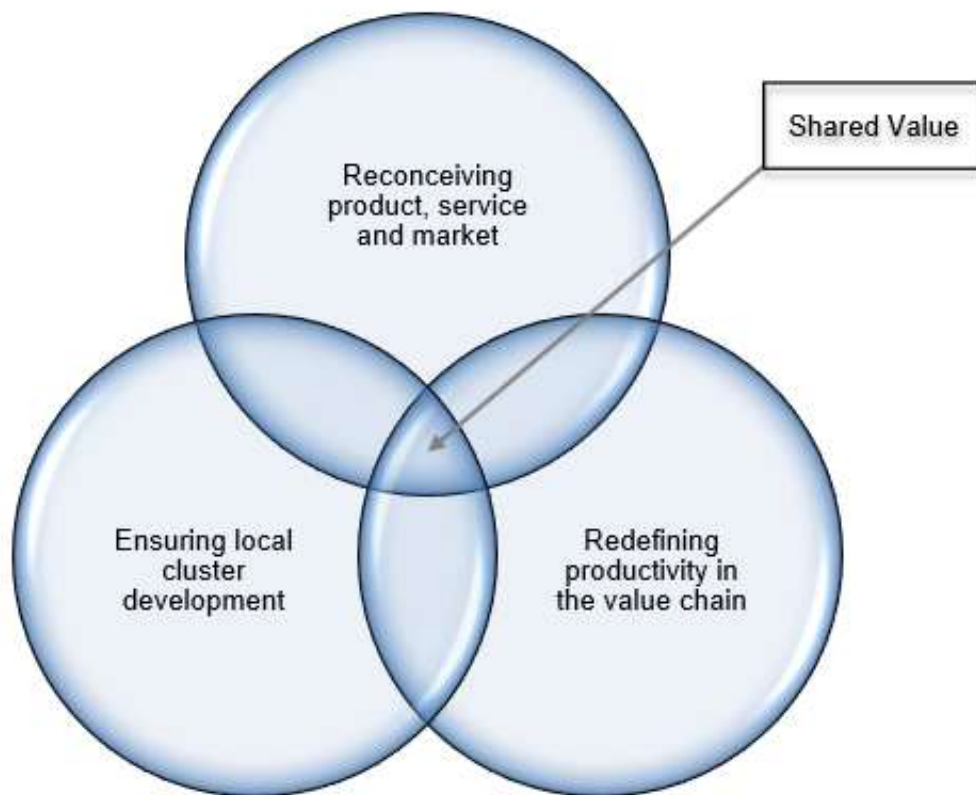
In addition, the elevation of SV to organisational or competitive strategy and business models leveled by Porter and Kramer (2011) is lauded as more effective than traditional approaches (Nakayama 2016; Alpana 2014). Amongst the scholars, the consensus is that SV enables organisations to respond to environmental, community and market needs and supports innovation and core business operations (Awale & Rowlinson 2014). This is achieved through organisations allocating their resources and core competence

towards finding social innovative solutions to address problems affecting communities in ways that maximise profits (Dongmin, Junghoon, Jongpyo, Hyoung-Goo & Jaeseok 2014; Nicholson 2017).

#### 4.7.2 Generic approaches to creation of Shared Value

Organisations can achieve SV through implementing one or more of the following distinctive strategies, namely, reconceiving products, services and markets, redefining productivity in the value chain, and enabling local cluster development (Porter & Kramer (2011). Figure 4.1 presents the approaches to creation of economic and societal value, thus SV.

**FIGURE 4.1: APPROACHES TO CREATING SHARED VALUE**



Source: Adapted from Porter and Kramer (2011)

#### **4.7.2.1 *Reconceiving products, services and markets***

In line with Figure 4.2, reconceiving products, services and market refers to the redesign of products and services that meet the underserved needs of communities as a way of responding to social concerns. This presents organisations with the prospect to generate profits by finding innovative ways of addressing the needs of the community such as education, healthcare, better housing, nutritional issues, the aging population, financial security as well as environmental issues (Porter & Kramer 2011). Product and service innovation also refers to the creation of a new or refined product or service that is of a better quality or version with superior functionalities to meet the needs of communities compared to existing products or services. To redesign the products and services, organisations need to identify and understand the issues and needs of the communities (Schwab 2017).

Social innovation is defined as a strategic and collaborative mechanism of converting social problems into opportunities that augment growth and sustainable competitive advantage for organisations. Further, Schwab (2017:1) recommended reconceiving the future markets as integral to products and the service redesign process. It can, therefore, be argued that product and service innovation is intertwined with the processes of creating a new market. In line with this view, Calton, Werhane and Hartman (2013) affirm that some of the issues affecting communities include, amongst others, malnutrition and famine, lack of adequate health care infrastructure, restricted access to basic health services, low levels of literacy and education, poverty, inequality and unemployment. Contributing to the community is not just an act of benevolence but can be a SV creating activity if a suitable strategy is adopted. Organisations and communities should realise that they have a mutually beneficial role (innovative collaboration) which can develop into a virtuous cycle of increasing benefits for both communities and organisations (Moon & Parc 2019).

Reconceiving products, services and markets as a strategy or approach is critiqued for being business only at the bottom of the pyramid and ignoring opportunities that may exist in other segments of the economic pyramid (Spitzeck & Chapman 2012:501). In addition

to increased revenue, organisations can gain marketing advantage over rivals because communities (customers) are likely to identify with a product or service that meets their social needs (Porter & Kramer 2011:7). Also, due to interconnection, organisations have an opportunity to redesign or customise their products or services to meet the needs of the communities, and this approach can help organisations to transcend the bottlenecks of market barriers and innovation, enhance stakeholder management capabilities, and create a competitive advantage (Wang & Xiong 2018:106).

Case Study 4.1 presents how one multinational mining organisation, Anglo American, developed a new product and a new market while addressing the water supply challenges that faced the local municipality and the local communities surrounding the coal mine in eMalahleni, Mpumalanga.

#### **Case Study 4.1: Anglo American eMalahleni Water Reclamation Plant in South Africa**

Anglo American upon recognition of the negative impact of the acid water from the coal mine in eMalahleni built a water reclamation plant which now produces between 25 and 30 million liters per day for purposes of internal use and solving the water shortages by providing additional supply into the local municipality infrastructure for the benefit of the local community. In addition, Anglo sells the water treatment service to BHP Billiton, offsetting 60% of plant operational costs (Sharedvalue Initiative 2019). Through innovative thinking, organisations have vast opportunities from offering unique products to substitute products as well as entering into new ventures that can generate SV by offering products and services that meet needs of communities such as healthy food options or financial solutions tailored for a specific purpose for specific stakeholders (Porter & Kramer 2011).

#### **4.7.2.2 Redefining productivity in the value chain**

The value chain refers to the internal network of activities that are influenced by various factors, for example, energy and water consumption, health and safety, and conditions of employment. Accordingly, organisations can achieve SV by implementing policies that support increasing investment in infrastructure connectivity such as port capacity, accessible railways and roads, storage facilities, irrigation, energy, telecommunication and other technological facilities (Palandeng, Kindangen, Tumbel & Massie 2018),

implementing flexible procurement and distribution systems, adopting human resources management practices that are favourable to employees and improving the levels of community resilience as a way of contributing to developmental needs of communities (Porter & Kramer 2011:9; United Nations 2017).

This line of thinking is supported by Fernández-Gámez, Gutiérrez-Ruiz, Becerra-Vicario and Ruiz-Palomo (2019) who claim that SV can be achieved by reimagining the value chains productivity in the context of employees, supply chain management and technology (see Figure 4.2). Reconfigured value chain networks can help organisations to reduce the economic costs of doing business while contributing to the development of communities and preservation of the environment. As a result, organisations are starting to support local suppliers and enterprise development initiatives in an attempt to enhance quality and productivity and reduce the negative environmental impact of value chain activities. The World Economic Forum (2016:1) recommends building strong supply chains and critical skills development as a source of social and organisational opportunities and benefits.

By means of a value chain inclusivity perspective as an analytical lens, organisations can redefine the productivity value chain through three dimensions: social wellbeing, environmental sustainability, and participatory governance and collaboration (Ros-Tonen, Van Leynseele, Laven & Sunderland 2015:534). Each dimension is briefly discussed below:

- The social dimension of the value chain is one wherein the actors (all parties) contribute positively to and mitigate (if unable to completely avoid) the negative impacts on the rights of all stakeholders passively or actively participating in the value chain (Likoko & Kini 2017:86).
- The environmental dimension is one in which organisations and other stakeholders strive to reduce or eliminate value chain activities that harm the environment (Likoko & Kini 2017:86).
- The governance and collaboration dimension, on the other hand, refers to value chain governance systems that are underpinned by participation, equity, and



accountability which balance the influence and power relations amongst various stakeholders within and beyond the value chain of the organisations (Ros-Tonen et al. 2015:526).

The dimensions stated above offer valuable guidance for analysing how organisations can operationalise SV in practice and also provide an analytical framework for a review of Case Study 4.2. Coca-Cola's micro distribution model and the Coletivo skills programme in Brazil has been discussed to show the impact of redefined value chain productivity.

#### **Case Study 4.2: Coca-Cola Coletivo skills program in Brazil**

In Brazil, Coca Cola identified and addressed a social issue of unemployment and turned it into creating SV opportunities. The Coletivo initiative for skills development was launched for low-income youth who were identified as a strategic advantage to create SV due to likelihood of these youths to find employment with their relatively low levels of education (The Coca-Cola Company 2019).

The analysis was done and a business case developed whereby youths would be trained by stakeholders, such as partnering NGOs, as part of Coca Cola's value chain and matched with local retailers for their first job. The case was made that these retailers could improve their operations with increased sales of Coca Cola amongst the lower middle-class population. An aspect heavily debated was the measurement of increased financial gain as a result of the initiative. Coca Cola identified various measurement criteria tailored specifically to the initiative which amongst others included employment assignments, personal development for the youth, increase in sales volumes and brand connection (Porter et al. 2011).

The results were as follows – 30% of trainees were employed by Coca Cola or by one of the associates with approximately 10% who went into entrepreneurship through micro loans from the organisation and were profitable within two years on average. Throughout the process of training and measurement, Coca Cola identified that self-esteem was a major issue with youth and this represented another opportunity to unlock new value. Coca Cola, therefore, included soft skills and leadership into the program, not only the technical retailing skills. This translated into increased retailer performance, a stronger Coca Cola brand equity, and both translated into an increase of sales (Porter et al. 2011; Sharedvalue Initiative 2019). Restructuring the value chain establishes a reliable and flexible supply chain, stimulating productivity and efficiency, and empowering the local communities (Porter & Kramer 2011).

In addition to reconfiguring their value chains, organisations may create SV by developing an enabling cluster environment.

#### **4.7.2.3 *Enabling local cluster development***

The global economic map is made up of clusters. These clusters represent a geographic concentration of related organisations, suppliers, organisations and institutions and are influenced by various factors such as the size of the economy and population, standard of living, and social and political influence which are interconnected by regions and nations (Porter & Kramer 2011:12). Strengthening clusters offers benefits of geographical location and specialism competence (Porter & Kramer 2011). Enhancing the development of local cluster creates value not only for the organisations, but for the communities and economy at large.

The local cluster serves as an enabling infrastructure for organisations in pursuit of their economic goals and communities that seek solutions to social problems. Cluster development can, therefore, lead to improved competition and collaboration between organisations and allies, and actualise the benefits of efficiency and flexibility. In other words, enabling local cluster strongly stimulates patterns of innovation and productivity, the development of local suppliers and enterprises and social change and economic growth. Organisations do not realise success by operating in silos. Instead, they become successful through collaborations and partnerships with the local enterprises and the society as their enabling infrastructure (Porter & Kramer 2011; United Nations 2017:1). SV supports capitalism but with a paradigm shift by integrating into social and environmental targets to economic objective which dominated the agenda of capitalism (Porter et al. 2011). SV can, therefore, through visionary organisations, create value for all its stakeholders without abandoning strategic goals set out by organisations (Wachira, Barnard, Lutseke & Ger 2020:7).

Case Study 4.3 will help develop an understanding of how BHP Billiton and Codelco improved the cluster conditions to create value for the local communities in Chile, local enterprises and the organisations themselves.

### **Case Study 4.3: Chile BHP Billiton and Codelco World-Class Supplier Program**

The Chilean mining industry, like in other mining countries, faced marginal costs, volatility of energy and water supply and the declining price of ore grades. These and other social issues impeded the country from competing on a global stage. To build the local cluster which was almost non-existent, BHP Billiton and Codelco targeted to establish 250 suppliers by 2020. In December 2012, 36 suppliers that had been established had created direct employment to over 5000 people and sales of over US\$400 million. This initiative is estimated to have saved BHP Billiton over US\$121 million which would have gone to the procurement of goods and services. This initiative also created value for new suppliers, created employment opportunities for local communities, and improved efficiency and innovation for BHP Billiton (Sharevalue.org 2019). Accordingly, it can be argued that cluster plays a central role to prosperity and growth of regional economies, competition, innovation and competitive advantage.

Furthermore, strengthening local clusters creates an opportunity to bring to the host country international expertise, skills and technology. The Chilean mining industry created organisational value while contributing to the affluence of the community by developing local suppliers. This affirms the claim of Porter and Kramer (2011) that when the cluster conditions have deficiencies, instead of enduring multiple economic, social and ecological costs, it can be refined to create sustainable value for the organisation and social benefits for the community. Therefore, it can be argued that BHP Billiton's economic and social benefits include: building world-class mining suppliers and high-quality jobs, and reducing materials, products, and services costs.

In addition to organisations implementing SV through one or more combinations of the three generic strategies, there are also several variables that influence SV.

## **4.8 FACTORS INFLUENCING SHARED VALUE**

Organisations can benefit not only from generating and harvesting value, but also from exchanging value with stakeholders (Mizik & Jacobson 2003). Di Gregorio (2013) asserts that SV is created not only from the capital but also through the behaviour of organisations and people in the markets, internalised dealings and goods markets. In addition, according to Di Gregorio (2013), creation and appropriation of value is influenced by inter- and intra-organisational factors, including market-based negotiating power, relationship-based influence, isolation structures and opportunity-based interventions. Nestlé (2014:5; 2018:3) considers nutrition, water, rural development, environmental protection and compliance with the laws, ethics and human rights to be the basis of how the organisation

creates SV. Some of the critical social issues to be addressed by SV involves supplier access and competitiveness, competence and expertise of the employees, employee welfare, water and energy use and environmental effects (Porter & Kramer 2011), which are influenced by several social issues. However, the SV concept focuses specifically on factors with a higher likelihood of influencing the competitiveness of organisations. Based on the extensive literature review conducted on the concept of SV (and as discussed in all previous sections), Table 4.3 shows the different factors that influence the creation of SV.

**TABLE 4.3: FACTORS INFLUENCING CREATION OF SHARED VALUE**

VARIABLES	AUTHORS
<i>Stakeholder management</i> refers to a process by which organisations identify the expectations of stakeholders with a view of developing strategies which can fulfil their expectations. These strategies integrate a cooperative and proactive approach to stakeholders while at the same time providing organisations with success and value creation. It is also evidenced by procedures which enhance the competitiveness of organisations while fostering improved socioeconomic conditions for the communities wherein the organisations operate.	Fernández-Gámez, Gutiérrez-Ruiz, Becerra-Vicario and Ruiz-Palomo (2019); Melé and Armengou (2016); Pfitzer et al. (2013)  Mercer-Mapstone, Rifkin, Louis and Moffat (2017)
<i>Trust</i> of stakeholders is defined as the presumption of ethically justifiable conduct by one individual, group or organisation, that is, morally correct decisions and actions based on ethical principles of consideration by another person, group or organisation in a joint effort or economic exchange.	Kishna, Niesten, Negro and Hekkert (2017)  Walsh, van der Plank and Behrens (2017)  Majer (2013)  Uwafiokun (2007)
<i>Two-way communication</i> is described as collaborative interaction between an organisation and their stakeholders through the creation of intervention strategies to facilitate creation of value. Similarly, the collective compact relies on the idea that social issues are emerging and continuing due to the complex interplay of decisions and omissions by players in all industries, and can therefore only be addressed through the collaborative efforts of all those players, from industry to government agencies, charities and representatives of the affected communities. SV means addressing closely the links between economic and social progress and considering social progress as more of a determinant of long-term economic value creation.	Kramer and Pfitzer (2016) Porter and Kramer (2011) Mercer-Mapstone, Rifkin, Louis and Moffat (2017) Uwafiokun (2007)  Thomson and Boutilier (2011)

VARIABLES	AUTHORS
<p><i>Brand capabilities (competence)</i> in line with the resource-based view, refers to the brand capacities of an organisation to produce long-term returns for both shareholders and society in general. The exploitation of existing brand strengths can be successful in creating SV. Sponsoring brand capabilities in the sense of sporting mega events relates to the exclusive, organisation-specific resources contained in the sponsoring organisation aimed at improving the profitability of other services owned by organisations and sport properties.</p>	<p>Maltz and Schein (2012) Nygaard (2015) Hsiao and Chuang (2016)</p>
<p><i>Operational risk</i> refers to a process involving the identification, assessment and mitigation of both direct and indirect incidents and threats that could impede the execution of the strategy and the accomplishment of strategic goals resulting from inadequate or ineffective processes, structures or policies.</p>	<p>Croitoru (2014) Delija (2015) Radomska (2014)</p>
<p><i>Regulatory and legislative conditions (government interventions)</i> apply to legislative measures taken by government to influence or intervene with decisions taken on socioeconomic issues affecting the organisations and communities. When government sets regulatory conditions in addressing issues affecting communities, they create unique market opportunities and promote alignment of priorities amongst government, communities and organisations</p>	<p>Belsky and Wacter (2010) Bam and De Bruyne (2019) Olowa and Olowa (2014) Blowfield and Dolan (2014)</p>
<p><i>Empowerment of workers</i> means improving the existing capacity of disenfranchised groups in society to enable them to perform optimally to benefit themselves, their families and communities as a whole.</p>	<p>Osahon and Odoemelum (2016) Smit and Cronje (2002) Strydom (2003) Nestlé (2018)</p>
<p><i>Organisational culture</i> with adaptive mind set is a key tool for organisations to adapt to dynamic environments and to survive in the long-term while responding to environmental and social conditions. At the cognitive level, adaptive thinking helps to build cultures or practices that rethink accepted shared values and reassess needs on the basis of social demands, thereby determining how community is progressing. Adaptive mind set is a precursor to a holistic approach of SV which requires ideologies and actions that are supportive of integrating this concept into the organisational culture.</p>	<p>Fernández-Gámez et al. (2019) Schein and Schein (2017) Gittleson (2012) Yu, Lumpkin, Parboteeah and Stambaugh (2019) Freeman, Harrision and Zyglidopoulos (2018) Porter and Kramer (2011)</p>

VARIABLES	AUTHORS
<p><i>Training and skills development</i> is viewed as an organisation's official continuing educational program designed to improve employee satisfaction and efficiency.</p>	<p>Holton, Laird, and Naquin (2003)  Paterson (2003)  Van Rensburg (2014)  Kramer, Hills, Tallant, Wilka and Bhatt (2018)  Porter &amp; Kramer (2011) Nestlé (2018)</p>
<p><i>Employee conditions (expectations)</i> refer to assumptions that individuals hold about what contributes to what happens in the work environment; however, employee perceptions are dependent on the environment, communications, and employee experiences, and are continuously updated. Organisations are expected to meet broader expectations and standards for the quality of their employees' working lives beyond salaries. Conditions of employment include taking care of the health and safety of employees as well as maintaining their skills and commitment to job.</p>	<p>Hubbard and Purcell (2001)  Mkodzongi and Rusenga (2016)  Mamun and Ahmed (2009)  Steinerová and Makovski (2008)</p>
<p><i>Environmental impact</i> refers to the impact of operational activities on the ecological system, including opportunities for competitiveness, adaptive innovation and the advancement of stakeholders' interests. Organisations that mitigate the negative environmental impact of their operations create new business opportunities and contribute to socioeconomic development. Similarly, sustainability relates to the ability of the organisation to respond to stakeholder demands without sacrificing future stakeholder needs. It therefore generates profits, preserves the environment for shareholders and enhances the lives of citizens with whom it interacts.</p>	<p>Savitz and Weber (2007)  Pretty (2008)  Sriboonlue, Ussahawanitchakit and Raksong (2016)  Gittleson (2012)  Polášek (2010)  Schoenberger (2016).</p>
<p><i>Compliance with the laws and ethical standards</i> is acknowledged as a prerequisite for the idea of SV, since it mitigates negative organisation-related impacts as a result enhanced way of understanding how employees, customers, environment, productivity and external influences impact an organisations success. Compliance with the law and ethical standards brings an organisation to a 'comfortable' place in which to propose a purely pragmatic and economic (one-dimensional) 'remedy' to all of the 'messy' everyday business concerns.</p>	<p>Porter and Kramer (2011)  Schramm (2017)  Crane et al. (2014)  Paine (2000)</p>

VARIABLES	AUTHORS
<p><i>Infrastructure (resources) development</i> refers to access to everything that the communities and organisations need to meet their needs. Anything from groundwater, vegetation, property, highways, rail, housing, electricity to education and health care facilities. To a large extent, the success of the organisation and of the communities is influenced by access to markets, natural resources and adjacent infrastructure.</p>	<p>Hill (2008) KPMG (2014) Saul and Bond (2014) Vidal (2011) Porter and Kramer (2011) Wu (2019)</p>
<p><i>Supply/value chain considerations</i> refer to a management system for performing the organisation's internal analysis by disaggregating the key value-generating functions, including human resources, procurement, distribution and investing in technology and innovation. Organisations reconfigure productivity in the value chain in response to their positive and negative impact on a range of social aspects, including raw materials and water management, health and safety, the employment conditions and equal opportunities for men and women in the workplace as well as access to the suppliers (enabling local cluster).</p>	<p>Porter (1986) Porter and Kramer (2011) Fernández-Gómez et al. (2019) Pfitzer et al. (2013) Wu (2019) Walker and McCarthy (2010) Ros-Tonen, Reed and Sunderland (2018)</p>
<p><i>Innovation and automation</i> refers to the integrated use of technology and new business models that change the world by solving social and environmental conditions while at the same time stimulating productivity and profitability. Innovation enables organisations to produce goods and/or services that meet the specific needs of the communities without compromising the environment. The value of innovation is evident in terms of competitive advantages aimed at promoting development, which indicate a positive relationship between the level of technology and operational efficiency</p>	<p>Vidal (2011) Porter and Kramer (2011) Fernández-Gómez et al. (2019) Pfitzer et al. (2013) Wu (2019)</p>
<p><i>Research and development</i> is a continuous process of identifying new social needs that enables organisations to differentiate themselves from rivals and to discover new opportunities. Research and development capability relates to innovative practices in product design, enhancement of the value chains and collaborative capacity underlining the significance of value co-creation with strategic partnerships.</p>	<p>Maltz &amp; Schein (2012) Porter and Kramer (2011) Pfitzer et al. (2013) Kania &amp; Kramer (2011)</p>



VARIABLES	AUTHORS
<i>Business model</i> refers to how organisations configure and direct the relationship between organisation and community in creating social and financial benefits. Business models act as the main explanatory factors for value creation and achievement of performance objectives, with the emphasis on defining specific customer activities related to organisational economic advantages.	Høvring (2017) Maltz and Schein's (2012) Moon et al. (2011) Pfitzer et al. (2013) Rocchi and Ferrero (2014) Wu (2019)

Source: Researcher's own construction

In light of the factors explained in Table 4.3, for the purpose of this study, selected variables applicable to the context of this study will be explained in detail in Chapter Five. Therefore, *environmental impact, employment conditions, value/supply chain considerations, automation and innovation, infrastructure development and regulatory and legislative conditions* are the variables that will be tested (in the empirical investigation of this study) to assess their effect on SV perceptions in the mining industry.

#### 4.9 POTENTIAL OUTCOMES OF SHARED VALUE

SV asserts that social needs can be met in ways that create economic gains and that the overall effect is the joint accumulation of social and economic benefits (Porter & Kramer 2011). Consequently, the main outcomes of SV are social and economic value (Porter & Kramer 2011; Schmitt & Renken 2012; Shrivastava & Kennelly 2013), even though there are other outcomes. Table 4.4 presents the possible outcomes of SV identified during the process of literature review.



**TABLE 4.4: SHARED VALUE CREATION OUTCOMES**

OUTCOMES	AUTHORS
<i>Economic outcome</i> of the SV creation process refers directly to an organisation's revenue growth, including sales promotion, development and penetration of new markets and productivity improvements.	Aakhus and Bzdak (2012) Bertini and Gourville (2012) Michelini and Fiorentino, (2012) Moon et al. (2011)
<i>Social outcome</i> includes a variety of aspects of social necessities carefully chosen by organisations, including employment opportunities, clean water, renewable energy, health and safety, education and environmental conservation.	Brunso, Scholderer and Grunert (2004) Du, Li, Bian and Zhong (2008) Pfitzer et al. (2013) Spitzeck and Chapman (2012)
<i>Sustainable development (sustainability)</i> refers to the fulfilment of identified needs of communities considered to be economically and socially advantageous, as not only is it central to well-being but also to organisational performance factors. SV approaches may include implementing policies aimed at ensuring a minimum wage, job security, transformation of the value chain and enabling clusters, protecting the environment and supporting incentives for employment, training and development. SV organisations are considered to be integral to sustainability as they are best placed to address the needs of communities, environmental and economic concerns, support the development of the economy and develop innovative capacity.	Dembek et al. (2016) Moon et al. (2011) Porter and Kramer (2006) Adidas (2017) Wu (2019) Nestlé (2016; 2018) Font, Guix & Bonilla-Priego (2016) Fernández-Gámez et al. (2019) Odia (2018) Sánchez-Hernandez, Bañegil Palacios and Sanguino-Galván (2017) Rezaee (2018) Corner and Pavlovich (2016)
<i>Organisational financial performance</i> has been tested to be the main outcome of SV, considering its dimensions include aspects of economic outcomes and influenced by the real social changes brought by SV initiatives and perceptions of such endeavours.	Høvring (2017) Kottke, Pronk, Zinkel and Isham (2017) Aakhus and Bzdak (2012) Michelini and Fiorentino (2012)

OUTCOMES	AUTHORS
<p><i>Organisational performance</i> refers to the social (and can also include the financial) benefits that accrue to organisations for implementing SV strategies, including enhanced employee engagement, enhanced brand image that enhances the sense of belonging among stakeholders/loyalty, improved productivity, savings on healthcare costs, and improved overall financial results of the organisation.</p>	<p>Pronk et al. (2015) Kottke et al. (2017) Campos-Climent and Sanchis-Palacio (2017) Aakhus and Bzdak (2012) Michelini and Fiorentino (2012)</p>
<p><i>Competitive advantage</i> is gained by organisations that integrate SV into their core competitive strategies, business models (value chain) and mission as a result of revolutionary social solutions that follow an innovative way of thinking in organisational-community interaction. As a competitive advantage, SV continues to generate the significant economic prosperity, innovation and growth for communities and organisations.</p>	<p>Porter and Kramer (2011) Rocchi and Ferrero (2014) Fernández-Gámez et al. (2019)</p>
<p><i>Operational efficiency</i> is the ability of an organisation to deliver goods and/or services as cost-effectively as possible while maintaining the highest quality of its goods, services and support. There is a positive interplay between SV practices and operational efficiency. For example, Adidas has collaborated with an environmental organisation to recycle ocean waste and use recycled materials to manufacture sportswear, resulting in increased productivity not only through contributing to the reduction of ocean pollution but also by increasing the annual revenue of the organisation by increasing sales from environmentally aware customers.</p>	<p>Fernández-Gámez et al. (2019) Pfizer, Bockstette and Stamp (2013) Adidas (2017) Wu (2019)</p>

Source: Researcher's own construction

It is assumed that the quest of organisations to create economic value while at the same time creating benefits for communities will lead to wider prospects for profitability and competitive advantage. This in turn could drive the 4IR, efficiency and economic development while inspiring and enticing customers, suppliers, workforce, shareholders, government and the general public to them (Porter 2014). In reality, SV has made several multinational organisations such as Nestlé and Coca Cola leaders in the industry. In addition, improved supply / value chains for organisations and the development of local economic strategies adopted by organisations such as IBM, Discovery Group, BMW and Unilever have improved their profits and enhanced their market position (competitive

advantage) whilst significantly contributing towards sustainable development (sustainability). Novartis, Inter-American Development Bank, and social entrepreneurs, the Gramen Bank, are among early adopters reaping the benefits of SV (Porter et al. 2012; World Bank 2013).

Based on the SV outcomes presented in Table 4.4, organisational performance, competitive advantage and sustainability (sustainable development) have been preferred as the outcomes to be investigated for this study (relevant to the mining industry) and will be further discussed in Chapter Five. In addition, these tables (Table 4.3 and 4.3) illustrate the relationship between factors that influence SV strategies and their possible outcomes. Furthermore, interconnections between SV approaches, factors and outcomes will be expanded on in Chapter Five. According to Porter and Kramer (2011), organisations must juxtapose their economic prosperity with social change by integrating social issues into core competencies and strategies as a long-lasting way of working.

#### **4.10 OPERATIONALISING SHARED VALUE WITH A STRATEGY MANAGEMENT FRAMEWORK**

This study aims to develop and test a SV organisational performance, competitive advantage and sustainability framework. The analysis of SV implementation strategies in the mining industry of South Africa will underpin this framework. It will assist organisations to apply SV theory and gauge competitiveness according to organisational prosperity, potential growth, and improvement of social conditions. In essence, this study examines the characteristics of SV, its interpretation and application using an integrative strategic management theory.

Strategy refers to how to move from a current situation to a prospective state, while the business model, on the other hand, is about the portrayal of a state (Dahan, Doh, Oetzel & Yaziji 2010). Mizik and Jacobson (2003:64) define organisational strategy as a longstanding plan of preposition envisioned to achieve a set of goals and objectives or rather a game plan for strengthening the performance and position of an organisation in a competitive environment. The SV concept postulates an innovative set of practices that are strongly recommended for organisations to incorporate and embed within their

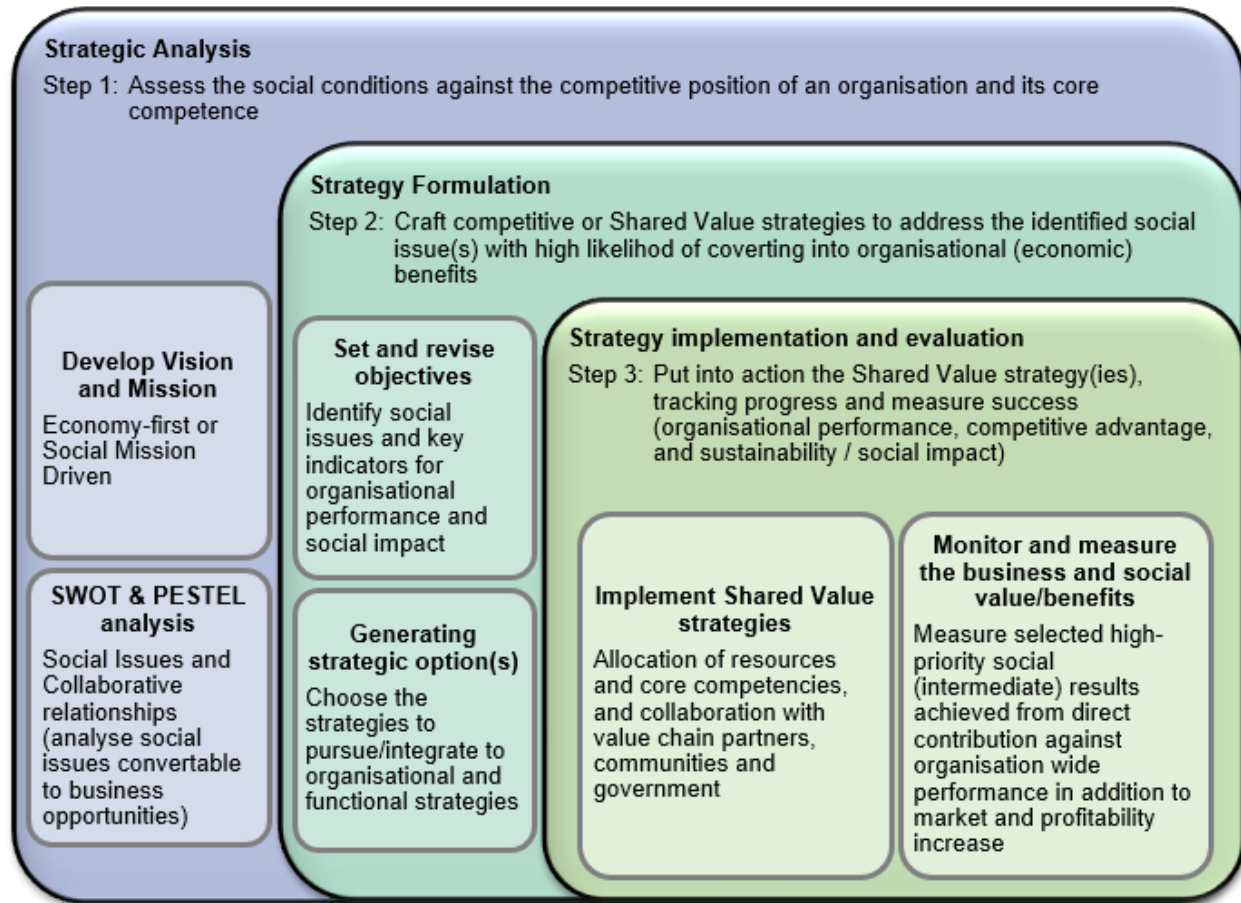
strategies and business models, for example, reconfiguring the value chain. Moreover, SV empowers the organisations to redesign products or services that fulfil the necessities of the underserved communities thereby developing new markets or innovating value chains or building a capable local cluster that supports the core business of organisations (Porter & Kramer 2011:15). The practice, therefore, of incorporating and applying SV initiatives into the organisational strategy requires a comprehensive review of mission, vision and values (Porter & Kramer 2011).

Accordingly, a five-stage framework can be used for adoption of SV as an organisational or competitive strategy (Pfitzer et al. 2013):

- identifying current global socio-economic threats and opportunities, and selecting opportunities that will increase profits;
- defining the selected need from a thorough review of the conditions of the community, enabling the development of a business case modelling socially innovative solutions and social results, and potential benefits to the organisation relative to costs;
- implementing an optimal innovation structure;
- assessing the social and corporate value; and
- stimulating value creation.

As numbers of organisations integrating SV into their organisational strategies and business models increase, a framework for implementing and measuring SV should be created. The framework in Figure 4.3 is developed using the traditional strategic management method.

**FIGURE 4.2: SHARED VALUE OPERATIONALISATION FRAMEWORK**



Adapted from: Awale and Rowlinson (2014:129); Porter et al. (2011:4)

Figure 4.2 demonstrates how organisations can integrate SV approaches into organisational strategies. This framework builds on the traditional strategic planning processes and the steps provided by Porter et al. (2011:4). Awale and Rowlinson (2014) propose that to implement SV strategies does not necessarily require deviation from the existing practice, but rather needs the existing frameworks to be refined. Accordingly, this framework in Figure 4.2 has grouped all phases of incorporating SV into the strategy according to three main categories of the strategic planning process, namely strategic analysis, formulation of the strategy, and implementation and evaluation.

#### **4.10.1 Strategic analysis - identification of social issues convertible into profitable business/market opportunities**

The organisational strategy involves carefully considered analytic computations and choices, crafted based on access to resources, reliable evidence (information) and core competence of the organisation (Shleifer & Vishny 2008:56). Strategic analysis, in Figure 4.2, refers to a process of identifying issues that can lead to SV by analysing social issues against the prospect of creating maximum impact (Hills et al. 2012).

Porter et al. (2011:4) propose that as a way of operationalising SV, organisations should start by identifying the social issues that are aligned and complement the organisational strategy and have the capacity to increase profits (maximise revenue generation and reduce cost). As per Porter and Kramer (2011), logical screening and analysis should be conducted to identify the social problems that communities are faced with, which have the potential of being addressed through the mechanism of capitalism. However, the opportunities should overlap with one or all of the three SV approaches or levers that drive the strategy. To achieve maximum impact, organisations must consider the resources available, value chains and competence, and make a strategic choice of pursuing community issue(s) with which they will have maximum revenue and reduce the cost. Therefore, organisations should pursue social issues for which by generating suitable solutions they will have a competitive edge (Barney 1991).

Finally, noting that SV is a long-term sustainability approach, innovative organisations can transition from creating shareholder value for stakeholder value to long-term capitalism (Lenssen & Van Wassenhove 2012) by integrating SV into their strategies. The organisational values and culture, unique resources, innovation, competence, and expertise significantly influence the crafting of competitive responses to the needs of the underserved market.

#### **4.10.2 Strategy formulation - integrating Shared Value strategies to organisational strategy and business models**

Strategy formulation is underpinned by the identification of competitive strategy adopted to cope with the competitive environment (Porter 1985), and the availability and utilisation of resources and core competencies (Barney 1991; Prahalad & Hammond 2003). Similarly, it can be argued that organisations that seek to integrate SV to their organisational strategy should determine whether to address the identified social issues through redesign of the products, services and market, redefining of the value chain productivity or developing the local cluster or through a combination of some if not all (Figure 4.2).

According to Wachira et al. (2020:6), organisations achieve greater SV when they incorporate social and environmental issues to strategy. Similarly, SV is operationalised by developing a business case which is premised on the social issue(s) to be addressed (Porter et al. 2011:4). Once organisations have identified the opportunities, they need to develop a standard business case based on a thorough investigation which takes into account the limitations and viability. The proposed business model should encompass the social and environmental development imperatives, costs and value creation in order to enable the final decision in terms of integration into the organisational strategy. Organisations that adopt SV as their core organisational strategy also reflect and align the proposition of SV in their organisational mission and vision (Porter & Kramer 2011).

According to Breidbach and Maglio (2016), SV has elevated community issues and social innovations to strategic level for improving the performance of organisations that ultimately creates benefits for communities. The Harvard Business Review article, titled “Innovating for Shared Value” (Pfitzer et al. 2013), stressed the importance of stakeholders' involvement in the processes of finding solutions for social problems as organisations need to meet or balance the competing interests of stakeholders (Harrison & Wicks 2013). This view proposes that the strategic choice of adopting SV as a competitive strategy of an organisation must receive buy-in from the key stakeholders to enable successful implement thereof.

In addition, Jiao, Wang, Niyato and Xiong (2018) suggest that value creation is integral to ensuring that organisations supply goods and services which fit the needs of communities and that value creation is a determinant factor that enhances the core competitiveness of the organisation. Nestlé (2017:6) believes that SV is a prerequisite to its long-term existence and profitability to shareholders. Nestlé targets empowering farmers, employees and communities as a way of creating SV by redefining its value chain and improving the local cluster (Nestlé 2015:80-81). Further, Nestlé (2015:80) claims that its organisational strategy comprises the development and implementation of various organisational policies, codes of conduct and commitments on rural development, natural capital, child labour and land rights (Nestlé 2015:80).

In line with Figure 4.2, organisations that pursue the SV concept as a competitive strategy have to make a strategic choice (step 2) about specific SV approaches that bring about the opportunity to simultaneously optimise profits while addressing social issues impacting on the competitive environment (Porter & Kramer 2011). In line with step 2 of Figure 4.3, Awale and Rowlinson (2014:1291) note, as part of strategy formulation, that organisations must start by recognising the social problem (input) which if resolved by the implementation of SV (strategic choice) or adoption of one or all approaches of SV can be converted into organisational opportunities (output). Moreover, this framework can improve the organisation's abilities to make strategic decisions on how to create SV without departing completely from the existing system.

In addition, to help generate the framework for incorporating SV into organisational strategy, organisations have to interrogate their micro and macro environment. This in particular concerns social issues, in order to formulate a logical strategic choice on whether reconceiving products or services integrates social benefits while maximising the profits, or whether value chain networks have gaps that hold back the organisation from experiencing the benefits of efficiency and flexibility. Further, this includes how the host communities can be empowered through the efforts of the organisation to develop the industry clusters such as local suppliers and enterprise development programmes and collaborate with complementary industries (Porter & Kramer 2011:16).



Accordingly, organisations incorporating SV to organisational strategy create a cycle of benefits for organisations and communities (Porter & Kramer 2011:13). Therefore, it can be argued that there could be other ways of creating SV over the approaches proposed by Porter and Kramer (2011).

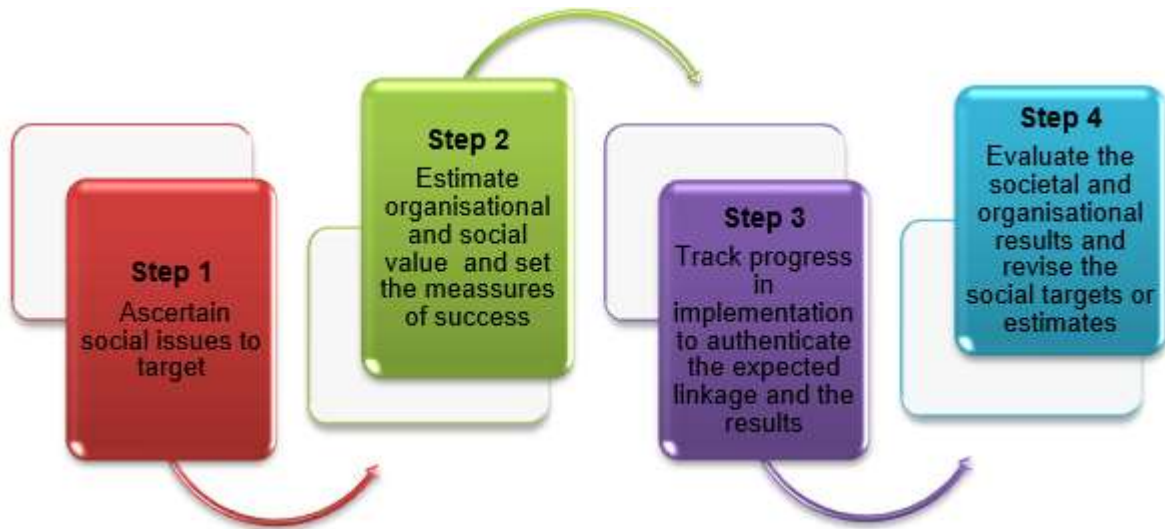
#### **4.10.3 Strategy implementation and measurement of Shared Value success**

Bockstette and Stamp (2011:9; 2015) state that the backbone of implementing SV strategies successfully is underpinned by the ability of organisations to track SV performance against a baseline and evaluate the underlying variations in the targeted issues. As a result, organisations that implement SV as a strategy require key competencies, expertise and an optimum innovation structure (Pfitzer et al. 2013). In line with Figure 4.3, Porter et al. (2011:4-5) propose metrics of measuring SV through a four steps process:

- analysing social conditions to identify issues to target (strategic analysis), developing the SV business case (strategic formulation),
- monitoring the progress of implementation of SV (strategic implementation and monitoring), and
- evaluating the results of SV and interpreting the impact of social change and financial performance of the organisations to open new value creation opportunities.

Figure 4.3 demonstrates an iterative process required to integrate SV into organisational strategy and the measurement of SV.

**FIGURE 4.3: INTEGRATING SHARED VALUE STRATEGY AND MEASUREMENT**



Source: Porter et al. (2011:4)

Post the integration of SV into competitive strategy (SV business case development) which serves as a roadmap for implementation, organisations should monitor the objectives set through the strategy formulation process which encompasses the inputs, key activities, outputs and financial performance of organisations (Porter et al. 2011:4-5) as indicated in step 2, 3 and 4 of Figure 4.3. According to Pfitzer et al. (2013), the following steps should be considered to measure the integration and success of SV:

- estimating organisational and community value connecting social impact to profit;
- setting intermediate measures and assessing implementation for authentication of the expected linkage;
- evaluating the value created by gauging the ultimate societal and organisational results.

In other words, measuring the impact of SV validates linkages between social change and organisational performance to establish whether the resources of organisations have been expanded on the course that created SV. Moreover, to measure the impact and success of SV, organisations should understand the relationship between socioeconomic values and define and develop qualified key-value indicators that should be used to analyse social value and economic performance of the organisations (Porter & Kramer

2011:5). Porter et al. (2011:2) argue that SV strategies are perceptible for stakeholders when measurable. The linkage between benefits for the communities and organisational profitability is intricate and influenced by numerous aspects that vary from one situation or organisation to the other (Lin, Yang & Liou 2009).

Porter et al. (2011:2) state that organisations which fail to track and reconcile the relationship between social impact and organisational performance miss opportunities for innovation and growth. However, due to the subjectivity and complexities of measuring social impact, the results are not usually adequate to conclude a genuine effect (Giddens 2011). Moreover, Porter et al. (2011:3) go on to claim that the challenges are not limited to quantitative assessment; instead, the understanding of social outcomes and interpretation of outcomes into social improvement and organisational opportunities is crucial. Despite this attempt by Porter et al. (2011) to recommend the ways of measuring the impact of SV, organisations, governments and academic researchers argue that a generally accepted system of operationalising and measuring the SV is yet to be developed. Hence, an SV measurement system relies on existing measurement systems which include sustainability measurement and reporting metrics, impact assessment tools, compliance, or reputation (Pfitzer et al. 2013), in the absence of a clear alternative.

SV relies on pragmatic approaches for measurement that link strategy to implementation and performance management in the absence of a generally accepted means of measure. This approach attempts to tackle challenges associated with the necessity to capture social results and their effect on organisational results. In line with Table 4.5, there are innovative solutions proposed to counter the six generic challenges of measuring SV (Porter et al. 2011:16). In addition to critics of measuring SV, and apart from early adopters of this measurement or organisational and industry-specific measurements, the rationality, validity, accuracy, and pragmatism is yet to be achieved and widely accepted (Botha 2018). Table 4.5 illustrates the generic SV measurement challenges and innovative ways that could counter those (Porter et al. 2011:15-17).

**TABLE 4.5: GENERIC SHARED VALUE MEASUREMENT CHALLENGES**

NO	MEASUREMENT CHALLENGE	MITIGATION APPROACH
1	There are endless issues affecting the communities that are to be addressed and assessed	Organisations should identify and measure the few high-priority social results that the SV strategy seeks to address
2	Assessing social impact for large populations	Organisations should establish measurable social outcomes early at the stage of designing the product or service to meet the specific needs of the communities
3	Organisational value accrues on a different timeline horizon to social value	Due to the different time horizon in which organisational results and social results accrue, organisations should measure intermediate social outcomes in order to refine SV strategy
4	Measuring organisational value for cluster development investments	Due to cluster development value being external, organisations should use proxy indicators that have a close or direct link to desired improvements to track organisational value.
5	Determining an organisation's attribution when strategies and activities require collaborations	Organisations should assess the social outcomes resulting directly their contribution.
6	Organisations desire an aggregation of social impact data	Organisations should aggregate results selectively and exclusively for the same social outcomes

Source: Adapted from Porter et al. 2011:15-17

The proposed solutions to the limitations of measuring SV presented in Table 4.5 lay the foundation on which Porter et al. (2011) proposed the framework for operationalising and measuring SV (Figure 4.2). Although Crane et al. (2014) critiqued Porter's framework for addressing only systemic issues, neglecting organisational issues, Porter et al. (2011) debunked the argument by explaining that industries differ and so is the context in which different organisations operate. However, despite this providing a good foundation for measuring SV, lack of general acceptance by organisations, business and academic communities, and professionals remains its strongest drawback (Crane et al. 2014; Szmigin & Rutherford 2013) compared to other theories that have developed to universal standards such as International Organisation for Standardisation 260000 for social responsibility (International Organisation for Standardisation 260000), Environmental

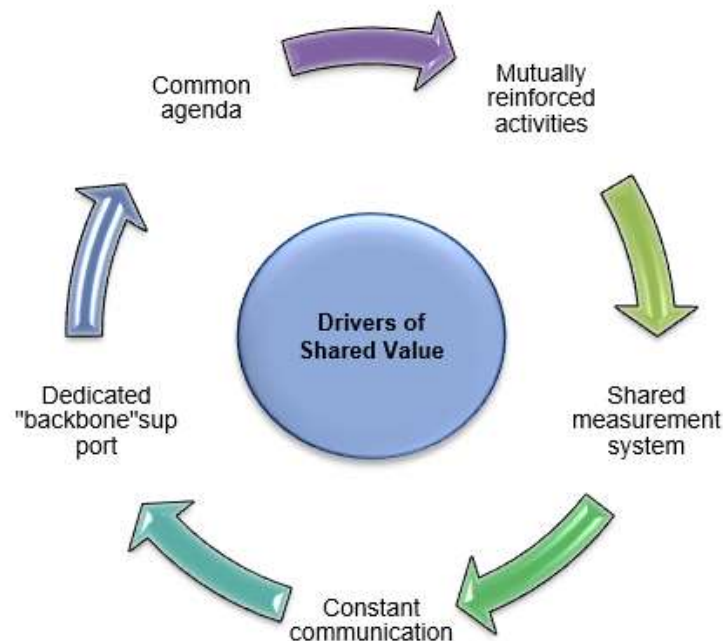
Management (International Organisation for Standardisation 14001), and the 10 principles of the UN Global Compact (Visser & Kymal 2015).

#### 4.11 THE ECOSYSTEM OF SHARED VALUE

The ecosystem of SV accentuates the construct of collective impact (Kramer & Pfitzer 2016:4). The construct of collective impact amplifies the essence of collaboration and combined efforts by organisations, government, civil society organisations and communities in guaranteeing social progress through the pursuit of financial opportunities in a way that creates a SV benefit which positively impacts the needs of communities (Kramer & Pfitzer 2016:3-4). The argument put forward by Kramer and Pfitzer (2016:4) is that organisations have the authority, influence and duty to initiate the collective impact, which needs the participation of all stakeholders in the ecosystem. Kramer and Pfitzer (2016:6) define an ecosystem as a system, arrangement or a group of interconnected elements, formed by the interaction of a community of organisms with their environment.

Figure 4.4 shows the network of key elements that can create SV.

**FIGURE 4.4: ECOSYSTEM OF SHARED VALUE CREATION**



Source: Researcher's own construction

In line with Figure 4.4, Kramer and Pfitzer (2016:6) claim that SV is not achievable until there is a common agenda, shared measurement system, dedicated support and reinforcement of common SV creating activities and constant communication. A common agenda means that the perspectives and interests of all stakeholders are considered to be aligned with the vision of SV and a collaborative effort of devising a unified solution to societal issues (Kramer & Pfitzer 2016:8). The shared measurement system must integrate key performance indicators for social change and economic outcomes must be predetermined and agreed to by all stakeholders. These will, therefore, serve as the measures of success of SV and as a reporting tool (Kramer & Pfitzer 2016:7). To reinforce the mutual activities organisations, communities, government and community-based organisations must focus on their core competencies and areas of strength in order to collaborate and contribute positively to mutual SV goals within the value chain (Kramer & Pfitzer 2016:7). Organisations must consistently engage with stakeholders through structured communication to build trust and regularly review and evaluate the attainment of SV goals (Kramer & Pfitzer 2016:8). Furthermore, organisations create dedicated 'backbone' support in the form of an employee or a consultant dedicated to overseeing the implementation of the SV strategy and support other activities identified, while advancing policy and mobilisation of the resources (Kramer & Pfitzer 2016:9).

Kramer and Pfitzer (2016:11) further assert that organisations that adopt the collective impact approach are not only able to address the problems of the communities but also to find economic success opportunities that have been missed by their rivals. In other words, this approach leads to the creation of a collective impact which defines vital roles of communities, government, NGOs and organisations. Therefore, it can be argued the collective impact compact approach is a critical success factor for application in SV.

#### **4.12 REVIEW OF SHARED VALUE CASE STUDIES**

SV has been commended for its ability to appeal to professionals and academics, elevating social issues to levels of strategy and policy development, and for building understanding of the potential for dual impact of capitalism (Crane et al. 2014). As a result, the SV concept has already been implemented by numerous multinational organisations

and two case studies are presented in order to investigate how other organisations incorporate SV into their strategies or core business. Nestlé (Case Study 4.4) will be discussed and followed by Rio Tinto (Case Study 4.5).

#### Case Study 4.4: Nestlé

Nestlé is among the world's leading food and drink organisations, operating approximately in 190 countries. The organisation employs over 308,000 people and its headquarters are in Vevey, Switzerland. Nestlé has a variety of food and beverage products, including breakfast and baby foods. The organisation does not only aspire to be the industry champion but also the benchmark for Nutrition, Health and Wellness. The organisation has been dedicated towards this goal throughout the years by supporting millions of people globally through jobs, supplier networks and other contributions to the development of economies as well as 36 distinctive SV creating initiatives. The business is based upon a fundamental principle that in order to create the long term value for the shareholders, they follow legal requirements and ensure that their products are sustainable. This is defined by Nestlé as creating SV. Accordingly, the organisation analysed its value chain and identified three areas with the highest opportunities to produce value for shareholders and communities, namely Nutrition, Rural Development and Water. (Nestlé 2016; 2018). This study considers Nestlé as a case study organisation for adopting SV competitive strategy which focused on refining supply chains for the cocoa industry in Ghana and dairy farming in South Africa.

In South Africa, Nestlé collaborated with the Department of Agriculture, Independent Development Trust and the University of Stellenbosch to provide institutional support to 40 farmers in Nestlé's milk supply as part of the BEE agricultural programme. Nestlé being the largest buyer of milk in the industry increased investment to improve infrastructure, and for the certification and procurement of specialised equipment to enable local farmers to participate in the market. Consequently, the initiative boosted Nestlé's revenues, improved the local farming industry and access to the market whilst solving other social problems in the local area (Joehr 2013). In addition, the Sustainable Agriculture Initiative which is the most widely accepted sustainable procurement and agriculture programme in the world, creating benefits for all stakeholders. In 2018, Nestlé rural development projects had supported more than 680,000 farmers (Nestlé 2011:99), while more than 440,000 farmers benefited from capacity-building initiatives (Nestlé 2018:58).

On the other hand, Nestlé launched the Cocoa Plan in 2009 in response to decreasing cocoa and chocolate supplies (Nestlé 2010). The cocoa industry at the time faced a number of environmental, social and governance concerns, including poverty of farmers, degradation, deforestation and limited access to supply chain governance. The Nestlé Cocoa Plan was rolled out with cocoa farmers in various countries, including Ghana and Côte d'Ivoire (Nestlé 2018:30). The plan aims to assist farmers to overcome the challenges they face by improving farming, quality of life and enhancing the quality of cocoa through capacity building in better farming practices, providing high yielding plants, promoting gender equality and combating child labour. In 2018, cumulatively,

Nestlé had distributed about 14 million plants, reduced cases of child labour in Côte d'Ivoire and Ghana from 11,130 children to approximately 981 and procured 198,155 tons of cocoa through the Nestlé Cocoa Plan (Nestlé 2018:60). These initiatives are in line with the philosophy of SV and seek to generate value for both Nestlé and the community at large. Given that the initiatives have been in place for a considerable period of time, they provide a meaningful case study of information relevant to this study. This study answers the research questions focused on these debates, knowledge gaps and research aims.

In order to bring the research into perspective, this case study does not only briefly present Nestlé's SV approaches to agriculture but also discusses the important issues of value chain inclusivity. SV is not about philanthropy or ethics but is a logical consequence of a deeper understanding of competition and creating economic value (Porter & Kramer 2011:16-17). Nestlé (2018:31-60) asserts that SV approaches have increased profitability, improved quality of life for local communities, assessed and addressed the impact of human rights, increased employment, transformed the participation of local suppliers in the contemporary economy and minimised the environmental impact of their operations. Through incorporating social issues into core competency and operations, SV aims to combat the trend of 'decoupling' or 'disjunctive' organisational discourses and practices that CSR has been criticised for (Jamali, Lund-Thomsen & Khara 2017:6-7). It can be argued that SV creates benefits for all stakeholders, not for shareholders only.

Nestlé asserts that SV is a core component of its organisational strategy that has guided its operations over 150 years of history (Nestlé 2018:10). Nestlé also sees SV as the way in which the organisation addresses global issues, in particular the Sustainable Development Goals (Nestlé 2017:11, 2018:10). In addition, the organisation views SV as a necessity for its long-term survival and shareholder profitability. Nestlé describes conformity with both the laws and human rights norms and operating in an environmentally friendly form as pillars over which it builds SV (Nestlé 2018:10). Hence, Nestlé focuses on three areas through which it believes it can have "the biggest positive impact on livelihoods and sustainable development": nutrition, water, and rural development (Nestlé 2015:10). These focus areas have been chosen for their potential to generate economic value, for instance by developing new business opportunities and resolving issues within the value chain of the organisation (Nestlé 2015:16-17). These focus areas are considered to be the SV impact areas (Nestlé 2017:10).

Nestlé sets out its vision in its Rural Development Framework to address developmental and societal problems affecting the population in the proximity of its operations (Nestlé 2016:96-99). The framework defines multiple focus groups, farmers, employees and communities and eight rural development dimensions on which Nestlé aims to have the positive impact through SV approach, namely farmers' income, farmers' competence, water, female empowerment, nutrition, and natural resources (Nestlé 2015:81, 2018:30-61). Nestlé's procurement programs, such as the BEE Agriculture Initiative and the Nestlé Cocoa Program, are the core drivers of the implementation of its vision for rural development. In 2018, Nestlé reported an organic revenue increase of 3% and the underlying operating profit margin increased by 17%, while its cost-reduction initiatives provided a 50-point improvement over expectations (Nestlé 2018).



Schaltegger and Burritt (2018) note when similar practices are clustered together under the umbrella of sustainability, social and environmental concerns can lead to the economic prosperity of organisations. Nestlé acknowledged that the importance of SV is directly linked to the common business concern of profit maximisation. Nestlé (2018:3) acknowledges that an organisation achieves sustainable prosperity by creating value for its shareholders and communities by ensuring that its activities and products make a real difference to society while contributing to profitability.

Based on the review of Case Study 4.4, it is clear that Nestlé has adopted SV as its core organisational strategy. Rio Tinto's Case Study 4.5 shows that vast opportunities exist for adoption of SV within the mining industry.

#### **Case Study 4.5: Rio Tinto**

Rio Tinto operates in nearly 35 countries in mines, smelters, refineries, distribution centers, server farms, and research and development laboratories. It has employed approximately 47,500 people. The Rio Tinto Group is comprised of Rio Tinto plc which is listed in London and headquartered in the UK, and Rio Tinto Limited, listed on the Australian Stock Exchange (Rio Tinto 2018:3). The organisation designs its operations for sustainability and strives to significantly shape the development of communities in which mining operations take place, as well as creating benefits for society as a whole. Accordingly, Rio Tinto collaborate with communities in an inclusive way and value their dignity, rights, their heritage and their value system. Over the decades, the organisation considers SV to be centre to its continued effort to find ways to improve its relationship with communities in order to create social benefits and economic opportunities for communities, local partners, customers and shareholders. Rio Tinto creates SV by creating jobs for host communities, providing business opportunities for local suppliers by setting local sourcing targets and by investing in collaborations, and research and development (Rio Tinto 2014; 2018:10). The vision of Rio Tinto is to empower communities to promote their own affluence, and this is done in a variety of ways.

Rio Tinto also works in collaboration with universities and local and national governments to help build strong and diverse local economies. A programme was launched in Western Australia, where an Iron Ore mine is located, in partnership with Western Australia Regional Chambers of Commerce and Industry to help build capacity for local small suppliers in areas such as protection services, marketing and tender writing (Rio Tinto 2018). Rio Tinto's Diavik Diamond Mine collaborated with host communities, contractors, government and universities to build a local workforce and supplier base that enabled the organisation to recruit 62% of its employees from local communities and source about 71% of local goods and services from the local cluster that has been developed (Odia 2018). The organisation not only saved in terms of transport costs and empowered communities by providing job creation opportunities, but also contributed to the regional economic growth by developing and sourcing from the enabling local cluster of emerging suppliers (Porter 2014). In line with this

employment and regional economic development policy, in Mongolia's Oyu Tolgoi mine, approximately 93% of mine employees are Mongolian, and between 2010 and 2018 the Rio Tinto spent \$2.7 billion on local Mongolian suppliers. Overall, Rio Tinto (2018:43) developed nearly 37,000 suppliers at more than 120 locations in 2018, increasing indirect employment opportunities and developing local economies, Rio Tinto has created SV not only by creating jobs and empowering local suppliers to solve social problems, but also by creating financial benefits for the organisation in the form of improved accessibility, improved efficiency and lower recruitment costs.

Rio Tinto (2018) has partnered with the Government and industry in Canada to set up the Center of Excellence for Energy Efficiency to help organisations develop energy efficiency and clean energy innovations, and a new Quebec economy has been developed from this initiative. Rio Tinto (2018:57) has reduced its carbon footprint by 43% since 2008 and by 2018, 76% of energy is generated from low-carbon sources and 71% from renewable sources (hydro, solar and wind). It can be argued that Rio Tinto created SV by refining its energy supply. In addition to this innovation, Rio Tinto is recognised as a leading organisation in digital mining technology. Rio Tinto in collaboration with Komatsu Ltd developed and manufactured its autonomous trucks. Rio Tinto reported that the autonomous trucks in the Hope Downs 4 Iron Ore mine were 14% more efficient than the best staffed mine in the Pilbara (Ker 2015), and saved 13% of loading and transportation costs (Rio Tinto 2014). Pilbara Mine became the standard bearer of Rio Tinto for self-driving vehicles in its strategy of implementing SV by redefining productivity in value chain. Rio Tinto also developed a fully automated train network for their iron ore mines in the Pilbara region of Western Australia, with an initial capital of \$518 million. Automated trains would help solve the critical skills shortages of the industry while increasing productivity of its iron ore activities (The International Institute for Sustainable Development 2016:13).

Rio Tinto (2018:36) also works closely with indigenous communities in order to observe the value they attach to their physical, social and historical connection to the surrounding environment. For instance, as part of nature conservation initiatives, local aboriginal groups in Pilbara, Western Australia, have archived some 32,000 rock art motifs, most of which were over 40,000 years old. In 2018, the organisation has spent approximately \$192 million to support traditional landowners and community investments in health, education, cultural heritage and the establishment of the Gulkula Regional Training Centre, which offers on-the-job learning opportunities for local Yolngu people (Rio Tinto 2018).

Rio Tinto (2018:10), similar to Nestlé (2018), recognises that the organisation contributes to the organisation's prosperity and sustainable development by creating value for its shareholders and communities. SV can be generated by facilitating the development of local clusters, which is achieved through strengthening the organisation's ecosystem, evidenced by community development investment, empowerment of local suppliers and collaboration organisations and regional infrastructure to improve productivity (Porter & Kramer 2011). Therefore, Rio Tinto pursues SV strategy and a policy of regional economic development.

Although Nestlé and Rio Tinto adopted SV as an organisational strategy, other organisations are yet to implement SV, whilst still others face difficulties in the process of adoption.

#### **4.13 SHARED VALUE OPPORTUNITIES IN THE MINING INDUSTRY**

Although there are limitations on the adoption and implementation of SV, there are also opportunities and benefits. Porter (2014) claims that the mining industry has potential for creating impact on people's lives because of its distinctive features. Furthermore, Porter (2014) notes that only in 2012, the mining industry generated revenues worth \$3.5 trillion, representing essentially 5% of the world GDP. Moreover, the nature of the industry offers vast possibilities for SV creation, and these factors include the long-term orientation of mining operations, myriad levels of contact with communities and government with mining operations being geographically based in mostly underdeveloped areas with rising socioeconomic needs, poor infrastructure, high unemployment and illiteracy rates. The McKinsey Global Institute (2013) estimates that around 80% of developing nations with mineral resources endowment have a per capita income below the global average, while more than 69% of their citizens are in severe poverty. Furthermore, globally, an investment of \$11-\$17 trillion in capital will be required by 2030 to bring over 540 million people out of poverty through economic and social transformation, while prospects exist to share \$2 trillion in resource infrastructure investments and increase productivity through cooperative actions. SV has become a road map to tackling the source of social problems and to activate economic prospects for organisations, society and governments (Porter 2014), in particular through collaborative action.

In examples of SV creation in the mining sector Anglo American in South Africa, which constructed a water reclamation plant, needs to be included. The organisation recovers more than 60% of the capital investment either from the new water revenue stream supplied to BHP Billiton and the local municipality or from the savings of mater management compliance and internal water usage related costs (Sharevalue.org 2019). AngloGold Ashanti in Ghana is tackling health issues (malaria) by implementing an innovative program involving multiple interventions at the community level, resulting in

increased productivity and saving people's lives. BHP Billiton in Chile has developed approximately 250 top class suppliers of goods and services to Chilean mines and those in foreign countries. As a result, it lowered the input costs of the organisation and increased sustainable growth and increased opportunities for local economic networks to expand for the benefit of communities (Sharevalue.org 2019). Similarly, Rio Tinto in Canada in collaboration with local communities, contractors and government increased pioneers innovation of renewable energy, digital mining technology and sources over 70% of goods and services from the local suppliers whom they empowered as part of the organisation's regional economic development policy (Rio Tinto 2018). Outside of the mining industry, organisations such as Discovery Health, Nestlé and others, claim to implement SV.

Mining organisations, in collaboration with governments, communities, NGOs and other value chain participants, have endless opportunities for creating SV. Table 4.6 shows the possible areas from which SV may be created.

**TABLE 4.6: SHARED VALUE CREATION OPPORTUNITIES**

FOCUS AREAS	SHARED VALUE APPROACH	SOCIAL DEVELOPMENT NEEDS	ECONOMIC VALUE
Fiscal contributions	Organisations comply diligently with the legislative and regulatory requirements as well as ethics and standards, for example taxes, royalties, equity and transformation obligations	Alignment of organisations with the social development needs	Increasing profitability by pursuit of social development priorities

FOCUS AREAS	SHARED VALUE APPROACH	SOCIAL DEVELOPMENT NEEDS	ECONOMIC VALUE
Environmental protection	Integrate environmental threats to core business activities and strategies, beyond minimising pollutions and environmental degradation for example investing in recycling and renewable energy.	Safeguard of the natural resources required for social stability and avoidance of natural disaster and other calamities that threaten their livelihood.	Building resilient communities and value chains that contribute to value creation processes of the organisations and creating new market for environmentally conscious customers.
Employment opportunities and capacity building	Investing in community, employees and local suppliers' capacity building programs geared towards core competencies and critical skills.	Increased employment prospects and equitable earnings as well as the development of the local economy.	Reduced employment costs and improved access to competent suppliers and local expertise.
Infrastructure development	Develop sustainable local infrastructure in collaboration with government bodies, communities and other collaborative stakeholders.	Access to the social change and economic development enabling infrastructure such as roads, schools, houses, healthcare facilities and water and energy supply. Communities would also benefit from empowerment of local suppliers and promotion of inclusive economy.	Minimise the costs of water and energy supply and improved the efficiency of the value chain or generate revenue or cost savings. In addition, there are opportunities relating to development of local clusters that support mining activities.
Social welfare	Contribute to sustainable development by targeting for example SDGs or prioritise areas such as housing, education, healthcare and mining site rehabilitations and other initiatives.	Joint efforts in needs to the communities without depending on government interventions which may not be enough on their own, and as a result communities would also benefit from improved local healthcare and education.	Expanding the pool of potential and productive (healthy) employees in host communities and reducing the well-being costs incurred by organisations as a result of an unhealthy population.

FOCUS AREAS	SHARED VALUE APPROACH	SOCIAL DEVELOPMENT NEEDS	ECONOMIC VALUE
Collaborations and alliances	Integrating stakeholder interest and influence across the strategy.	Interest and underserved needs are identified and addressed.	Increase capacity to develop socially innovative solutions and adaptive value chain networks.

Source: Adapted from IMDC (2015) and OECD (2016)

SV opportunities shown in Table 4.5 are an open window not only for improving organisational performance and competitiveness but also for stimulating sustainable development in the underdeveloped countries. Communities and organisations should be equally concerned that the expected benefits and opportunities stemming from local procurement and employment (Table 4.5) will eventually decline. Admittedly, communities, organisations and governments must focus on finding additional ways through which mining can still connect to the development of local economy and societies. According to Cosbey, Mann, Maennling, Toledano, Geipel and Brauch (2016) and Hills et al. (2012:4), there can be four additional ways of creating SV opportunities outside of sourcing and job opportunities:

- *Downstream (forward) linkages* pertain to advantage of the extracted commodities by refinement, smelting as well as further downstream refining of the commodities before being transferred to the user.
- *Horizontal (lateral) linkages* refer to the creation of new non-mining industries that adapt technologies designed to support the value chain associated with mining.
- *Expertise (technological) linkages* that contribute to the transfer of knowledge and technological competence to government-owned organisations, miners and employees participating in the value chain.
- *Spatial (infrastructure) pathways* are linked to benefits of the infrastructure built for mining-industry ventures (like railways) benefiting certain market participants.

The link between the prospects for SV and potential benefits and the SDGs is unparalleled. Hence, a strong organisational commitment to SV philosophy, ingenuity and alliance building that contributes to the achievement of UN SDGs by alleviating poverty and inequality in all its dimensions by 2030 is a necessity. It can be argued that SV appears to be a new growth model for inclusivity, competitiveness and sustainable development. The concept of SV is gaining momentum in South Africa as some organisations are starting to incorporate sustainability into the core business strategies (Hills et al 2012; Discovery Group 2019). However, in addition to the SV challenges discussed previously, there are current limitations hampering SV.

#### **4.14 CURRENT LIMITATIONS OF SHARED VALUE**

Porter and Kramer (2011) persuade organisations and policymakers that addressing the social problems triggers organisations to discover and pioneer innovative solutions for community development which do not only resolve macro social problems, but also enhance the productivity of organisations, expanding the markets, and reinforcing their reputation (Porter & Kramer 2011:5). Despite the above benefits being attributed to the application of SV, the efforts of incorporating SV to organisational business strategies and models are faced with numerous limitations (Porter & Kramer 2011).

The first limitation that hinders organisations is neoclassical thinking that seems to overly suggest that organisations carry incremental cost which reduces profits as a result of adopting SV (Porter & Kramer 2011:7). This neoclassical mindset is a strong motivator for organisations to rebuff the adoption of SV strategies. Often this mindset is caused by the SV concept being relatively new in the field of management literature and the organisational environment, and with future research being undertaken points of references will emerge to iron out this weakness.

The second limitation that hampers adoption and integration of SV to organisational strategy is the traditional mindset which states that only governments and the NGOs are solely responsible for solving social problems, and the function of organisations is to make profits (Porter & Kramer 2011:7). This mindset is not only new, but has also haunted the implementation of the CSR concept as well. The traditional mindset recognised CSR

programs as a cost which organisations incurred primarily to improve their reputations. This traditional mindset is perpetuated by Friedman's (1970) claim that government should solely be responsible for solving social and environmental problems because it is government that collects taxes and sets the social programmes on which taxes are allocated. These social programmes may amongst others include unemployment and poverty alleviation, strengthening of education and healthcare systems and pollution control priorities.

The third limitation to the application of the SV practices is the multiplicity of SV interpretations. While SV is articulate on the creation of financial (economic) value for organisations, the theory fails to define societal value (Porter & Kramer 2011). Consequently, the question of which values are included and excluded in SV, which processes are followed and the supporter of the values are subject to the interpretations of each organisation (Nelson & Tallontire 2014). Furthermore, the exact extent to which SV differs from strategic CSR is not always explicit (Crane et al. 2014:134), this is due to a lack of SV 'benchmark'. More research should still be carried out on how various organisations define and interpret SV and the social problems they intend to solve by implementing SV strategies (Blowfield & Dolan 2014:29; Corazza et al. 2017:2); the level of analysis and measurements of SV (Dembek et al. 2016:245); in what way other value chain actors respond to SV practices (Biswas-Tortajada & Biswas 2015:9); and the response of local communities to SV practice (Bodruzic 2015:132).

The fourth significant limitation is the lack of generally accepted measurement systems of SV. The SV concept currently does not unequivocally state what to measure and how such indicators should be measured. Porter et al. (2011) by own admission lament that organisations are measuring social and environmental performance without linking business performance and the social impact. SV measurement also differs from the existing measurement systems, and instead, builds on existing measurement systems related to sustainability, impact assessments, reputation and compliance (Porter et al. 2012:10-12). Perhaps, had Porter and Kramer (2011) discussed absolute SV measurement of success at different levels and dimensions of organisations and communities, it would have set the standard for universally acceptable practices,



therefore, making it easy for organisations to adopt the practice. However, future research will address this weakness.

#### **4.15 CHAPTER SUMMARY**

There is a conception that organisations can gain competitiveness, improve performance and gain sustainable growth through social sustainability. However, not all organisations give social issues priority when crafting their competitive strategies. For a long time, the attention of organisations was directed towards competitiveness, while community concerns continued to be treated separately from the core business (Awale & Rowlinson 2014). Mining organisations should adopt SV in developing their policies, approaches, processes, business models and strategies to create benefits for the communities without deviating from the core purpose of organisations (which is profit maximisation). The framework proposed by this study is shaped by the strategic management framework and existing SV literature. The framework will assist mining organisations with the application of the SV concept, provide a mechanism of evaluating their business value, and future growth and development. Furthermore, the framework proposes measures of both social and economic value jointly (Porter et al. 2011). Given the intricacy of the mining industry and global challenges, to remain competitive, organisations need a broader understanding of SV. What is essential about SV is the centrality of balancing and harmonising the competing interest of various stakeholders, particularly, the interest of the government, organisations, environment and society. This study also contributes to strategic management theory by adding a new business strategy (SV) to enhance competitiveness, performance and sustainability.

Overall, this chapter conceptualised SV and discussed the evolution and distinction of SV from CSR and capitalism. Critiques of and debates around both the CSR and SV were also presented to foreground the discussion of the SV perspectives and approaches. In order to explain different ways of implementing SV, various case studies of SV were also discussed in this chapter. In addition, the chapter discussed the factors that influence SV and the potential outcome thereof. The chapter further proposed a framework for adoption

and implementation of SV using the traditional strategic framework. The ecosystem of SV was also explained in detail, including the opportunities and the current limitations of SV.

The next chapter presents the proposed hypothetical model of SV in the SA mining industry and operationalises the study's independent variables, namely *environmental impact, employment conditions, value/supply chain considerations, automation and innovation, infrastructure development, government regulations* and *legislative conditions*. In addition, SV as the intervening variable will be elaborated on. The chapter also elaborates on the proposed dependent variables, namely organisational performance, competitive advantage and sustainability. Literature and anecdotal evidence supporting the proposed relationships will be presented.

## **CHAPTER FIVE**

### **HYPOTHESISED MODEL OF SHARED VALUE PERCEPTIONS WITHIN THE MINING INDUSTRY**

#### **5.1 INTRODUCTION**

As previously mentioned, this study aims to test a model on SV in the mining industry. Following the extensive literature review on the SV concept, it is possible to present the SV model, relevant to the mining industry, to be tested in the empirical investigation of this study.

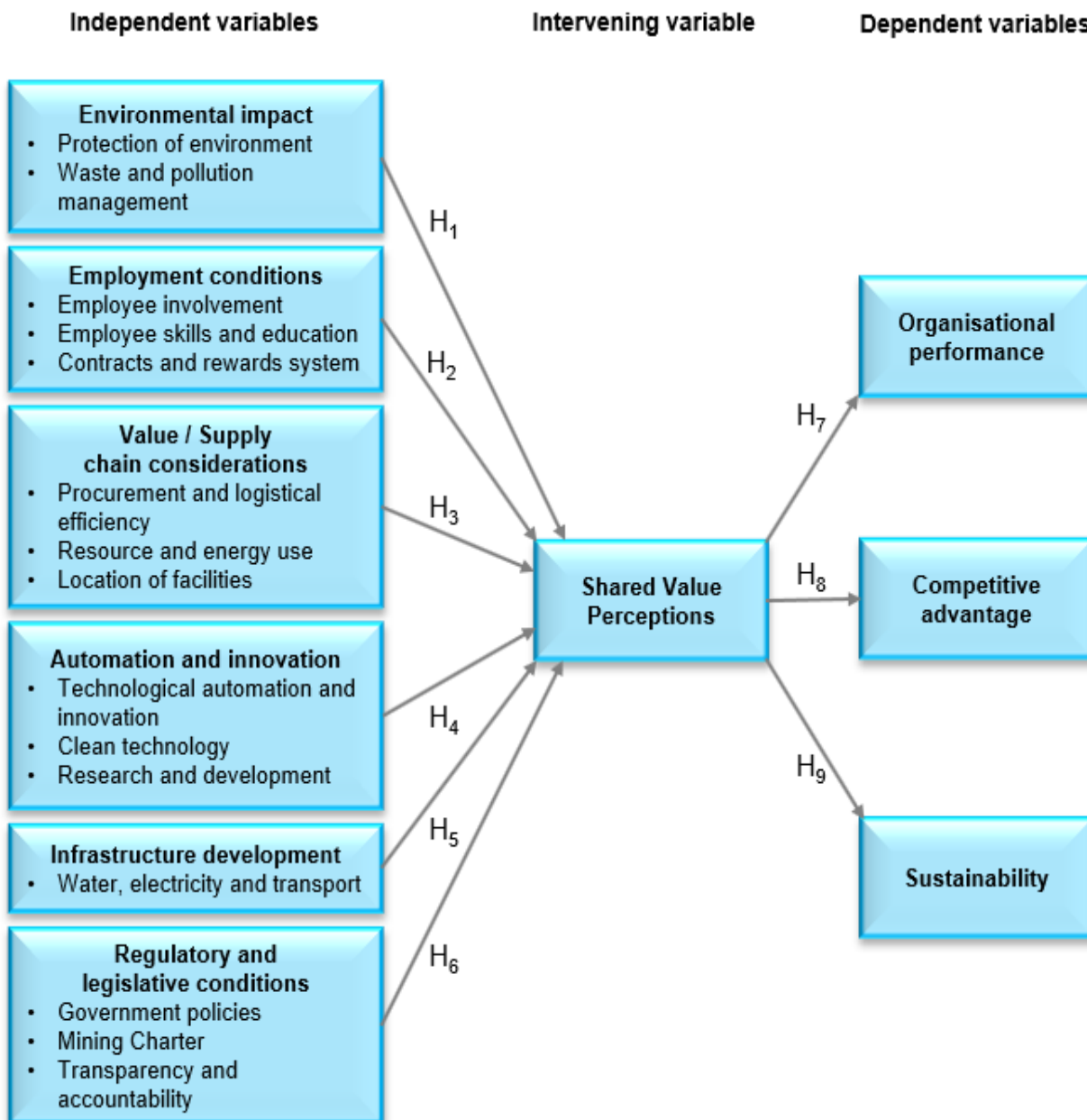
This chapter clarifies the operationalisation of the research variables and the formulation of the hypotheses relevant to this study. This chapter also discusses some of the experiential studies supporting the study's hypothetical model. Chapter Four identified and discussed factors influencing SV perceptions and strategies. It has been acknowledged that SV is a concept that is in its infancy stage, an umbrella construct for related theories such as Corporate Social Responsibility, Bottom of Pyramid, Integrative Social Contract Theory, Social Exchange Theory, Social Entrepreneurship and social innovation. Furthermore, the difficulties in measuring SV remains a fundamental limitation. The suggested theoretical model, as shown in Figure 5.1, integrates various factors leading to SV perceptions as independent variables and improved organisational performance, competitive advantage and sustainability as dependent variables. The perceptions regarding SV in the mining industry is regarded as the intervening variable between the independent and dependent variable relationships. The proposed model is based on a literature review of SV (as presented in Chapters Two, Three and Four) and its possible influence on organisations' organisational performance, competitive advantage and sustainability.

Specifically, this chapter will present anecdotal evidence on a hypothesised model of Shared Value in the SA mining industry and operationalisation of the research variables and statement of the hypotheses.

## 5.2 PROPOSED HYPHOTHESISED MODEL OF SHARED VALUE

The suggested theoretical model shown in Figure 5.1 indicates the relationships and linkages between independent, intervening and dependent variables of this study. Subsequently, the research variables are operationalised and hypotheses formulated.

**FIGURE 5.1: SHARED VALUE INFLUENCE ON ORGANISATIONAL PERFORMANCE, COMPETITIVE ADVANTAGE AND SUSTAINABILITY**



Source: Researcher's own construction

Figure 5.1 demonstrates how the independent variables (environmental impact, employment conditions, value/supply chain considerations, automation and innovation, infrastructure development and regulatory and legislative conditions) influence the intervening variable, namely the perceptions regarding SV in the mining industry. In turn, SV perceptions as the intervening variable influences organisational performance, competitive advantage and sustainability (dependent variables), which is measured by financial and non-financial (social and environmental impact) aspects.

### **5.3 OPERATIONALISATION OF RESEARCH VARIABLES AND STATEMENT OF THE HYPOTHESES**

SV approaches were discussed in Section 4.8 of Chapter Four. SV strategies or approaches include the following elements, namely environmental impact, employment conditions, value/supply chain considerations, automation and innovation, infrastructure development and regulatory and legislative conditions. An organisation that is integral to the development of communities should strategically incorporate these six elements into its operational practices and strategy. Specifically, organisations prioritise the activities and efforts based on their business philosophy and principles and the interest and needs of their stakeholders (Polášek 2010:136). Therefore, these elements have been selected to constitute the independent variables of this study, as these are relevant to the mining industry. Section 1.6 in Chapter One also motivated the selection of these specific variables. The sub-sections below discuss the correlation between the variables, and provide practical and anecdotal support for the ensuing hypotheses.

#### **5.3.1 Independent variables**

The paragraphs below addresses the independent variables, mainly composed of factors that could lead to SV.

##### **5.3.1.1 *Environmental impact***

For this study, environmental impact as a variable affecting SV refers to the interventions that an organisation can implement to mitigate its negative impact on the natural resources in a way that creates benefits to communities and the organisation, including

the economic use of the natural resources, environmentally friendly packaging, pollution management, recycling and waste reduction, renewable energy and water preservation, pollution control and nature conservation. The creation of SV according to the European Union (2011), requires organisations and their stakeholders and society as a whole to recognise, avoid and minimise their future adverse environmental effects. The most critical aspects of environmental impact management include the use of resources, water and energy consumption, the treatment of emissions and the disposal of waste (pollution) in the most sustainable way feasible (The European Commission 2015:33), such that it creates benefits for communities and organisations (Edgeman & Eskildsen 2014).

Edgeman and Eskildsen (2014) note that by harmonising the contending and corresponding priorities of different key stakeholders, including the communities and the environment, organisational prosperity can be accomplished. As a result, communities and environment are perceived to be a source of sustainability (Stubbs & Cocklin 2008) and creation of SV (Porter & Kramer 2011). Accordingly, the role of nature is emphasised by Haigh and Griffiths (2009) who state that the economy, organisations and communities are all dependent on ecology for their very existence and growth opportunities. Organisations that integrate the environmental impact of their operations into organisational strategies and operational processes can benefit from the new economic opportunities (Polášek 2010:141). For instance, an organisation that is devoted to the cause of keeping a sustainable environment has improved chances of obtaining major contracts from governments and large organisations and a better chance of gaining potential customers, particularly those who are concerned about the environment (Adidas 2017; Wu 2019; Fernández-Gámez et al. 2019:4). Similarly, Gittleson (2012) argues that environmental problems can lead to competitive advantage, adaptive innovation and the development of stakeholders' interests.

Porter and Kramer (2011) note that organisations can achieve value by optimising logistics and promoting the efficient use of energy, water and raw materials, as well as ecofriendly packaging, as a step towards redesigning value chain efficiency. In 2009, Intercontinental Hotels Group launched a Green Engage scheme with the ultimate purpose of reducing water and electricity consumption and improving waste disposal

within its hotel group, effectively reducing its operating costs by around 25%. In addition, the approach has been applied across 1,900 hotels with an online measuring tool available to hotels to test the level of real SV generated by the multiplier effect. In researching the effects of SV on hotel efficiency, Fernández-Gámez et al. (2019:6) found that 90% of 130 hotels in Malaga, Spain installed energy-saving air conditioning units, using solar panels and automatic on/off systems to boost efficiencies while profits have increased by 4.57% per annum since 2017. Studying SV in the tourism and hospitality industry of Malta, an island country in Southern Europe, Camilleri (2012) found that there was a significant relationship between 4 and 5-star hotels that integrated environmental saving issues into their operations and strategies. Hotels reprocessed garden waste and also used bio-fertilizers instead of toxic chemicals, creating mutual benefits such as efficiency, waste prevention, pollution prevention, and recycling also led to significant cost savings. Since 2015, Adidas has been working with an environmental organisation in the sporting world to collect and reprocess sea waste for the production of sportswear (Adidas 2017). This is not only consistent with Porter and Kramer's (2011) proposal of SV, which is closely linked to ocean waste reduction with core competence (sportswear). Consequently, customer base, productivity and annual sales increased as well as control of environmental pollution. Moreover, to reduce the adverse effects of carbon emission caused by coal-fired power generation, Rio Tinto (2018) has invested in clean energy technologies such as solar and wind power, resulting in significant savings in energy costs and increased energy supply reliability, while reducing carbon emissions by over 65%.

Based on this debate, the following is hypothesised:

H<sub>1</sub>: There is a positive relationship between *environmental impact* and perceptions regarding SV in the mining industry in South Africa.

### **5.3.1.2    *Employment conditions***

This study defines conditions of employment as anything concluded between employees and organisations that offer opportunities for employment and empowerment, with dimensions including safety and health, training and career development, equity (transformation) and diversity, fair remuneration and provision of other benefits such as

housing. Polášek (2010:139) defines the place of work as a place where employees spend most of their time and, inevitably, employment conditions affect the quality of their lives, including health and quality of life in society and families. However, there is no universally accepted definition for working conditions.

Wiskow, Albrecht and de Pietrolt (2010:6) refer to working conditions as the employment and work, whereas the working environment refers to aspects that influence life and work, which include the following dimensions:

- types of contracts,
- remuneration and benefits,
- safety and health at work,
- equity and diversity,
- professional development, and
- how tasks are allocated as well as staffing in general.

Similarly, Fernández-Gámez et al. (2019:2) state that the value chain of organisations is affected by many social issues, such as health and safety at the workplace, employee work practices and gender equality and diversity at the workplace. Mamun and Ahmed (2009:632-635) suggest that 'family-friendly' policy making organisations are increasing their ability to attract and retain employees and are therefore gaining a competitive advantage.

Porter and Kramer (2011) state that contracting to other locations for certain aspects of the value chain attracts costs and inefficiencies which counterbalance lower wage and input costs. This means that outsourcing to pay lower wages leads to a loss of productivity as rivals invest in developing strong relationships, core competencies and infrastructure that support their operations and community development. The organisations are expected to meet broader expectations and standards for the quality of their employees' working lives beyond salaries.

SV is a strategy at the core of the business which allows organisations to build core competencies that reduce input cost and greater value for a comparable cost to its rivals



(Porter & Kramer 2011). This core competence at the level of the redesign of the product or service and redefining of the productivity value chain, requires that organisations should invest in training and education of their employees and future recruits (Moon et al. 2011). The core competency of organisations is in establishing competitive internal capabilities by organic incorporation of value chain interventions in a manner which is differing from rivals' activities (Kang & Na 2020:3). Through offering free new software, educating students, and assigning volunteers to workers, Microsoft empowers local colleges to raise education levels in specific areas and improve opportunities for people to find jobs, thus increasing prospects for jobs and saving the cost of recruitment in future (Moon et al. 2011). Rio Tinto (2018) similar to Nestlé (2016; 2018) invested in building core competencies of their employees in areas of technological innovations and local communities to become its suppliers in line with regional economic development policy in Canada. Workforce training and growth and recruiting from the local communities contribute to community development through the reduction of unemployment, which in turn also reduces poverty levels and illiteracy and improves the standard of living, according to Porter et al. (2011:1-3).

Pronk et al. (2015) conducted a study to explore how a workforce health program can improve the efficiency of employees, with emphasis on the influence of improving the well-being of employees on the creation of SV. The findings of the case study have shown that by investing in an occupational health programme, organisations are experiencing increased engagement and a sense of belonging on the part of their employees; health-related savings and overall financial performance have also increased. Joehr (2013) states that employees whose personal interests are linked to those of their employers are likely to have an affinity with their organisation, become more loyal and committed, and will improve productivity.

Organisations are required to ensure fair treatment and equal opportunities for all their employees irrespective of gender, age, race and religion and any other form of bigotry (Uddin, Hassan & Tarique 2008:7). In studying the influence of communication on employees' commitment and execution of the strategy (Li, Su, Zhou & Zhou 2008) found that an environment in which employees have better access to management also

influenced these organisations to outperform organisations with more restricted communication. The study identifies two-way communication as crucial to building consensus as a shared understanding of strategic priorities (Li et al. 2008:19). Pfitzer et al. (2013) studied more than 30 organisations in order to determine how SV approaches were adopted in the field of innovation and found that although all elements for achieving economic and social benefits were equally important, communication of vision and objectives of the strategy from inception to successful implementation was chief amongst them. Jacobsen, Lundin and Davholt (2016:112) state that 83% (5 out of 6) of the participating Swedish organisations in the food industry find employee involvement and commitment to be a key factor in the successful implementation of SV through product redesign, resulting in the creation of benefits for employees, shareholders and other stakeholders. These organisations include Findus AB, Orkla Foods Sverige, Kung Markatta AB, Oatly, Lantmännen and Arla. Lim (2016) studied the relationship between SV, organisational loyalty and employee organisational identity in luxurious Korean hotels and found a positive relationship between SV and employees' commitment to the organisations.

The mining industry is often beset with the influx of intense strikes, loss of lives, injuries, retrenchments and dismissals, and illicit activities such as illegal mining and associated crimes. These trends call for integrated stakeholder strategies and the adoption of SV practices to redress the shortcomings of the existing labour relations environment (Madlala & Govender 2018). Accordingly, mining organisations are expected to meet the employees' expectations for quality and balanced work-life beyond wages and benefits. The organisations should also recognise that communities and employees depend on organisations for their source of income, the same way that organisations need the employees and communities as their customers.

Accordingly, the conditions of employment affect the quality of private and family life, which is the microcosm of the communities (Polášek 2010:139). The potential of organisations to achieve sustainable competitive advantage and productivity depends, in a complementary way, on the quality of their workforce accountable for operations and their value chains (Polášek 2010:139).

The following hypothesis was developed, based on the discussion above:

H<sub>2</sub>: There is a positive relationship between *employment conditions* and perceptions regarding SV in the mining industry in South Africa.

#### **5.3.1.3 Value/supply chain considerations**

In this study supply/value chain considerations refers to the recognition of social or economic gaps within the value-creating network of activities, which, when reconfigured innovatively, contribute to sustainable development gains for communities while increasing the productivity and competitiveness of the organisation. Porter (1986) defines value chain as a management tool used to analyse the internal workings of the organisations by disaggregating their value-generating practices, which amongst others comprises human resources, information technology and procurement. The value chain is an instrument that is used to assess the network's current status to define an expanded new state (Taylor 2005). Value is also defined as an integral internal driver of the organisation's competitive advantage and productivity (Kang & Na 2020:4). On the other hand, supply chain also refers to a dynamic and comprehensive network of connections supporting an organisation with its stakeholders and suppliers capable of efficiently and effectively meeting the needs of the community (Kalakota 2000:197). The supply chain also refers to a complex and elaborate network of connections that sustain an organisation with its stakeholders and associates able to produce efficiently and effectively in meeting the needs of the society (Kalakota, 2000:197). Its flexibility is of utmost importance to meet the ever-changing conditions of markets and competitiveness by timely producing the service or products with high product variety and quality with lower input costs than rivals in the face of fierce competition (Gimenez & Ventura 2005).

Accordingly, the pursuit of SV can be accomplished by transforming the following dimensions of the value chain (Porter & Kramer 2011), energy use and storage, resource usage, procurement, distribution, employee efficiency and location. Hence, Potter and Kramer's (2011) approaches to the creation of SV appear to be intertwined, as reconceiving goods and markets and reimagining competitiveness in the value chain leads to enabling local community development. These approaches can also be argued

to be self-reinforcing. Access to resources, procurement, distribution and location (cluster) within the value chain are vitally important in fulfilling ever-changing market demands, increasing efficiency and facilitating the production of quality and variety goods or services with low input costs in comparison to competitors (Gimenez & Ventura 2005; Dekker, Bloemhof & Mallidis 2012). Hence, these dimensions are crucial for the purposes of this study.

According to Fearne, Garcia Martinez and Dent (2012:4), the value chain is vital because there is more competition between supply chains than between organisations themselves. Several studies into the value chain have taken an intra-organisation view (Dekker 2003), reinforcing Porter's original idea (1985) that the value chain is a consolidation of the internal functions of the organisation. Given the global economic climate, value chains are primarily seen as a multi-organisational network in which the organisation recognises and resolves diverse interests and needs beyond traditional economic relations (Dufwa & Meconnen 2016:57). As a result, organisations are financially benefiting from long-term collaborations and alliances by making their resources more productive and lowering input costs that create benefits for communities (Pesonen 2001; Kramer & Pfitzer 2016:10). Some studies have found that fostering greater collaboration is crucial to the development of innovation and competitiveness (Bonney, Clark, Collins & Fearne 2007) and that value-added collaborations are a prerequisite for creating value across the organisation (Jayaram, Kannan & Tan 2004).

Gonzalez-Poblete, Ferreira, Silva and Cleveland's (2018) study of Chile's blue mussel farming industry reveals how large organisations, usually with multiple farms, dominate farm production but coexist with small-scale farmers, jointly accounting for 80% of certified suppliers and have significantly higher productivity levels. Furthermore, Belton, Hein, Htoo, Kham, Phyoe and Reardon (2018) found that, in Myanmar, SV organisations procure from a hybrid structure of emerging small-and-medium-sized farmers and large industrial farmers, thereby creating a condition for local community development by empowering local suppliers and linking them to the market without compromising economic benefits. Rio Tinto in Canada successfully invested in capacity building for local communities and suppliers in collaboration with educational institutions and government

to create a pool of prospective employees and suppliers, eventually recruiting 62% of them and procuring 71% of local goods, further reducing logistical expenditure (Porter 2014) and improving efficiency.

A study into the creation of SV by Nestlé, Pfizer and Gekås found that Nestlé highlights the importance of educating producers (suppliers), but also supporting them in their private lives to increase productivity and make growth more sustainable. Gekås and Pfizer acknowledge that the development of suppliers over and above employee training must be at the core of their processes in order to improve productivity and increase the level of innovation (Dufwa & Meconnen 2016:55). Gekås also increases productivity in their storage facility by recycling, using green energy and running their own wind turbines. Therefore, there is alignment with Porter and Kramer's (2011:8) explanation that SV is created when organisations refine their value chains by building supply partnerships and collaborations, sharing new technological innovations, and co-fund research and development for innovative and creative solutions to match necessities of the underserved communities.

The following hypothesis was constructed based on the above discussion:

H<sub>3</sub>: There is a positive relationship between *value/supply chain considerations* and perceptions regarding SV in the mining industry in South Africa

#### **5.3.1.4 Automation and innovation**

This study defines innovation and automation as the development of technological ingenuity that enables organisations to redesign the processes and products to competitively meet the requirements of stakeholders with sustainable solutions with minimal human intervention. Innovation and automation have a wide range of dimensions, including business model innovation, research and development, digitisation (technological modernisation / 4IR) and product redesign (solution) (Schwab 2017). Innovation refers to a revolution which presents opportunities and economies that can adopt technological transformation constructively to enhance productivity and sustainability (Rampersad 2015; Brent & Felder 2014).

Automation refers to the intelligent management of systems using appropriate technology for operations to occur devoid of direct involvement of humans (Lynas & Horberry 2011:74-80). Fonseca, de Faria and Lima (2017; 2019) in studying the importance of innovation, found that there is a positive correlation between the dimension of innovation and automation expenditure with and the exploration strategy of the organisations. Studies in the area of innovation found a significant positive relationship to exist between innovation and the productivity of the organisations and increase in profitability. Moreover, automation and remote machines increased productivity as the machinery for mining and logistics becomes more efficient and safer to cover large areas than manual labour (Rio Tinto 2014). In addition, the use of self-propelled trucks in mines in Australia has resulted in savings of about 2.3 per cent in fuel (Australian Government, Department of Resources, Energy and Tourism 2014). In addition, Lynas and Horberry (2011:74-80) confirm that automated and remote machines increase productivity as the machinery for mining and logistics becomes more efficient and safer to cover large areas than humans.

The International Institute for Sustainable Development (2016) argues that there is limited research into the impact of innovations in the mining industry. However, what is known is that the ability to innovate depends largely on how organisations can exploit their productive capacity to create operational capacities which enable advancement (Chen & Huang 2009). Besides, innovation performance depends on the ability of the organisations to turn capital expenditure into invention operations that will result in new revenue (Fonseca, de Faria & Lima 2019:3). As a result, innovation potential is linked to the organisation's ingenuity and technological skills and knowledge, while innovation performance relies on the organisation's market skills (Anderson, Potocnik & Zhou 2014). In addition, innovation relies on the creative thinking of both employees. Creativity is a precursor to innovation, as it is directly linked to the generation of new and valuable solutions and drives the innovation cycle (Baer 2012; Anderson, Potocnik & Zhou 2014). Admittedly, innovation's primary opportunity is market dominance, increased profitability/productivity and a sustainable competitive edge.

Furthermore, a study by Evans, Vladimirova, Holgado, Van Fossen, Yang, Silva and Barlow (2017) found business model innovation to be a vital approach to sustainability,

improved organisational performance, competitiveness and social value. Adams, Jeanrenaud, Bessant, Overy and Denyer (2012) argue that innovation is not incidental to sustainability but a requirement regardless of the level of disruption, from less disruptive steps to a revolutionary level. Furthermore, innovation is a prospective instrument of integrating sustainability into the core business of organisations (Jolink & Niesten 2015). Aligned with this thinking Porter et al. (2011) claim that organisations cannot depend exclusively on their existing resources in an age of dynamic innovation and increasing knowledge, but instead leverage collaborations to generate new ideas that will guide the design of innovative solutions. Moreover, organisations with no understanding of reciprocal dependence between social and economic values miss vital opportunities for innovation, growth and sustainable maximum social change. Digital transformation and modernisation leads to cost-saving and improved safety (PwC 2017:49).

Innovative clean energy and conservation technologies can build efficient secondary lives for old or abandoned mine sites, create new revenue streams, eliminate carbon emissions and provide a clean energy alternative to nearby communities (Rocky Mountains Institute 2017). In Australia, the Weipa bauxite mine and the Lihir gold mine in Papua New Guinea are cases of innovative integration of renewable energy projects to support the mining sites, while simultaneously providing additional energy supplies to local communities (Columbia Center on Sustainable Investment 2018). The Australian Renewable Energy Agency offered a grant of US\$3.5 million for stage one of implementation and a further US\$7.8 million for the final stage in support of this Rio Tinto innovative clean energy supply initiative which enabled the mining site to save about 600,000 to 2.3 million diesel litres per year and 1,600 tonnes of CO<sub>2</sub> emissions per year, while at the same time providing the Weipa township and the nearby Napranum communities with renewable energy (Columbia Center on Sustainable Investment 2018:35). Lihir Gold Limited produces extra revenues of US\$ 40 million from fuel cost savings and US\$ 4.5 million from carbon certificates on global markets, as well as a CO<sub>2</sub> reduction of about 280,000 tons per year. The Government of Papua New Guinea offered a tax rebate of 0.75% to the organisation for building infrastructure projects providing electricity to local communities (Columbia Center on Sustainable Investment 2018:36).

In the South African mining industry, modernisation is being touted as the main driving force of the steep change for the mining industry and the solution of the resources industry. Digital transformation and modernisation in the industry lead to cost-saving and improve safety objectives (PwC 2017:49). Ghebrihiwet (2018) states that the South African mining industry had a technological edge derived from cooperative research and development initiatives. Accordingly, the governments seek to transform the economy through the use of mining research and develop as the driving force behind this process (Slater 2016).

Therefore, this study postulates that innovation and automation present an open challenge and a powerful incentive to creating SV through the protection of natural resources, improved health and safety, and increased productivity (Ralston, Hargrave & Dunn 2017:733-739). It can be argued that innovation and automation create value for communities and mining organisations, from safety to improved productivity and profitability.

The following hypothesis was established, relying on the discussions above:

H<sub>4</sub>: There is a positive relationship between *automation and innovation* and perceptions regarding SV in the mining industry in South Africa.

#### **5.3.1.5 Infrastructure development**

In this study, infrastructure development refers to the quality, quantity and accessibility to facilities such as water and energy supply, transport (road and rail network), and any other facilities that stimulate socio-economic development and welfare infrastructure. The main dimensions of infrastructure development also test aspects of reliability, efficiency and cost. The consensus is that infrastructure investment is a primary driver of economic development and equity which alleviates poverty (World Bank 2006; Calderon & Serven 2010). The advancing narrative of academic literature is that, under the best possible circumstances, adequate infrastructure supplies promote economic growth and social mobility around the mining communities (International Monetary Fund 2014; World Bank 2018).



Infrastructure promotes cultural and social pursuits, sustainable development and other related issues, including the creation of economic opportunities (Vives 2005:12). SV organisations are attempting to build relationships seeking to alleviate any adverse impact on the local environment and infrastructure in the quest of addressing local issues (Porter & Kramer 2011). According to Saghir (2017:2), "sustainable infrastructure enhances the quality of life for citizens, helps protect vital natural resources and environment, and promotes more effective and efficient use of financial resources". Porter (1998) once claimed that in the global market environment, rapid transport and advanced communication systems allow organisations to procure from anywhere in the world at any time. However, location is essential to competition. Presumably, organisations gain a competitive advantage when they produce at an equivalent value or lower cost than their competitors do as a generic competitive strategy (Porter 1980; Moon 2010). Admittedly, infrastructure development is a key enabler of economic growth and community development (Department of Mineral Resources 2019).

Governments in developing countries, South Africa included, are in a struggle to reduce the burden of pressure from the internal and external environment to build infrastructure which is capable of stimulating community development and economic growth (Szablowski 2007:27). As a result, there are growing expectations for organisations to contribute towards the development of enabling infrastructure. In line with this thinking, Mineral Council of South Africa (2018) states that the development of rail infrastructure and improvement of the energy infrastructure would increase the competitiveness of organisations. According to the World Bank (2018), scientific studies have made significant efforts over the last few decades to empirically investigate the impact of infrastructure investment on development and productivity. Energy failures in sub-Saharan Africa rose from 15.5% in 1990 to 16.7% in 2014 and access to electricity has doubled, increasing from 14% in 1990 to 35% in 2014, but below other regions. Sub-Saharan Africa has the lowest proportion of highways (declining by 17% for the period between 1990 and 2014) compared to road networks in South Asia (53%) and East Asia and the Pacific (71%). Sub-Saharan Africa has improved access to water supplies over the last 25 years, rising from 51% in 1990 to an average of 77% in 2015. Access to

sanitation increased from 15% in 1990 to about 30% in 2015 and these changes were mainly driven by improvements in rural areas. Overall there is a significant relationship between energy generation capacity and transport and real per capita income in all countries (World Bank 2018). Infrastructure development has an indirect impact on private investment and has a significant impact on domestic transport infrastructure and employment in rural labour markets in South Africa (Sagebien & Lindsay 2013; Jedwab & Moradi 2016; World Bank 2018).

Campbell (2004:37) argues that real transformations occur when there is equitable ownership patterns and access to markets and infrastructure that promotes social mobility. In addition, Modimoeng (2017) found that mining organisations similar to communities depend largely on municipal infrastructure such as water, electricity, and roads. McKinsey Global Institute (2013) also, in studying the relationship between mining activities and sustainable development, found that communities experience displacements, infrastructure deteriorates and natural resources deplete as a result of mining activities. Chamber of Mines South Africa (2018) states that the development of rail infrastructure and improvement of the energy infrastructure would increase the competitiveness of the industry. The South African Institute of Race and Relations (2019) upheld the view of Chamber of Mines South Africa (2018), affirming that the establishment of the University of Witwatersrand, University of Pretoria, JSE and many other community libraries have been the direct result of the South African mining's infrastructure development initiatives. Moreover, Fedderke, Bogetic and Zeljko (2006) found that infrastructure spending in South Africa had a positive impact on productivity, while the overall efficiency variable improved by 0.04% when national infrastructure investment increased by about 1%.

It can be argued that the development of infrastructure could strengthen the competitive advantage of mining organisations while improving the living standards of local communities and increasing economic growth at the local and national level. Porter and Kramer (2011) recommend that organisations should build enabling industry support clusters around their geographical location as a way of creating SV. The territorial spread of many other organisations around the organisation influences productivity and

innovation. Information technology in Silicon Valley, diamond cutting in Surat, India, and Kista, Stockholm Science Parks are some of the known cases (Moon et al. 2011) in which SV was created based on the principles of infrastructure development. Kleemann and Krieger-Boden (2011) assert that the infrastructure development presents a vital opportunity for an organisation to pave its way for long-term performance and gaining approval within the communities of its operations by fixing the faults of a dysfunctional society through the supply of the services such as highways, water supplies, clinics and libraries which are essential for social mobility and productivity of the organisations.

The following hypothesis was developed as a result of the above discussion:

H<sub>5</sub>: There is a positive relationship between *infrastructure development* and perceptions regarding SV in the mining industry in South Africa.

#### **5.3.1.6 Regulatory and legislative conditions**

The subject of regulatory and legislative conditions is diverse, however, for this study, regulatory and legislative conditions refer to government interventions, characterised by the following dimensions, namely government policies (legislation), standardisation (the Mining Charter, for example), accountability and transparency, taxes and subsidies, nationalisation and empowerment of historically marginalised communities and even the mining-specific regulations. Regulatory and legislative conditions also refer to government policies put in place by the government to stimulate organisations' operations by focusing on measurable social improvement and by setting clear and measurable social goals, resource prices, performance and employment standards to be adhered to (Moczadlo 2015:249; PWC 2017:25; Sagebien & Lindsay 2013:15). However, Huang and Du (2016) from an economic perspective, equate the government interventions to a scenario in which policymakers have an active influence on decisions taken by people and organisations through policies, guidelines and other legislative instruments. The role of the government in the neoliberal economic system is to protect property rights, to uphold the law, to preserve currency value and to take any action to correct anomalies and to effect social transformation. Often government policy interventions are introduced

to address inefficiencies in the markets or industry, stimulate the performance (growth) of the economy and promote the equitable distribution of income and wealth (Belsky & Wacter 2010; Olowa & Olowa 2014).

There is a diverse conceptual background to government interventions and many different and mixed views about their effectiveness (Maher, Valenzuela & Böhm 2019; Boghossian & Marques 2019). Hamann's (2019) study of the Marikana Massacre in South Africa reveals the ineffectiveness of political led interventions and weak connection between organisations, communities and government. The study found that where interactions between communities, government and organisation are not effective, interventions worsen the living conditions of the affected communities. Boghossian and Marques (2019) argue that policymakers need to penetrate and exploit private and multi-stakeholder networks to advance certain regulatory objectives, and to conceal intervention, especially where government involvement is politically motivated. A more succinct knowledge of both the modes and advantages of government-led and market-led interventions is therefore required.

Scherer and Palazzo (2011) point out that modern communities are more complex due to higher unpredictable conditions. Accordingly, the government alone is not capable of reducing poverty and inequality faced by citizens, and due to globalisation, the legal system is inherently weak. Governments around the world are struggling to control economic activities and fail to address certain societal needs (Dufwa & Meconnen 2016:7). According to Font, Guix and Bonilla-Priego (2016), the varied expectations of the organisational stakeholders, including the communities, have heightened the debate on the importance of the role of organisations in helping to resolve social concerns while at the same time increasing their revenues or reducing costs. In response to capitalism being under siege and diminishing organisational legitimacy, Porter and Kramer (2011:2) call on political leaders to pursue policies that help to redefine the priorities of organisations.

Government regulations can support the organisations' pursuit of SV by encouraging innovation and open engagement between and within communities (Porter & Kramer

2011:14). The trust deficit has often led policymakers to implement economic policies that are counter-economic growth and stifle competition (Edelman 2016), while governments that accept the SV principle can set the right regulations that are conducive to creating social and financial benefits for organisations and communities (Porter & Kramer 2011:14). Accordingly, issues affecting communities when addressed create unique market opportunities and promote the alignment of priorities amongst government, communities and organisations (Blowfield & Dolan 2014:30).

Governments worldwide are progressively setting up economic and tax benefit structures to make clean energy investment more appealing in order to increase the roll-out of green energy and green economies. In 2007 alone, 50 governments introduced sustainable energy regulations and incentive schemes. These grew to 128 countries in 2017, and therefore, over 150 countries have renewable energy-related priorities. Countries which are seeking to promote investment in sustainable energy could allow Independent Power Producers (IPPs) to enter the market. Governments worldwide should mandate the inclusion of sustainable energy assessments in environmental impact studies of greenfield projects and incorporate a statutory provision for community electrification and offer grants or tax rebates to support renewable energy initiatives (Columbia Center On Sustainable Investment 2018:17). In Canada, Rio Tinto received grants for providing additional alternative energy to the government grid and further in the case in Papua New Guinea where tax credits are offered (Columbia Center On Sustainable Investment 2018:36,42) and the initiatives also significantly reduced CO<sub>2</sub> emission, while at the same time improving the lives of communities in the surrounding areas.

The role of the government in managing the economy cannot be overlooked. The 2007-2008 global economic meltdown and the governments around the world's interventions to recalibrate their economies have created a vigorous debate about the gains of the capitalist system and government's role across the economy. The United States of America reportedly spent \$1.3 trillion in bailout packages, while European countries spent a total of \$2.8 trillion to rescue their banks (Aikins 2009). Studies show that the use of capital investment to save financial institutions is not the solution (Poctzer 2017; Gertler, Kiyotaki & Queralto 2011). Instead, the government should adopt effective economic and

legislative policies (Aikins 2009), and that only financial organisations with the stable prospect of survival should have been rescued in order to avoid putting pressure on the national budget and public confidence (Breitenfellner & Wagner 2010).

The Extractive Industries Transparency Initiative (2009) and Laporte, De Quatrebarbes and Bouterige (2017) examined the tax system of 19 African countries with significant international investment in mining and found that mining organisations are subject to distinctive tax rules in jurisdictions across the globe and that, in addition to income tax, customs and excise duty, withholding taxes and environmental taxes and VAT, mining organisations are required to pay the royalty payment which is a type of ownership transfer tax rather than a tax on net income or proceeds from operations (Deloitte 2018; PwC 2018). Maroun, Jaywant Ram and Kok (2019) have identified a 30% average rate of income tax with a maximum of 37.5 % levied in Namibia and a minimum of 19% (Algeria). Zimbabwe (15%) and Kenya (12%) have the highest royalty tax rates that are levied on diamonds. Namibia and Botswana were fairly high on diamonds and other precious gemstones levying royalty taxes of around 10%. In contrast, South Africa is the only country where royalties are calculated based on a percentage of the value extracted (Deloitte 2018; PKF 2017). There were, however, no direct relations found between the royalties and development of the local communities because of the Trust structures that receive the benefits on behalf of communities. Carbon emissions and pollution taxes imposed to mitigate adverse environmental effects include, for example, the Namibian and South African carbon taxes (PwC 2019; South African Institute of Race and Relations 2019), the consequences of which have yet to be determined. It was also noted that countries with democratic governments had lower levels of corruption due to transparency, good governance and the role of citizens in holding elected officials, government and mining organisations accountable (Kolstad & Wiig 2016; Kubbe & Engelbert 2018; The Economist 2017:66-75; Transparency International 2018).

In South Africa, mining projects are largely located in rural communities, with communities adversely affected by resource mining due to natural and social impacts. The lack of inclusion of community issues in mining activities was influenced by collusion between local traditional leadership councils and the mining organisations, therefore, undermining

the sustainable development opportunities available for host communities (Leonard 2019). The MPRDA stipulates that the government should restructure mine control and ownership, with a preferential redistribution of 'new order mining rights' to historically deprived South Africans (HDSAs) and local suppliers. These requirements were supported by the BBBEE Act, the Preferential Procurement Policy Framework Act and its associated regulations and the industry-specific BBBEE Code, the Mining Charter (DMR 2018). The 2018 version of the Mining Charter requires that organisations applying for new mining rights need a 30% black shareholding, in which a community trust holds 5%, to empower the local suppliers, procure locally manufactured goods and services as well as invest in youth, women and community development (PwC 2019; South African Institute of Race and Relations 2019).

Cawood and Oshokoya (2013), in researching the topic of nationalism, observed that the nationalisation of mines is a precondition for governments to exercise greater control of their respective countries non-renewable natural resource sectors. The key tenets of the nationalisation ideology is a political doctrine on government ownership of natural resources assuming that government would be more capable to effectively and efficiently unlock resources, facilitate a more inclusive and equitable dispensation of mineral rents, political need for employment creation and shifting the focus of mining to facilitating industrialisation in mineral-related industries (Cawood & Oshokoya 2013). Approximately 59 bilateral agreements are regulating the expropriation of foreign investor properties and on average, over 40% of South African equities belong to foreign investors who are protected by treaties. By observing the insurmountable financial implications of nationalisation, expropriating AngloGold Ashanti, for example, requires the government to compensate North American shareholders for their 53% equity as well as the 12% which belong to UK shareholders (Cawood & Oshokoya 2013). In 2012 alone, the estimated value of listed mining organisations exceeded the national budget of R1.3 trillion. As a consequence, this would undermine the fiscal sovereignty of the country. The debate, however, is an ongoing one. Moreover, the call for nationalisation is often made at the time the organisations enjoy benefits from the boom in commodities (Du Plessis 2011). The comparison of Botswana's De Beers and state joint venture (Debswana) with

a state 50% ownership and control as an aggravating factor for the potential revenue rents from resource nationalisation, different from nationalisation. Zambia nationalised mines in a short space of time. The reversal of gains as a result of Zambia's expropriation was also instant, resulting in denationalisation (Eco Partners 2011). The call and agenda for nationalisation are considered to have a negative influence on the economy (State Intervention in the Minerals Sector 2012). The debate on economic freedom for all should not be aimed at justifying the call, but rather at justifying the means.

Transformation and empowerment are integral to solving social issues in South Africa given the legacy of apartheid, rising poverty and inequality and unemployment, and stagnant economic growth without discounting the achievement of 25 years of democracy (South African Institute of Race and Relations 2019:15). Porter and Kramer (2011:2,14) claims that government regulations can promote the pursuit of SV by organisations.

In line with the discussion, the following hypothesis is developed:

H<sub>6</sub>: There is a positive relationship between *regulatory and legislative conditions* and perceptions regarding SV in the mining industry in South Africa.

The intervening variable of this study is Shared Value perceptions.

### **5.3.2 Intervening variable**

This study has one critical intervening variable, namely Shared Value perceptions which is being discussed in the section below.

#### **5.3.2.1 Shared Value perceptions**

This study defines SV as a practice of developing and implementing innovative strategies and organisational models to address social issues that, in turn, offer reciprocal financial and societal benefits to interdependent stakeholders, including the environment. Porter and Kramer (2011) define SV as the organisational policies and practices that enhance the economic outcomes of an organisation while simultaneously advancing social and economic conditions in the communities in which it operates. Thus, SV refers to the



process where an organisation's practices create value for all stakeholders. Discovery Group (2019), on the other hand, defines SV as a practice and strategy of solving social problems profitably.

According to Pfitzer et al. (2013:4), SV seeks to integrate social purpose into organisational policies, strategies, processes and communities and to actively channel the core competencies and capital of organisations towards the creation of socially innovative products and services that resolve social issues. SV benefits communities by unlocking the influence and capability of organisations to resolve essential global problems (Porter et al. 2011:1).

Porter and Kramer (2011:4) argue that the organisational approach to value-creation should incorporate social and environmental issues into the strategy and operations. Moreover, organisations can uniquely and competitively position themselves by striving to address the needs of the vulnerable communities through the adoption of financially sustainable business models (Hills et al. 2012:7). Notably, the long-term competitiveness of organisations depends on social conditions and the sustainable use of financial and natural resources. Hence, Porter and Kramer (2011) argue that SV is about creating 'new' economic and social value for communities and organisations. However, the primary aspects of SV are the improvement of social conditions (value) and economic value (Porter & Kramer 2011; Shrivastava & Kennelly 2013).

The fundamental premise of SV is to meet unmet societal needs for economic opportunities and, therefore, social and economic results are achieved simultaneously (Porter & Kramer 2011). As per the SV literature, the economic results of SV include the following aspects, direct business revenue growth, sales promotion, expansion of potential markets, and increasing productivity (Aakhus & Bzdak 2012; Michelini & Fiorentino 2012; Moon et al., 2011). The social change in terms of existing research involves wider aspects of human circumstances defined by organisations, in particular quality of education, health and housing and environmental conservation (Brunso, Scholderer & Grunert 2004; Pfitzer et al. 2013). The protection of the environment is intertwined with social impact (Spitzeck & Chapman 2012; Hills et al. 2012:3). Hills et al.

(2012:3) state that organisations of all forms are confronted with economic, environmental and social issues which include poverty, malnutrition, inequality and climate change, and these aspects can also be used to evaluate the value created for all stakeholders. In addition, Hills et al. (2012) posit that the social aspect is, however, more dominant than others because roughly 4 billion of the total global population live in poverty. The social aspect is therefore an umbrella dimension which includes both environmental and economic issues affecting the communities. As a result, SV has three broad interconnected aspects, namely economic value, social change and environmental impact. The additional aspects include organisational growth, enhanced reputation (reduced reputational risk), increased productivity and improved stakeholder involvement (Campos-Climent & Sanchis-Palacio 2017; Kottke et al. 2017; Pronk, Lagerstrom & Haws 2015).

Previous studies on possible SV results predominantly looked at the results of improving financial performance without specifically evaluating the social impact (including the environmental dimension) (Høvring, 2017), such as real social impact achieved by SV interventions and perceptions of the SV factors. Most notably, numerous studies also explored the effects of SV by reinventing productivity throughout the value chain of an organisation (Kottke et al. 2017; Pronk et al. 2015). The organisational value is the organisation's real economic benefits (Porter et al. 2012). However, Porter and Kramer (2011) state that persistent societal problems are to be addressed through the SV strategies and policies which typically involve access and efficiency of suppliers, employee skills, health and safety at work, water and energy use, and environmental impacts. It is claimed that the challenge of organisations to generate economic value concurrently with mutual value for the communities gives rise to much wider strategic and competitive opportunities that will accelerate the next surge of innovation, efficiency and economic development, inspire and attract consumers, associates, employees and investors as well as the public (Porter et al. 2014). Social innovation solutions are therefore useful for measurement of SV.

Porter and Kramer (2011:4,17) assert that SV entails not only the pursuit of economic value but also reconnecting organisations with communities and the environment. Hence,

the level of stakeholder involvement in the organisational decision-making processes can be argued to be a measure of SV. Admittedly, SV leads to sustainability or sustainable development (Scheyvens, Banks & Hughes 2016:372). In line with this notion, Hills et al. (2012) find that most organisations implementing SV strategies in the food, beverage and agriculture, health care, financial service, extractive and natural resources, and housing and construction industries (Coca Cola, Nestlé, Novo Nordisk, Novartis, Pfizer, M-PESA, Grupo Martins, Arauco, Anglo American, British Petroleum, Moladi, Micro Housing Finance Corporation) did not only claim to have improved productivity, penetrated new markets, increased loyalty and brand awareness, and improved financial performance, but also claimed to have gained competitive advantage and potential for sustainable and scaled social impact. The strategies, mission and purpose of other organisations explicitly state that they adopted SV as a strategy and business model for sustainability or sustainable development (Adidas 2017; Discovery Group 2019; Nestlé 2018; Rio Tinto 2018).

Many multinational organisations such as Coca Cola, Novartis, Hindustan Unilever, M-PESA and Cemex have already created large-scale social impact through improved competitive positions (Hills et al. 2012:10,16). The SV discourse is also echoed by the World Business Council for Sustainable Development and UN Global Compact which are calling for organisations to collaborate with the governments and civil society in addressing the social issues (Scheyvens et al. 2016:372) as a new way of doing business. SV-oriented policies, local content and procurement, collaboration and a common agenda between organisations, governments, civil society organisations and communities are vital aspects of accomplishing social progress through the furtherance of financial opportunities (Kramer & Pfitzer 2016:3,7).

In South Africa, the SV concept has begun to emerge with momentum. The significant areas of focus of SV in South Africa include, amongst others, HIV/AIDS, unemployment, the income gaps, affordable housing and national energy supply challenges (Hills et al. 2012:16). Although post-apartheid the government has proactively led reforms through BBBEE, King Codes, MPRDA, NEMA, Carbon Tax Act, and other pieces of legislation, these have not distinctly encouraged SV. Instead organisations use them for CSR–

philanthropy and compliance purposes. However, organisations are beginning to catch on by integrating sustainability into long-term strategies and value chains.

Hills et al. (2012) assert that effective delivery of the SV strategies is determined through validation of the achievement of, and the link between, targeted social and organisational results. In other words, organisations must measure and analyse the results to generate useful information and insights such as linkages between social and environmental efforts and related financial impact and to reinforce value-creating activities. According to Hills et al. (2012:46), the focus is on linking how the organisations' resources and activities created social impact and organisational performance. For example, when organisations create new medicine for derelict sicknesses in developing countries or build the capacity of smallholder farmers and low-income employees to improve productivity, lives of millions of people improve while the organisation gains competitiveness and a new market. As in the iterative process, organisations should start by the SV dimension that must be anchored in a clear SV strategy.

In light of this discussion, three hypotheses were made linking SV to dependent variables (H<sub>7</sub> organisational performance, H<sub>8</sub> – competitive advantage and H<sub>9</sub> – sustainability).

### **5.3.3 Dependent variables**

The economic dimension of SV includes practices and principles that improve competitiveness and activities linked to the accumulation of financial resources (financial performance) necessary to operationalise the organisation's objectives, including stakeholder management, asset management, revenue generation, mitigating environmental impact, addressing community-related issues as a mission and value chains, so that both organisational success and competitive advantage become the key co-drivers of sustainability which is an aspect of social value (incorporating environmental impact). Accordingly, this study has three variables with closely linked dimensions. The sub-sections below discuss the dependent variables of this study, namely organisational performance, competitive advantage and sustainability.

### **5.3.3.1    *Organisational performance***

For this study organisational performance refers to the result from improvements in organisational stability, financial stability, program quality and organisational growth. Organisational performance is also measured by an organisation's sales growth, return on investment and return on assets (Alasadi & Abdelrahim 2007:4; Thorne, Ferrell & Ferrell 2008:28). In line with this thinking, Teece (2010) notes that there are aspects that need to be in place for organisations to improve their overall performance: competent and committed employees, good governance, superior product quality and of furthestmost significance an understanding of the conditions of competitive setting, such as the influence of communities and government priorities. In addition, Teece (2010) also points out that improving the value chain network improves organisational performance.

According to Awale and Rowlinson (2014:1291), integrating social issues into the core business of an organisation creates organisational opportunities, which in turn will result in organisational success or competitiveness as outcome of SV. Accordingly, Breidbach and Maglio (2016) note that SV has elevated community issues and social innovations to strategic level for improving the performance of organisations that ultimately creates benefits for communities. Nestlé (2018:31-60) asserts that SV approaches have not only increased profitability, but also improved quality of life for local communities, addressed human rights issues, and minimised the environmental impact of their operations, resulting in improved productivity.

Organisations take deliberate steps to identify the expectations of various stakeholders in order to devise appropriate strategies for harmonising competing interests. These strategies should not only be proactive in addressing the interests of stakeholders but also contribute to the prosperity of the organisation (Porter & Kramer 2006). Moreover, SV strategies call for long-term investments by driving sustainable competitiveness through consistently addressing social and environmental goals (Porter & Kramer 2011). This presumes that long-term investment will be drawn from shareholders and that stakeholder's collaboration will come from those who recognise the value of SV (Porter et al. 2013). In studying the impact of mining in community development in South Africa,

Ngobese (2015) found that 59% of communities are of the view that mining organisations need to engage communities on issues of community development, while 41% claimed engagement which needs to be meaningful. Despite the mixed responses regarding the mining organisations' quest for profits and development of the communities, it is evident that organisational legitimacy is necessary for the success of the organisation. Ngobese (2015) also observed that unsustainable collaborations between mining organisations, local municipalities and communities and trust deficits are to blame for slow infrastructure development which derails productivity and social mobility around mining communities.

SV is intended to restore legitimacy, enhance trust among stakeholders and establish a strong reputation (Corner & Pavlovich 2016) as well as increase demand for goods and/or services as a driver of the profit-making strategy by meeting the underserved needs of the communities (Vidal 2011). Alasadi and Abdelrahim (2007:4) assert that the performance of the organisations is measured by different dimensions beyond financial results. The Fortune Magazine and Financial Times release rankings for the highly recognised organisations globally while proving wide aspects of what could be perceived to be a successful organisation. These aspects are the organisational reputation/brand, association with influential leaders, financial stability, social and environment responsibility, and products and services quality and innovation (Bebbington & Larrinaga 2014; McNamara 2008:181). In addition to compliance requirements and financial returns, SV is also taking a new path towards the recognition of organisational performance which incorporates customer satisfaction, conditions of employment, improved efficiency, the effectiveness of suppliers and social and environmental outcomes achieved as a result of the direct contribution of the organisations (Porter & Kramer 2011).

Thorne et al. (2008:28) state that performance of an organisation is mostly associated with making good strategic decisions (SV creating strategies) that will result in the growth of the return on investment (ROI), return on assets, sales and profit maximization. Yet there are other aspects crucial for the success of the organisation. For example, Pronk et al. (2015) conducted a scientific study in line with Porter and Kramer's SV implementation to examine how a workplace healthcare program could enhance the efficiency of

employees. The findings of this case study showed that five impacts are created by investing in a workplace health program: increased workplace involvement, improved employee commitment (sense of belonging), rising employee commitment to participate in philanthropy, reducing healthcare costs for workers and enhancing the overall financial performance of the organisation. Organisational performance as an outcome of SV perceptions can, therefore, be measured through the dimensions described in Table 5.1.

In addition, Inkpen and Ramaswamy (2017) assert that the primary purpose of adopting supply/value chain performance measures, such as flexibility, quality of collaborations and partnerships, integration of local communities and suppliers, and financial performance (measures) increases overall organisational performance. Similarly, in addition to input cost savings, the organisational performance also seeks to increase customer satisfaction and loyalty, while growing market share and financial results (Gorane & Kant 2017). While assessing the impact of SV on hotel performance in Spain, Malaga, which also had a major environmental impact, found a significant and positive correlation between the SV efforts of hotels and their organisational performance (Fernández-Gámez et al. 2019). Kaplan and Norton (1992) argue that the dimensions of financial performance, such as return on investment and earnings per share, could give misleading signals about organisational performance, if not integrated with non-financial aspects of the value chain. Therefore, these studies consider organisational performance to be fairly presented when it integrates both the financial and non-financial aspects.

**TABLE 5.1: DIMENSIONS OF ORGANISATIONAL PERFORMANCE AS AN OUTCOME OF SHARED VALUE**

OUTCOME	DIMENSIONS	SOURCES
Organisational performance	<p>Increased revenue and profitability</p> <p>Increased return on investment</p> <p>Increased return on asset</p> <p>Secure and flexible supply chain</p> <p>Increased employee commitment</p> <p>Improved productivity</p> <p>Ethical practices and leadership</p> <p>Improved relationship with stakeholders (government, employees, suppliers, shareholders and communities)</p> <p>Financial sustainability - fulfilment of existing obligations of the employees and other organisations as well as government taxes</p> <p>Improved brand awareness</p> <p>Integrated and/or sustainability reporting</p>	<p>Aakhus and Bzdak (2012)</p> <p>The European Commission (2015)</p> <p>Grameen Bank (2016)</p> <p>Michellini and Fiorentino (2012)</p> <p>Moon et al. (2011)</p> <p>Neilson and Rossiter (2008)</p> <p>Nestlé (2016; 2018)</p> <p>Porter and Kramer (2011)</p> <p>Porter et al. (2011)</p> <p>Price, Johnsson, Heffernan and Gibbons (2019)</p> <p>Rijnhout and Zondervan (2018)</p>

Source: Researcher's own construction

In accordance with Table 5.1, organisational performance can be measured by a variety of aspects, both financial and non-financial, which are aimed at addressing and reflecting the interests of stakeholders such as employees, customers, the community, investors and suppliers. It can be claimed that increased organisational efficiency is closely related to the creation of a competitive edge.

In light of this discussion, the following hypothesis is made:

H<sub>7</sub>: There is a positive relationship between perceptions regarding SV and *organisational performance* in the mining industry in South Africa.



### **5.3.3.2 Competitive advantage**

For this study, competitive advantage refers to a unique position attained by an organisation by incorporating SV into the core competitive strategy/organisational strategy. The competitive advantage of an organisation can be characterised by the ability of the organisation to retain and grow its market share, increase its market penetration or new market, continuously improve productivity and improve operational efficiency, along with other aspects. Kotabea and Kothari (2016:5) define competitive advantage as superiority that gives an organisation an edge over its rivals and the ability to generate greater value for the organisation and its related shareholders. Similarly, Moon, Parc, Yim and Park (2011:57) add that competitive advantage also means the ability to operate at a superior level to rival organisations in a particular industry or market, achieved through the effective and innovative use of core competencies and resources. While on the other hand, Juntunen, Saraniemi, Halttu and Tähtinen (2010:117) focus on the ability or competence of organisations to outperform rivals.

Hills et al. (2012) note that while SV is a competitive strategy based on social issues, including environmental concerns, it should not be seen as the ultimate solution to all issues affecting the rest of society. SV does, however, offer organisations excellent prospects for shifting the mindset if they pursue a strategy, make efforts to tackle societal issues and generate a sustainable competitive edge. Hence, Porter and Kramer (2011:4) suggest that organisational strategies and operations should include social and environmental concerns as a new approach to value creation. Organisations that have decided to focus on this trajectory have already achieved first-mover insights and advantages through their successful involvement with low-income communities, suppliers and value chain collaborators (Hills 2012; Nestlé 2016; Rio Tinto 2014; Campos-Climent & Sanchis-Palacio 2017).

Accordingly, Spitzeck and Chapman (2012) also claim that SV is a differentiation strategic approach that creates value by transforming community concerns into economic value, maximising opportunities for organisations. Thus, instead of social issues being burdens on organisational activities, they can be turned into opportunities for all stakeholders to

increase benefits. Arauco, a Chilean forestry organisation focused on pulp and wood products, extracts substantial amounts of wood waste and by-products from the wood processing. The organisation was estimated to absorb approximately 4% of electricity from Chile's grid in 2010. Instead, the organisation converted the waste into a renewable energy generating unit which generates additional revenue from supply of energy to over 500,000 households, while its operations are self-sufficient from saving waste disposal costs and the cost of Chile's electricity to generating a new source of revenue (Hills et al. 2012). The organisation became a leader of renewable energy supply expanding into wind farms, and significantly contributing to 92% of Chile's electricity network composed of clean and renewable energy. The wind farm venture Vientos Sur will also increase clean energy generation capacity by over 215 MW (Arauco 2019:21).

GlaxoSmithKline is the world leader in pharmaceutical and healthcare products. The company adopted a flexible value-based pricing approach which is influenced by the social conditions for each country. In 2010, GSK distributed nearly 1.4 billion vaccines with 70% destined for communities with unmet medical needs in underdeveloped countries (Hills et al. 2012). As a result of the SV innovative business model, the organisation has become a major player in the high-growth drug industry, acclaimed for increasing access to drugs and revenue while at the same time enabling the development of healthy communities. The demand for drugs and vaccinations increased in developing economies, translating to positive outcomes for patients, governments and investors (GSK 2019). In addition, GSK also states that their mission is underpinned by addressing Social Development Goals: Good Health and Wellbeing while delivering sustainable returns to the shareholders and communities. In line with GSK's (2019) focus, it is clear that resolving the needs of communities calls for innovative thinking (Pfizer et al. 2013), co-value creation and change of the outmoded capitalism mindset to the inclusive business model (Kania & Kramer 2011).

Therefore, SV when adopted as a competitive strategy of organisations, can contribute to the development of a sustainable competitive advantage (Juscus & Jonikas 2013). Table 5.2 presents a summary of the dimensions of competitive advantage.

**TABLE 5.2: DIMENSIONS OF COMPETITIVE ADVANTAGE AS AN OUTCOME OF SHARED VALUE**

OUTCOME	DIMENSIONS	SOURCES
<b>Competitive advantage</b>	Differentiation and low-cost benefits New markets penetration and growth Enhanced market share Industry core competencies and expertise Retention of highly qualified staff Process and product innovation Reduced logistical and operating costs Positive reputation/brand image Access to new investment/capital venture opportunities Access to infrastructure and services of the industry enabling clusters Improved quality of ore (high-grade ores) Retain the customer base Continuous improvement in productivity Increased brand awareness	The European Commission (2015) Grameen Bank (2016) Neilson and Rossiter (2008) Nestlé (2016) Porter and Kramer (2011) Porter et al. (2011) Hills et al. (2012) Price, Johnsson, Heffernan and Gibbons (2019) Rijnhout and Zondervan (2018)

Source: Researcher's own construction

In addition to the combative dimensions presented in Table 5.2, Porter et al. (2011:2) affirm that organisations can create market opportunities for profitmaking and enhance the competitively positive position by developing strategies that bring about tangible social benefits. The competitiveness in the SV concept similarly comes from the opportunities gained from solving social and environmental problems (Porter & Kramer 2011).

In light of this discussion, the following hypothesis is made:

H<sub>8</sub>: There is a positive relationship between perceptions regarding SV and *competitive advantage* in the mining industry in South Africa.

### **5.3.3.3 Sustainability**

This study defines sustainability as a situation where there is an integration of social, economic and environmental factors into planning, implementation and decision-making, to ensure that development serves present and future generations. According to Zvarivadza (2018:76) sustainability, which is interchangeably referred to as sustainable development, is also defined as the ability to preserve and expand environmental, social and economic systems of any establishment in such a manner that every generation can satisfy its own needs without threatening the ability of coming generations to meet their own needs themselves. The European Commission (2015) argues that sustainability is not just about policy implementation, but about the day-to-day choices made by society and organisations. Since the conception of Brundtland (1987), experts and theoreticians have tried to resolve incoherence and overlapping use of the term of sustainability and sustainable development, mainly because the concept is interpreted internationally and implemented through domestic initiatives (Singh & Keitsch 2019). Sustainable development is referred to as a system of social, ecological and economic compatible relations (Dalal-Clayton & Sadler 2014), which is methodologically attained at a point where all dimensions interconnect, known as sustainability (Gibson 2005). Hence, one concept refers to the other (Barbier & Burgess 2017:2; Singh & Keitsch 2019:2).

In addition, sustainability is described as an area that leads to societal evolution where the natural environment and cultural achievements are protected for generations in the future (Eweje 2014). Singh and Keitsch (2019:2) argue also that sustainability has three main dimensions, economic results, environmental and social impact, similar to SV. The global leaders concluded in 2015 that achieving the UN SDG by 2030 requires cooperation between governments and organisations and other stakeholders. In a commissioned UN survey, the World Economic Forum (2019) found that the highest-ranking SDGs in value worldwide are: zero hunger (SDG2), clean water and sanitation (SDG6), good health and well-being (SDG3), affordable and clean energy (SDG7), and conservation of life below water (SDG14). In 2015, a similar survey undertaken by My World found good education, quality healthcare and decent employment prospects to be the main critical issues affecting communities globally. However, the UN Sustainable

Development Goals Report (2019) makes the following startling findings; the rising disparity between and within countries (extreme poverty in South Asia and sub-Saharan Africa, high youth unemployment, limited opportunities for disabled people, and lack of equity in women's inclusion); concentrations of carbon dioxide worsened in 2018 (ocean acidity was 26% higher than in pre-industrial times and is projected to increase by 100% to 150% by 2100 at current CO<sub>2</sub> emissions); poverty decreased from 36% in 1990 to 8.6% in 2018 as a result organisations' responses to inequality, violent wars and natural catastrophe uncertainties; globally hunger began to rise again, and the deterioration of the natural environment is on a rapid increase.

The SV concept, through inclusive business, assists to bring poor and low-earning societies to the scope of value-creating networks of influential organisations as a way of creating new beneficial prospects for the population at the bottom end of the economic pyramid, increasing earnings potential, improving the standard of living and creating a viable supply and value chain as well as sustainable economic growth for organisations while concurrently addressing the environmental concerns as part of an innovative solution. SV also brings itself closer to sustainability by assuming that social issues include environmental concerns such as climate change (Porter and Kramer 2011). The core of OECD's (2016) framework for SV creations through collaboration is underpinned by the actualisation of United Nations SDGs 2030, which are also considered to be the valid dimensions for sustainability; the advancement of inclusive and sustainable economic growth, decent jobs for all, building enabling infrastructure, promoting sustainable industrialisation and nurturing innovation, ensuring access to water and sanitation for communities, and securing access to affordable, reliable, sustainable and modern energy for all. The SDGs are presented as sustainability dimensions in Table 5.3.

Rio Tinto (2018) created a new market for renewable energy which also reduced the carbon emissions from its operations, capacitated local communities in various areas related to its operations and procured goods and services from them in addition to more than 62% of its workforce from the local communities. The SV by Nestlé (2018) in empowering the local farmers and linking them to the economic system; and Adidas (2017) producing its sportswear products from ocean waste, are some of the examples

in which organisations designed ecofriendly products, created earning opportunities for communities and economic benefits for the shareholders. This is sustainability. Sustainability refers to the point where the social impact, economic result and environmental impact intersect (Dalal-Clayton & Sadler 2014; Gibson 2005), and these dimensions also represent the total sum of the SV key outcomes. Therefore, it can be argued that SV outcomes are similar to the dimensions of sustainability and the distinction is that SV is a strategy, while sustainability is an outcome of implementing the SV strategy. Discovery Group (2019), in revising its strategy, propositions that it has adopted the SV model for sustainability. This view is also supported by GSK (2019) and Arauco (2018). These organisations also revised their strategies to integrate sustainability through SV strategies. Accordingly, the dimensions presented in Table 5.3 fall within the SV outcomes framework, economic and social values (inclusive of the environmental value considerations).

Table 5.3 exhibits the dimensions of sustainability as an outcome of SV.

**TABLE 5.3: DIMENSIONS OF SUSTAINABILITY AS AN OUTCOME OF SHARED VALUE**

OUTCOME	DIMENSIONS	SOURCES
<b>Sustainability (sustainable development)</b>	<p>Inclusive economic growth (local communities and suppliers included)</p> <p>Creation of decent jobs for local communities</p> <p>Improved incomes/reduced poverty and inequality</p> <p>Improves the standard of living of the local communities</p> <p>Empowerment of the local enterprise and suppliers</p> <p>Building core competence and industry expertise of the local communities</p> <p>Improved health and safety of the workforce</p> <p>Improved quality education of the employees and communities</p> <p>Development of eco-friendly solutions</p> <p>Increased reliance on renewable energy</p> <p>Sustainable development goals are incorporated into strategic planning</p>	<p>The European Commission (2015)</p> <p>Grameen Bank (2016)</p> <p>Neilson and Rossiter (2008)</p> <p>Nestlé (2016;2018)</p> <p>Porter and Kramer (2011)</p> <p>Price, Johnsson, Heffernan and Gibbons (2019)</p> <p>Rijnhout and Zondervan (2018)</p>

Source: Researcher's own construction

The dimensions of sustainability included in Table 5.3 will be tested by this study to measure the success of SV at a level of sustainability, the point at which social impact, economic value and environmental impact traverse. The organisations retain choice over which issues to priorities for the creation of SV based on the nature and needs of the community at the base of the pyramid. Nestlé (2019:62) however aligns its social issues with the SDGs (United Nations 2015) to identify areas in which an organisation can create social and economic impact for sustainability.

In light of the discussion above, the following is hypothesised:

H<sub>9</sub>: There is a positive relationship between perceptions regarding SV and *sustainability* in the mining industry in South Africa.

#### **5.4 CHAPTER SUMMARY**

The main purpose of this chapter was to operationalise the theoretical variables described in the hypotheses as outlined in the hypothesised model, also in the mining context. Literature was examined in support of these of the hypothetical model and the study variables for operationalisation of the study. Anecdotal evidence was presented in support of the antecedents of SV, namely, environmental impact, employment conditions, value/supply chain considerations, automation and innovation, infrastructure development and regulatory and legislative conditions. In addition, anecdotal evidence was presented on the intervening variable, thus SV. The chapter concluded by discussing literature in support of outcomes of SV, namely, organisational performance, competitive advantage and sustainability (dependent variables).

Chapter Six will focus on the research design and methodology used to test the hypotheses stated, in order to attain the study's aim and objectives. Accordingly, the aim of the next chapter, Chapter Six, is to empirically validate the proposed model and to test the perceptions of SV within the mining industry of South Africa. The discussion contained in the chapter will establish and explain the research methodology, including the instruments developed to gather and analyse the data for this study.



## **CHAPTER SIX**

### **RESEARCH METHODOLOGY AND DESIGN**

#### **6.1 INTRODUCTION**

This study investigates perceptions regarding SV within the South African mining industry. For this study, specific independent variables, namely environmental impact, employment conditions, value/supply chain considerations, automation and innovation, infrastructure development and regulatory and legislative conditions and an intervening variable (Shared Value) as well as dependent variables (organisational performance, competitive advantage and sustainability) have been identified and reviewed in previous chapters. Chapter Five operationalised these variables by defining their true meanings (definitions) and contextualising it based on the relevant literature, culminating in the development of hypotheses and the conceptualisation of the model for this study. From this review, it was established that there is a need to investigate these variables and their possible influences empirically.

This chapter expands the research method, research paradigm, research approach and design set out in the introductory chapter of the study. Collis and Hussey (2014:59) and Creswell (2013:3) note that researchers have to select the appropriate study paradigm, methodology, approach and the procedure of collecting, analysing and interpreting data depending on the study objectives and questions under investigation. This chapter also includes extensive background on the measuring instrument, population and sampling design and data analysis strategies specific to this study. Aspects of validity and reliability testing are also outlined in detail. In order to assess the relationships between the independent variables, intervening and dependent variables, inferential statistics such as regression and correlation analyses are also outlined. Ethical aspects of the study will also be highlighted. The main aim of this chapter is thus to provide a sound basis to justify the research design and methodology adopted for this study.

## 6.2 RESEARCH OBJECTIVES

SV can benefit communities by unleashing organisational influence, resources and capacity to help address key global social and environmental issues while maximising their economic benefits (Porter et al. 2011:1). The lack of literature and empirical evidence on SV, and specifically the gap in related research in the South African mining industry, has led to the origination of the ensuing focal research question: *What are the perceptions on SV as well as its antecedents and outcomes within the mining industry in South Africa?* As a result, this study investigates perceptions of SV within the mining industry of South Africa. Achieving this main objective will entail establishing the current SV perceptions of stakeholders in the mining industry as well as the antecedents and outcomes of SV. The following related secondary objectives have been identified in the context of the research purpose and the question:

- To gather the current SV perceptions of stakeholders in the South African mining industry.
- To investigate relationships between selected SV antecedents and the SV perceptions of stakeholders in the South African mining industry.
- To investigate relationships between the SV perceptions of stakeholders in the South African mining industry and selected SV outcomes.

## 6.3 PRELIMINARY ASSESSMENT OF THE MODEL

A proposed model of perceptions regarding SV within the South African mining industry has been developed upon completion of a review of the literature. The hypothetical model in Chapter Five (Figure 5.1) and its constructing variables define the study's orientation, methodology and architecture. A variety of perspectives on the proposed hypothesised model was obtained from relevant experts, including established scholars in the area of SV and CSR as well as mining. This was to identify the potential flaws in the model, the measures used to assess the models, and the specific research methodology-intrinsic issues.

## **6.4 RESEARCH PARADIGMS**

Researchers from various academic disciplines have a unique perspective and interpretation of the research and procedures to be followed and how research contributes to the body of knowledge. Paradigms offer direction on how researchers decide on preparing for and the execution of the research and the researcher's discipline is steered by a specific paradigm (Guba & Lincoln 1994). This notion is supported by Killam (2013:6) who asserts that each study is based on a particular ideology throughout different disciplines. For this reason, researchers need to investigate and understand the paradigm(s) behind the research of any discipline. Klenke (2008:19) describes a paradigm as a pattern of how something is configured, how it operates, and developments in scientific inquiry based on the philosophies and perceptions of individuals regarding the universe and the essence of science.

The “paradigm” concept comes from the Greek terminology “paradeigma” which according to Killam (2013:5), explains the specific belief framework, collection of views, ideologies, theories or philosophy that informs a study. The Cambridge Dictionary of Philosophy defines pragmatism as “philosophy that stresses the relation of theory to praxis and takes the continuity of experience and nature as revealed through the outcome of directed action as the starting point for reflection” (Audi 1999:730). Admittedly, paradigms are ways of thinking and frameworks that researchers adopt as a guide for their research procedures and activities. Collis and Hussey (2014:59), aligned with Klenke (2008:19), state that the research paradigms reflect specific philosophies or ideologies of researchers regarding the existence of humans in the world, as well as the world in which humans want to live.

Furthermore, research paradigms are used to generate a complete opinion of how people view knowledge, in other words, to enable humans to further understand how people perceive themselves regarding knowledge and the procedural strategies researchers adopt to uncover such knowledge (Collis & Hussey 2014:43). Aligned with this thinking, Burton and Bartlett (2009:18) claim that a research paradigm empowers the researchers to use an established and appropriate data collection method. Antwi and Kasim

(2015:217) and Collis and Hussey (2014:11) state that research needs to be cohesive by ensuring that a study design meets its philosophical assumptions or paradigms. Guba (1990:20) also states that paradigms are characterised by their ontology (what is reality?), epistemology (how do you know something?) and methodology (how to go about finding out).

Generally, key categories of research paradigms include the positivist (referred to as quantitative, scientific, objectivist, experimentalist, or traditional research) and phenomenological (also referred to as qualitative, interpretive, or constructivist research) paradigms (Burns & Burns 2008:13; Collis & Hussey 2003:47, 2014:43-44). A positivistic research paradigm applies to quantitative research that pursues scientific methodology and examines theories meticulously using data derived from quantitative measurements (Teddle & Tashakkori 2009:342). Collis and Hussey (2003:52) note that the positivistic paradigm strives to obtain factual evidence, having little concern for the individual's situation. To guarantee objectivity, accuracy and thoroughness, logic and reasoning are extended to the positivistic research methodology. Moreover, the positivist paradigm usually requires gathering quantitative data from a large representative sample through a survey (structured questionnaires) (Hair, Bush & Ortinau 2006:171-172). Decision-makers frequently apply quantitative data to model correlations between market information and behaviour; gain perspective on interactions; confirm established relationships; and assess different types of assumptions (Hair, et al. 2006:171-172). The positivist paradigm enables a researcher to test a hypothesis through numeric measurements and statistical analysis (Creswell 2012:6-7). The positivist paradigm also refers to a paradigm of quantitative or traditional research (Collis & Hussey 2003:47), because researchers following logical positivism's theoretical methodology use inferential statistics and quantitative measurements to evaluate conceptual assumptions and focus on measuring and examining correlations within variables (Leedy & Ormrod 2014:161). Coldwell and Herbst (2004:15) assert this view by clarifying that quantitative research involves extracting relevant data out of a broad spectrum of individual units, in order to extend the results to a general population.

The phenomenological paradigm, often referenced to as qualitative, subjective, pragmatic, interpretive or constructivist research (Collis & Hussey 2003:47), in contrast to a positivist paradigm, suggests that the study is based on individuals' lived experiences, assumptions and occurrences (Teddle & Tashakkori 2009:341; Fellows & Liu 2008:70). This approach takes a minimal look at the actual human experience (Fellows & Liu 2008:70). It is concerned with understanding a phenomenon from an individual's viewpoint (Creswell 2012:8). Phenomenology studies can be seen as inductive, and their end results are descriptive rather than expressed in numerical form (Merriam 2009:14). The qualitative method relies on thoughtful reflections, interpretations and analysis of oral and documented content (Burns & Burns 2008:15-19). Phenomenological researchers are required to connect with the objects being examined and often collect data from expert opinions rather than from a test group (Collis & Hussey 2003:53). As a result, an observation is made by Cooper and Schindler (2007:585) that the qualitative research paradigm often uses small samples, which facilitates the acquisition of subjective data. Consequently, phenomenological studies are generally more adaptable and pragmatic (Dahlberg & McCaig 2010:22) than quantitative studies which rely on structured instruments. The studies that follow this paradigm are based on an explanatory perspective, which seeks to identify how individuals experience a particular issue, notion, or phenomenon by studying a representative sample (Aaker, Kumar & Day 2007:189; Blumberg, Cooper & Schindler 2011:17). This research paradigm necessitates the gathering of communicative and comprehensive information from respondents that render quantitative analysis unnecessary, if not impossible, to calculate (Du Plessis & Rousseau 2009:25; Greener 2008:17).

The difference between positivism and the phenomenological paradigm is that the quantitative method (i.e. a positivist paradigm) details relationships by attempting to identify facts (or causes) that influence outcomes objectively (Creswell 2012:6-7). Positivism is associated with, and shares, a philosophical foundation with a quantitative method of analysis and is also based on statistical analysis (Collis & Hussey 2014:44). Table 6.1 presents the distinctions between positivist and phenomenological paradigms as explained by Collis and Hussey (2014:50) and Gray (2017:26).

**TABLE 6.1: RESEARCH PARADIGMS**

	<b>POSITIVIST PARADIGM</b>	<b>PHENOMENOLOGICAL PARADIGM</b>
Philosophies	Universe is seen as external and objective	Universe is socially developed and subjective
	Observers are independent	Observers are members of the experiment
	Science is objective (value-free)	Social ideals influence science.
Researcher's involvement	Based on reality and facts	Focuses on meanings
	Interconnections and basic rules are investigated	Aims to explain the real nature of phenomena
	Reduces the phenomenon to the simple aspects	Explores the phenomenon in its entirety
	Formulate and test hypotheses	Develop hypotheses and models based on analysis
Research methods suitability	Firmly organised, systematic, concepts are operationalised and precise comprehensive plans.	Adopts varying methods depending on aspects of phenomena
Sampling	Large sample size for generalisation purposes	Small samples analysed in greater depth
Data-gathering methods	Experiments, surveys, structured interviews and observation.	Observation, documentation, open-ended and semi-structured interviews.

Source: Adapted from Collis and Hussey (2014:50); Gray (2017:26)

This study adopted the positivism paradigm as a strategy to guide the selection of a methodology that will effectively answer the research questions and test the hypotheses. The positivist paradigm is based on a researcher's independence from the phenomenon under study. In addition, the positive research paradigm utilises trustworthy and legitimate measurement instruments (Weber 2004:7-9). In addition, Hassanein (2015:69) claims that this paradigm is not only quantitative but also empirical, statistical, conclusive, evidence-testing or reproducible.

This section does not provide justification for a superior research method. Instead, it clarifies the choice of the most suitable method for the study. To this end, a positivist paradigm is followed using a quantitative method, based on various statistical analyses to assess perceptions regarding SV in the mining industry of South Africa.

## **6.5 RESEARCH METHODS**

Johnson and Christensen (2010:31) clarify that researchers must choose one or a combination of specific research methodologies namely, qualitative, quantitative, and mixed-method research. A detailed description of each method is provided in the following subsections.

### **6.5.1 Qualitative research method**

A qualitative study can be defined as a way of studying social phenomena (Della Porta & Keating 2008:26). In addition, the method of study is humanistic, holistic, interpretive and essential in recognising and finding meaning from the outside environment. Flick (2014:542) argues that qualitative research focuses on examining contextual significance or occurrences or behaviours by gathering quasi-standardised information and examining documents and illustrations instead of numbers and statistics. The description implies that qualitative research is a research method that shifts from basic theoretical suppositions to study design and collection of data, thus helping individuals to make sense of things in the universe.

According to Family Health International 360 (2011:3), qualitative research concentrates on completion of data expressed in words, photographs and un-numeric objects. This research method, therefore, enables researchers to investigate problems, without preconceived assumptions (Saunders, Lewis & Thornhill 2007:151) and the researchers establish the assumptions and hypotheses based on their understandings (Johnson & Christensen 2010:31). Moreover, qualitative studies are mostly exploratory, and thus the results are typically a narration with vivid explanations, instead of statistical analyses. Gray, Williamson, Karp and Dalphin (2007) agree with the statement by noting that the qualitative method of study tends to focus on the utilisation of narratives to explain what

happens. Qualitative research is recognised for the depth it reaches by answering descriptive questions (i.e. when, where, when, when) as well as theoretical (i.e. how and why) and other analytical queries.

The majority of qualitative researchers are not only concerned with the method but are also largely interested in the purpose rather than the outcomes (Atieno 2009:14). It suggests that scholars are looking to provide an in-depth insight into human actions, interactions and incidents. Bloomberg and Volpe (2016:54-55) further suggest that the primary focus of a qualitative study is the subjective experience and interpretation of a phenomenon. Qualitative researchers see the world through the lens of the respondents, which enables researchers to identify the cause of the problem being studied.

In addition, as seen in Table 6.4, the qualitative research method also refers to a research type whose results are not achieved through the use of statistical (quantitative) procedures (Family Health International 360 2011:3). In line with this thinking, Martins, Loubser and Van Wyk (1996:133) explain qualitative data as a particular phenomenon that cannot be statistically measured and analysed. Table 6.4 shows the distinction between the procedures and characteristics of the qualitative research method in comparison to other research methods.

Increasingly, the quality of qualitative research is under scrutiny (Klenke 2016:37-38). Academics from various fields of study have raised concerns regarding the trustworthiness and legitimacy of this type of research (Klenke 2016:37-38), perhaps due to the process followed in gathering and analysing data, which is subjective. Another shortcoming of this method is that it is value-charged (subjective) and gathers data which may not be reliable (Page, Carr, Eardley, Chadwick & Porter 2012:37). However, many phenomenological researchers also contend, despite the criticism, that the qualitative method commands high validity relative to the quantitative method (Pellissier 2008:12).

The qualitative method is also considered more suited to studies that seek the most accurate answers to a phenomenon (Harding 2013:10). This is because researchers are able to infer answers from observing the behaviour of the respondents. Houser (2014:78)



also claims that because qualitative research needs a small sample size, it is cheaper, convenient and quicker to conduct, and the researchers often gain more expert knowledge about the problem and beyond. Therefore, it can be argued that applying this research method leads to improved understanding of a phenomenon or situation under investigation (Houser 2014:78). Table 6.2 presents a summary of the advantages and disadvantages of the qualitative research method.

**TABLE 6.2: ADVANTAGES AND DISADVANTAGES OF QUALITATIVE RESEARCH METHOD**

METHOD	ADVANTAGES	DISADVANTAGES
Observation	<ul style="list-style-type: none"> <li>• Retrieve data at the same time as an event occurs</li> <li>• The unconstructive way, this does not rely on someone's reaction.</li> <li>• Flexible and knowledge-based discovery</li> </ul>	<ul style="list-style-type: none"> <li>• Time intensive</li> <li>• Depends on observers' independence</li> <li>• Necessitates substantial planning</li> <li>• Problematic to accumulate data in real-time</li> </ul>
Ethnography	<ul style="list-style-type: none"> <li>• Focused on observations and interviews with experts on the subject</li> <li>• Produces in-depth conclusions</li> <li>• Appropriate for exploring new ideas of research</li> </ul>	<ul style="list-style-type: none"> <li>• Time intensive</li> <li>• Hard to arrive at descriptive and accurate results</li> <li>• Researchers need a thorough understanding of the issue domain</li> </ul>
Field research	<ul style="list-style-type: none"> <li>• Ideal for collecting accurate data</li> <li>• Stresses the position and significance of the social context</li> </ul>	<ul style="list-style-type: none"> <li>• Difficult to generalise and obtain data from a huge number of individuals or groups;</li> <li>• Depends on the neutrality of the researcher</li> <li>• Detailing observations can be a complicated operation.</li> </ul>
Focus groups	<ul style="list-style-type: none"> <li>• Suitable for gathering individual and group data</li> <li>• Presents an opportunity to seek clarity</li> <li>• Time and cost-effective</li> </ul>	<ul style="list-style-type: none"> <li>• Difficult to handle and track</li> <li>• Participants are difficult to locate</li> <li>• Does not always represent the entire population</li> </ul>

METHOD	ADVANTAGES	DISADVANTAGES
Case studies	<ul style="list-style-type: none"> <li>• Include comprehensive individual information</li> <li>• Give a fair chance to innovate and alter existing hypothetical conceptions</li> <li>• Focus groups may be a good substitute or supplement</li> </ul>	<ul style="list-style-type: none"> <li>• Difficult to establish ties between cause and effect</li> <li>• Impossible to generalise from a small proportion of case studies</li> <li>• Ethical concerns can arise in particular confidentiality concerns</li> <li>• Hard to construct an example scenario suitable for all themes</li> </ul>
Structured interviews	<ul style="list-style-type: none"> <li>• Systematic and conveniently analyses the responses of the participants</li> <li>• Access to large sample</li> <li>• Easy to reproduce</li> <li>• Relatively easy to perform an interview</li> </ul>	<ul style="list-style-type: none"> <li>• Inflexible structure</li> <li>• Rigid response's options</li> <li>• Limited data is collected</li> <li>• Preparatory work for the interview is often laborious</li> </ul>
In-depth interviews	<ul style="list-style-type: none"> <li>• Modified to obtain comprehensive and informative data on a specific subject</li> <li>• Relies on fewer respondents to provide valuable and applicable observations</li> <li>• May be run in flexible settings</li> </ul>	<ul style="list-style-type: none"> <li>• Time-consuming and comparatively expensive</li> <li>• Longer verification method for collecting comparative data</li> <li>• Respondents must be selected cautiously to prevent discrimination</li> <li>• Results cannot be generalised</li> </ul>

Source: Adapted from Queirós, Faria and Almeida (2017:378-379)

Scientific studies are important for broadening the knowledge base of theories and providing insight on certain social phenomena. Research methods can be utilised to develop an empiric study or any basic paradigm-based analyses (Queirós et al. 2017: 378-383). Although qualitative and quantitative methods are widely utilised within the research community, it is the researcher's responsibility to select a method or mix of methods appropriate to the phenomenon under investigation.

### **6.5.2 Quantitative research method**

Over the last decades there has been ongoing debate on the superiority and suitability of research methods (Queirós et al. 2017:370). However, without addressing the question of superiority, researchers agree that suitability depends on the data collection procedures, the nature of the data and the analysis, as well as the study purpose. Accordingly, the quantitative method, also referred to as the deductive and hypothesis-driven approach, can be explained as a method that utilises larger sample-sizes, structured research instruments with firm measurements and numerical analysis to establish relationships amongst data in order to reach generalised conclusions (Baran & Jones 2016:29). Hoyle (2014:33) also defines the quantitative research method as a strict and objective empirical investigation which follows a methodical procedure and makes use of statistical analysis to arrive at conclusions about a phenomenon. In support of this notion, Altinay and Paraskevas (2008:70-73) explain that the quantitative methodology is a structured process with which researchers can scientifically observe human behaviour, collect and evaluate statistical data in order to describe a specific phenomenon or situation and to generalise results across a given population.

The researchers and professionals apply the quantitative research method to discover solutions and/or explain for market and social sciences problems and relationships (Rahman 2017:106; Sekaran & Bougie 2016:18). In other words, this method is an appropriate approach to finding answers to social and business issues because of the emphasis it places on the use of statistical procedures to scientifically investigate a phenomenon. Bryman and Bell (2011:26) and Creswell (2013:4) support the notion that the deductive approach depends on the quantification of data collection and statistical analyses. Unlike qualitative research, the deductive research method utilises statistical analysis to interpret the results rather than narrative reports (Creswell 2013:4). In addition, the statistical approach helps researchers to scientifically test hypotheses and investigate the causal connection between the specified variables.

Quantitative research is by far the most prevalent research strategy in all disciplines (Baran & Jones 2016:29; Struwig & Stead 2013:4). This method uses statistical procedures to describe problems. Struwig and Stead (2013:6) and Walliman (2011:9) explain that, in a quantitative study, the research should determine whether the study will follow a descriptive, explanatory or causal approach or a combination. The descriptive research approach examines hypotheses by defining variables and testing correlations (relationships) between variables (Hoyle 2014:33). The exploratory study helps researchers to advance their understanding of a new or unique idea or phenomenon (De Vos et al. 2011:95), while on the other hand, the causal approach is used to test theories that establish how and why an empirical phenomenon occurs, and to establish the causal relationship between variables (Hoyle 2014:33; Gregor 2006:621).

The quantitative method aims to objectively test hypotheses and establish relationships between variables (Curtis & Drennan 2013:19; Struwig & Stead 2013:4). Moreover, researchers put the emphasis on impartiality, integrity and dependability of the quantitative method. An overview of the characteristics and processes of the quantitative research methodology method is presented in Table 6.3 against qualitative methods and mixed research methods. However, Brannen (2016:21) suggests that in a quantitative study variables are isolated, defined and categorised. Additionally, such variables are operationalised by connecting them to the hypothetical model (hypotheses), before starting to collect primary data which is measured and analysed statistically. Any attribute (variable) is an instrument of analysis. In support of this notation, Rahman (2017:106) further reveals that quantitative research measures fixed variables in real-life situations.

Aligned with Rahman (2017:106), Wiid and Diggins (2010:85) attest that this research method gathers data from a larger sample (bigger number of respondents). Altinay and Paraskevas (2008:70) and Hoyle (2014:33) add that the methodology relies on the use of a strictly disciplined process to accumulate data from a significantly larger group of respondents. Generally, using a larger sample enables the generalisation of the results to the population as a whole. Cottrell and McKenzie (2011:7) support this assertion by explaining that the objective of using a larger set is to make it possible to extrapolate the results obtained from the test group to the population as a whole. Furthermore, this

method focuses on compiling and analysing primary data through statistical techniques and deducing statistical analysis into meaningful results (Struwig & Stead 2013:6). Table 6.3 offers a synopsis of various approaches (sub methods) used by the quantitative research method for the collection and analysis of the data.

The quantitative research method is widely recognised by researchers across various disciplines because the statistical results can be generalised to the entire population and have a higher level of reliability and objectivity than qualitative research which relies on expert opinions (Queirós et al. 2017:383; Nykiel 2007:56; Saunders et al. 2007:148). A comparative summary of the key advantage and disadvantages of the quantitative research method is presented in Table 6.3.

**TABLE 6.3: ADVANTAGES AND DISADVANTAGES OF QUANTITATIVE RESEARCH METHOD**

METHOD	ADVANTAGES	DISADVANTAGES
Field experiments	<ul style="list-style-type: none"> <li>• Conducted in a natural setting</li> <li>• Big and extended research scope</li> <li>• Themes not affected by the experimental observations</li> </ul>	<ul style="list-style-type: none"> <li>• Hard to control variables</li> <li>• Hard to reproduce the identical settings</li> <li>• Emerging ethical concerns</li> </ul>
Simulation	<ul style="list-style-type: none"> <li>• Finds solutions to complex systems</li> <li>• Time efficiency allows studying the behaviour of the system more swiftly</li> <li>• "What-if" questions can be tested and answered</li> </ul>	<ul style="list-style-type: none"> <li>• Expert knowledge required to build a model</li> <li>• Time-consuming and expensive</li> <li>• Requires advanced equipment and computer programmes</li> </ul>
Surveys	<ul style="list-style-type: none"> <li>• Low development time</li> <li>• Cost-effective</li> <li>• Collection and analysis of data utilises numerical analysis</li> <li>• Reaches large number of audiences</li> <li>• Great representativeness and generalisation of the conclusion</li> <li>• Researchers maintain independence</li> </ul>	<ul style="list-style-type: none"> <li>• Data reliability depends on the quality of responses and validity of the survey questionnaire</li> <li>• Inflexible instrument</li> <li>• Do not record the feelings, attitudes and shifts in respondents' feelings</li> </ul>

METHOD	ADVANTAGES	DISADVANTAGES
Correlational study	<ul style="list-style-type: none"> <li>• Explores large data and different domains</li> <li>• Calculates the degree of correlation between two variables effortlessly</li> <li>• Manipulation of behaviour is not needed</li> </ul>	<ul style="list-style-type: none"> <li>• No direct cause-effect inferred</li> <li>• Possible internal/external validity inadequacy</li> <li>• Likely absence of definite rationale for the existence of an association between two variables</li> </ul>
Multivariate analysis	<ul style="list-style-type: none"> <li>• Multiples numerical analysis</li> <li>• Explore and analyse large data and dimensions</li> </ul>	<ul style="list-style-type: none"> <li>• Techniques may be complex</li> <li>• Depends on access to advanced statistical software</li> </ul>

Source: Adapted from Queirós et al. (2017:382-383)

Queirós et al. (2017:382-383) maintain that researchers adopt quantitative research methods for accumulating primary data through surveys (interviews or questionnaires), observations (human, electronic and mechanical) and experimentation. However, Hall (2008:148) and Queirós et al. (2017:382-383) concur that the most effective and widely used method of data collection is a survey (questionnaire) and rating scales (structured questionnaires containing items on a Likert scale). The instrument for collecting data generates findings which are interpreted, correlated and applied to the target population (Saunders et al. 2007:148).

The discussion of the advantages and limitations of the inductive and deductive research methods reveals that the fundamental difference is that the latter focuses extensively on objectivity and generalisation of the results and is suitable where quantifiable measurements of variables and inferences can be obtained from the sample. Rahman (2017:106) asserts that quantitative research pursues standardised data retrieval procedures and structured instruments. Table 6.4 outlines the fundamental distinctions between quantitative and qualitative research in various dimensions.

**TABLE 6.4: COMPARING THE QUANTITATIVE AND QUALITATIVE RESEARCH METHODS**

CLASSIFICATIONS	QUALITATIVE RESEARCH	QUANTITATIVE RESEARCH
Goal	Exploratory – understanding and interpreting social relations	Confirmatory - tests hypotheses, explores the cause-effect, and makes predictions
Sample	Smaller size	Larger size
Variables	Constructed post analysis	Specified variables studied
Nature of data	Narrative, imageries and objects	Numbers, statistics and percentages
Data collection methods	Qualitative data: open-ended responses, interviews, observations, field notes, and reflections.	Quantitative data: precise measurements (survey closed-ended questionnaire), simulation, field experiments
Data analysis	Identifying patterns, characteristics, themes.	Identifying numerical interactions and correlations
Role of the researcher	Subjective and depends on the observer's impartiality	Objectivity is at the core of data collection and analysis processes
	Both the respondents and the researcher understand the attributes, interests, beliefs and views of each other.	Biases and characteristics of the respondents and the researcher intentionally hidden
Results	Results cannot be generalised	Results are generalised to other populations
Common study objectives	Explores, discovers, and constructs	Describes, explains, and predicts
Focus	Wide-angle lens; explores phenomenon as a whole.	Narrow-angle lens; explores particular hypotheses about a phenomenon.
Nature of observation	Suitable for studying behaviour in a natural settings.	Studies behaviour within a test or regulated conditions, focusing on cause-effects.
Nature of reality	Various realisms; personal (subjective)	Solitary realism; impartial.
Research report	Narrative report with descriptive explanation and clear references from respondents (experts' opinions).	Statistical report with causal relationships, means correlations, and predictive validity conclusions.

Source: Adapted from Gray (2017:26); Queirós et al. (2017:371)

The objective of Table 6.4 is to make a significant contribution to facilitating the choice of research methodology by offering a thorough overview of the differences between research methods and illustrating the implication of adoption of each research method. The strength and limitations influence the researcher's decision in the choice of an appropriate methodology to achieve the purpose of the study. As a result, this study used the quantitative research methodology in that it empowered the researcher to obtain valuable data for the statistical analysis to be performed (Queirós et al. 2017:383).

### **6.5.3 Mixed methods research**

Several empirical studies have been conducted on the suitability of research methods. The researchers agree that applying the quantitative research method helps overcome the limitations of the qualitative research method (Atieno 2009; Castellan 2010; Choy 2014; Rahman 2017). However, other researchers without advocating for supremacy of quantitative research methodologies suggest that based on research questions researchers should strongly consider a mixed methods research (MMR) in order to achieve benefits of both the two traditional methods (Borrego, Douglas & Amelink 2009; Creswell & Plano Clark 2007; Creswell 2013; Wium & Louw 2018).

The researchers refer to mixed method research (MMR) as the next generation research methodology, apart from it being known as the “third research paradigm” (Creswell & Plano Clark 2007:13; Creswell & Clark 2011:1; Ramlo 2016:29; Wium & Louw 2018:4). This method was developed to respond to complexities and demands of the contemporary studies for ‘paradigm relativism’, which Wium and Louw (2018:4) and Wheeldon (2010:94-98) link to the selection of the best methodology for the specific research or the best combination. Moreover, Wium and Louw (2018:4) define MMR as the amalgamation of the qualitative (inductive) and quantitative (deductive) procedures for the gathering, analysing and interpreting of primary data to provide an all-inclusive (complete) answer to understand the research phenomenon.

Table 6.4 clearly illustrates the differences between the qualitative and quantitative methodologies in addition to the differences between the positivism and phenomenological paradigms. Without declaring one method to be supreme over the



other, it can be argued that both methods can complement each other in a study to achieve the best results depending on the requirements of each study. Researchers are increasingly adopting elements of inductive and deductive methods in order to complete research (Saunders et al. 2007:151-155; Wheeldon 2010:97-99; Wium & Louw 2018:2). Wheeldon (2010:94) also maintains that it is possible to turn findings into hypotheses by transitioning between induction and inference and then testing those hypotheses by practice. In support of this notion, Leedy and Ormrod (2010:97) maintain that MMR integrates the methods and analytical processes for quantitative and qualitative data collection to create a richer perspective of the study conundrum than what is achieved by applying a single method separately.

Johnson and Christensen (2013:34-35) explain that mixed methods research is mostly confirmatory and exploratory and offers a descriptive and statistical analysis of causal explanations and predictions. In other words, MMR allows researchers to clarify quantitative results by further investigating ambiguous issues or conducting qualitative interviews with respondents to gain more knowledge about the particular quantitative results of the study (Terrell 2012:262). Despite having the advantages of qualitative and quantitative methods, the MMR method is confronted with strong limitations which amongst others include time and resources needed to gather accurate and reliable data, difficulties of reconciling different data sets and analysis, and conflicting paradigms amongst the respondents (Ramlo 2016:32-36).

The choice of methodology relies on the research questions and goals and the researcher's framework or interest as to which methodology and research approach could produce useful results (Ramlo 2016:41). Accordingly, this study followed the quantitative method as the most suitable methodology of gathering data, performing analysis and interpreting the results to address the questions and purpose of the research.

## **6.6 RESEARCH APPROACH**

Researchers are expected to understand a broad spectrum of research approaches in order to choose one that is best suited for a study (Leedy & Ormand 2014:76). The selection of approaches for the study depends on the research questions and goals rather than a

biased inclination towards a specific approach (Saunders, Lewis & Thornhill 2012:107). There are generally four approaches to conducting research, according to Struwig and Stead (2013:6), and these are the descriptive, exploratory, experimental and quasi-experimental approaches.

#### **6.6.1 Descriptive research approach**

The descriptive research approach is appropriate for research aimed at establishing a relationship between variables (Churchill & Laccobucci 2005:74; Struwig & Stead 2013:6). As a result, research should follow this approach where a precise description of a phenomenon is needed (Struwig & Stead 2013:6; Saunders et al. 2007:134). Descriptive research aims, according to Babin, Carr, Griffin and Zinkmund (2013:53), to define the current position for a specified variable and generate a thorough understanding of a phenomenon. The analysis and interpretations of data includes the examination of the hypothesis. Furthermore, structured data gathering needs careful identification of the variables and fixed measurements. Collis and Hussey (2014:4) and Struwig et al. (2013:7) define this type of research approach as scientific research that provides a precise and accurate description of a phenomenon. In addition, this approach answers the question of “who, what, when, where, and how?”

#### **6.6.2 Exploratory research approach**

According to Altinay and Paraskevas (2008:75) and Özel and Kozak (2017:286), an exploratory study is performed to develop a better understanding of a phenomenon. In light of this thinking, Collis and Hussey (2014:4) explain that an exploratory research approach is applied when the researcher aims to generate new knowledge or develop and pose a research question for further investigation. The exploratory study attempts to assess whether or not a phenomenon exists and to become acquainted with it, not to contrast it with other phenomena (Welman, Kruger & Mitchell 2005:23). This type of approach employs various methods which include the use of case analysis, focus groups, or survey questionnaires (Burns, Bellows, Eigenseher, Jackson, Gallivan & Rees 2014; Struwig et al. 2013:7). Therefore, an exploratory research approach in this study can be

defined as the initial research into a hypothetical or theoretical idea or new topic, namely SV in the mining industry in South Africa.

### **6.6.3 Experimental research approach**

According to Babbin et al. (2013:54) an experimental research approach, also known as causal research, is a scientific approach followed to determine a cause-and-effect connection between variables and their attributes. This approach is mostly known as laboratory research, but although not necessarily true, it can be referred to as any study that attempts to define and manipulate all variables with the exception of one. Independent variables are altered to establish their influence on the dependent variables (Burns et al. 2014:79). The experimental research approach is also explained as a research approach that seeks to link cause and effect between variables.

### **6.6.4 Quasi-exploratory research approach**

Quasi-experimental research designs test correlational theories. Experimental and quasi-experimental research designs explore the presence of causal linkages across the variables (Burns et al. 2014:79). Independent variables are referred to as influence variables (predictive), while dependent variables are referred to as affected (conditional) variables (Burns et al. 2014:79). This research approach is very closely related to the experimental approach, and the main difference is that independent variables are identified, but not controlled, and their influence on the dependent variables is tested (White & Sabarwal 2014:2). In addition, the identified test subjects that are subjected to intervening variables are examined and linked to other subjects outside the test group. Determining the causes should be done responsibly while evaluating and concluding, as certain factors identified or not identified may influence the result (White & Sabarwal 2014:2).

This study adopted both descriptive and exploratory research. The suitability of an exploratory approach is influenced by the aims of the study, and the hypotheses about the relationships between independent variables; namely, *environmental impact, employment conditions, value/supply chain considerations, automation and innovation,*

*infrastructure developed* and *regulatory and legislative environment* and SV perceptions within the South African mining industry (intervening variable). The study also investigates the influence of SV on *organisational performance*, *competitive advantage* and *sustainability*. The perceptions of respondents are assessed and described in terms of SV within the South African mining industry (descriptive approach), and it is a relatively new area of research explored in the South African mining context (exploratory approach).

Furthermore, this research applied a quantitative methodology to gather and analyse the results generated on predefined and concise variables established by the hypothetical model. Leedy and Ormrod (2014:2) also assert that the quantitative research method must be supported by the choice of research design to ensure that attributes and qualities of a population and sample enable an understanding of a phenomenon.

## **6.7 RESEARCH DESIGN**

The research design ensures that information gathered allows researchers to address the primary research questions unequivocally (De Vaus 2001:9; Leedy & Ormrod 2014:78). Cooper and Schindler (2001:771) refer the research design as the blueprint that guides the process of defining the population, sample design and data analysis. This phase also includes the development of the research instrument (Bockstette & Stamp 2015)

The following section explains the procedures for identifying the population of the study and for sampling, collection and analysis.

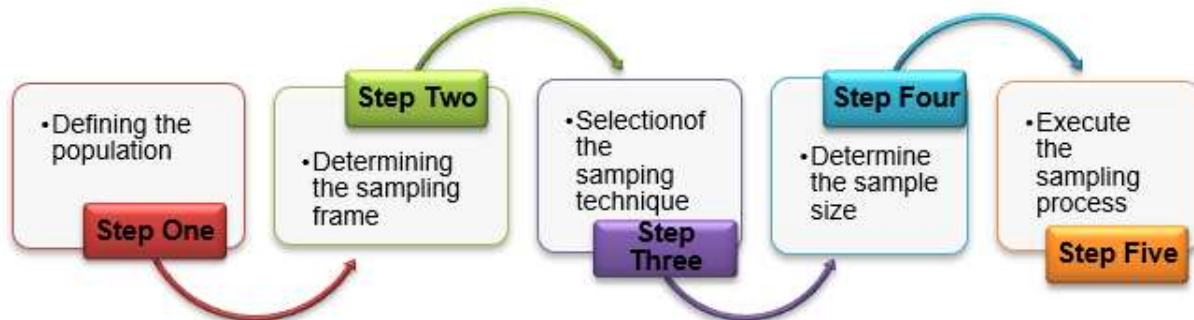
### **6.7.1 Population and sampling**

Wiid and Diggines (2013:131) and Zikmund (2003:369; 2013) refer to the population as a whole or to the total collection, group or set of observations of relevance to the researcher, including, for instance, individuals or organisations. The target population is gained by defining key attributes of the group or organisation from which the sample is determined (Alvi 2016; Burns & Burns 2008:180). The complete collection of cases from

which a sample is drawn is identified through research questions and hypotheses (Saunders et al. 2007:212).

Whitley and Kite (2012:485) and Jha (2014:183) argue that the population is made up of individuals and organisations that the researcher is interested in studying and drawing general conclusions. In general, the population is a key prerequisite for a sample strategy or technique that starts with the definition of the organisations or persons of interest. Accordingly, Sekaran and Bougie (2016:239) recommend a five-step approach to be followed in order to define and classify a correct study target population and sample.

**FIGURE 6.1: SAMPLE DESIGN PROCESS**



Source: Adapted Sekaran and Bougie (2016:240)

An appropriate target population enables researchers to accumulate data from a lower proportion in an attempt to generalise their results (Lim & Ting 2012:2). In line with Figure 6.1, the research should follow an appropriate sample design process in order to undertake a valid study.

#### **6.7.1.1 Defining the research population**

According to Gravetter and Forzano (2015:134), the study population must be properly defined to ensure accurate identification of sample, collection and analysis of data for a specific phenomenon under investigation. As a result, researchers need to define the critical qualities of the population which will serve as the criteria for identification (sampling) for the study. Stevens (2006:183) further notes that the establishment of a clear definition and identification of the target population enables the researcher to obtain

a representative sample. According to Neelankavil (2015:234), the misidentification and misclassification of the study population yield distorted and unacceptable results. Admittedly, it should also be acknowledged that a target population is generally comprised of a group of individuals or organisations which share similar or same attributes, whereas the sample is composed of a subgroup of the target population (Creswell 2012:142).

The study population includes a sample of prospective respondents which the researcher plans to use to generalise the results for the accomplishment of the goals of the project (Hill 2014:1-10). The total number of people or organisations with similar or common attributes needed for a particular research project is the population of the study (Gravetter & Forzano 2015:135). Gravetter and Forzano (2015:135) specify that researchers must recognise their population by means of particular and defined attributes. Some of the attributes that researchers may consider include, among others, demographics or the form and industry of organisations as parameters for the identification of the study population (Neelankavil 2015:234).

This study focuses on mining organisations affiliated to the Minerals Council of South Africa. The primary mission of the Mineral Council of South Africa is to promote cooperation among mining organisations to examine policy matters and other aspects of joint interest in order to explain and identify appropriate industrial positions. The Council also serves as a primary lobbyist for South African mining to the government and communicates critical policies supported by its members and a multi-platform for constructive discussions on policy-related issues. The target population of this study, therefore, comprises all individuals involved in the mining categories defined by the Minerals Council of South Africa.

#### **6.7.1.2    *Establishing the sampling frame***

The sample design includes the selection of the sample frame. Morgan and Summers (2005:123) state that after the study population is defined, a core next step is establishing the acceptable sample structure for the analysis. As shown by Babin, Carr, Quinlan and Zikmund (2015:385) the development of a sample structure allows researchers to

establish the parameters of the target group (unit of analysis). Babbie (2016:403) describes the sample frame as the original source or the structured database where the sample is drawn. This can be described as a database of the persons from whom primary data is obtained. According to Collis and Hussey (2014:62), the sample frame may also be defined as a database of the group from which the test units are drawn. A sample frame which contains population properties reduces sampling errors and increases the validity and reliability of the research results. Babbie (2016:403) suggests that the sample frame determination and definition has a major influence on the validity of the study.

By paying attention to the sample size, the researchers may obtain accurate results that can be extended to the whole population of the study (Rubin & Babbie 2010:362). Kline (2016:16) recommends that the appropriate sample frame is one that is comprehensive and inclusive of individual elements. The sampling frame must be comprehensive, accurate and abreast (recent) to reduce the possibility of non-representativeness (Saunders et al. 2007:214). Although the Department of Mineral Resources is a custodian of all active mines in South Africa, there is no reliable database or comprehensive database of all persons involved in mining activities in South Africa. Accordingly, this study draws its population of persons involved in mining activities from the mining organisation affiliated to the Mineral Council of South Africa. Therefore, this study considers the list of Mineral Council of South Africa's member organisations to constitute the sampling frame as these mining organisations represent the cases identified in the population and for feasibility purposes.

#### **6.7.1.3    *Identification of sampling method***

The choice of a suitable sampling method is at the core of the research design because it is challenging and impractical to study the target population as a whole. As a result, researchers must choose a representative sample that will facilitate the generalisation of their conclusions to the whole population (Gomez & Jones 2010:81). Sampling refers to an aspect of analytical activity related to the collection of individual observations intended to provide information on the population of interest, particularly for reasons of statistical inference (Etikan & Bala 2017:215-216). The sampling often applies to the compilation of

certain items that are representative of the population under review (Cooper & Schindler 2008:711). Therefore, sampling refers to identifying information gathering units, which represent the entire population. The sampling unit was defined by Ghauri and Gronhaug (2010:138) and Nayak and Singh (2015) as the scenario whereby the variables to be examined relate to the research question and the data is gathered and evaluated.

There are commonly dual basic techniques for sampling, namely probability and non-probability sampling (Struwig & Stead 2013:116-117). In addition, Etikan and Bala (2017:215-216) conclude that researchers need to choose the sampling procedure(s) to ensure correct identification of representative and acceptable test units for the study. Babbie (2016:195) also supports the notion that researchers should choose either of the sampling methods to identify persons or units for data collection and analysis. Etikan and Bala (2017:215) define probability sampling as a process in which all individuals in the test group have the same probability of selection. In addition, Maree (2016:192) further defines probability as a method that is confident of the likelihood of each respondent being included in the sample. Furthermore, Babbie et al. (2013: 392) assert that in the probability sampling method every respondent has an absolute likelihood of inclusion into the study.

Non-probability sampling is distinguished as the procedure whereby the researcher applies a subjective judgement to the choice of respondents according to the requirements of the study (Struwig & Stead 2013:116-117). In other words, each prospective respondent within the target group has no guaranteed propensity of selection. According to Martins, Loubser and Van Wyk (1996:253-256) and Struwig and Stead (2013:117), non-probability sampling refers to a process by which the possibility of selection of any prospective respondent is uncertain. Marlow (2010:140) states that this type of sampling method enables the researcher to pick the sample individually according to the essence of the study and phenomenon being investigated.

The non-probability sampling method has among other, four common techniques, namely convenience, quota, judgmental and snowball sampling (Martins, Loubser & Van Wyk 1996:253-256), as discussed below.



- **Convenience sampling** is a process that empowers the researcher to handpick respondents based on accessibility and preparedness to participate (Gravetter & Forzano 2011:151). The researchers opting for convenience sampling are likely to complete their studies timely and in a cost-effectively (Gravetter & Forzano 2011:151; Struwig & Stead 2013:116). The convenience sampling technique involves researchers using suitable respondents, provided that they are willing to participate in the study.
- **Quota sampling** implies that certain pre-planned measures are performed to classify the sample in order to comply with set criteria (Etikan & Bala 2017:215). For this method, the sample has the same numbers of participants with regards to established features, attributes or the oriented tendency of the whole population. In addition, the quota strategy appears to be an enticing option if researchers are short on time to gather primary data (Etikan & Bala 2017:215).
- **Judgement sampling** is used to draw a representative sample through a pre-set adjudication process (Etikan & Bala 2017:215). In this selection process, which is defined as an authoritative technique of sampling, the researcher chooses respondents according to the established expertise and/or technical judgement (Etikan & Bala 2017:215). This sampling technique of judgement is appropriate where there is a small number of people possessing the traits needed for the study.
- **Snowball sampling** is a technique which enables researchers to identify survey respondents by reference from several other survey participants (Etikan & Bala 2017:216; Grinnell & Unrau 2005:153). In support of the technique, Trochim, Donnelly and Arora (2015:89-91) claim that snowball sampling is a technique that is aided by the first respondents in identifying other qualified prospective respondents. This technique allows researchers to obtain contact information and aid about potential respondents (Trochim, Donnelly & Arora 2015:89-91). Therefore, this technique implies that the researcher gains access to the chain of prospective respondents with required attributes for the study economically.

In this study, non-probability sampling is applied, which includes both the convenience and snowball techniques. These sampling techniques are appropriate for this study, as no database (sample frame) is available from the MCSA. However, according to the MCSA (2019:1), there are 78 member organisations in five mine categories (25 base mineral, 18 coal, 13 platinum, eight gold and three diamond mines) and an industry category (consisting of six contractors, three associations and two organisations), thus there are six mining categories. Therefore, the sample size was calculated (established) on the basis of 78 member organisations. The use of convenience and snowballing sampling techniques allowed the research to locate and identify respondents efficiently and economically.

#### **6.7.1.4    *Selection of sample size***

A suitable sample size of each study must be determined using an appropriate sampling process (technique). The researcher must determine the fitting sample size to be able to draw inferences on the study population (Barker, Pearson & Rogers 2003:380). Ghauri and Gronhaug (2010:138) conclude that a crucial feature of empirical research is the choice of sample size. In addition, Ghauri and Gronhaug (2010:138) state that sample size selection in a deductive study is a process by which the researcher selects the proportion of people from whom data is collected and analysed.

According to Queirós, Faria and Almeida (2017:378), the quantitative (deductive) method tends to rely on the use of significant sample sizes. Regardless of this benefit, researchers must measure and use a suitable sample representing the target population (Gerrish & Lathlean 2015:180) in order to arrive at an acceptable level of generalisation. Woodward (2013:295) claims, however, that using an excessively large sample might drive up costs, increase research time and that the statistics may not bring any additional value. By comparison, the use of an excessively smaller sample can lead quantitative research to reach misleading conclusions. Thus, the inaccurate determination of a sample may lessen the value of the quantitative research (Woodward 2013:295). According to Woods (2016:89), there is no prescribed volume of sample units for research of any methodology. In support of this notation, Wiid and Diggines (2013:183) recommend that to counter the

risk of an unrepresentative sample, a quantitative researcher should consider resources and time as well as the goal of the study. Additional factors to be considered include, for instance, the study objectives; the required level of meticulousness; paradigms and methodology; resources; and population size (Maree 2016:198).

This study aimed to solicit responses from 450 respondents (six mining categories x three membership organisations from each category x 25 respondents from each member organisation). Based on the study's number of variables, a minimum acceptable sample is 250 (10 variables x 5 items per variable x 5 respondents). As mainly management levels will have knowledge of SV and similar strategic imperatives in the mining industry, CEO's, top-, middle- and lower-levels of management and industry were be targeted.

Table 6.5 exhibits the sampling statistics of this study.

**TABLE 6.5: DISTRIBUTION OF SELECTED MINING ORGANISATIONS**

<b>Categories</b>	<b>Number of Mineral Council of South Africa member organisations</b>	<b>Sample (Mining Organisations)</b>	<b>Targeted Respondents (Industry Leaders)</b>	<b>Actual Respondents – Received</b>
Base minerals	25	3	75	63
Coal	18	3	75	69
Platinum	13	3	75	61
Gold	8	3	75	52
Diamond	3	3	75	43
Industry contractors and associations	11	3	75	52
Total	78	18	450	340

Source: Researcher's own construction

For sampling purposes, 18 mining organisations out of 78 was considered to be an appropriate sample size, which equates to 450 individuals involved in mining activities representing six categories of membership or mine categories. Accordingly, these member organisations account for approximately 90% of the average annual production of the South African mining industry (MCSA 2019:1). According to Fincham (2008:1-3), a 60% questionnaire return (response) rate is considered acceptable for any study. Given the means of data collection employed by the study, overall responses were above 60%.

Therefore, a sample of 450 respondents and responses of about 340 (75.55% response rate) are considered appropriate for this study.

### **6.7.2 Data collection**

In order to accomplish the study's goals, the researcher must collect secondary and primary data (Hair, Black, Babin & Anderson 2014:31). Reid and Bojanic (2010:222) define data gathering as the procedure of collecting specific facts necessary for a particular study. Data collection is the process by which information on the measurements of the specified hypotheses is obtained in order to perform analysis relevant to addressing the research questions and objectives. The data gathering process is a key component of any project and the nature of the data and collection process depend on the problem and questions of the study (Mooi & Sarstedt 2011:29).

The researchers need to determine the nature of data and the procedure for gathering and performing analysis to maintain the validity and reliability of the results (Ellis 2016:95). Therefore, in the quantitative methodology, researchers need to ensure that the method and instruments for collecting data are accurate and consistent (Ellis 2016:95) as the extent of the quality, dependability and credibility of results of the study is essential for the generalisation. The data gathering process and/or data has two forms, namely secondary research and primary research.

#### **6.7.2.1 Secondary data**

Secondary data (literature review) in a study produces background and valuable information required for present research (Babbie 2016:119). In reviewing the existing

literature, the researcher applies theoretical and practical competence and techniques. The reviewed literature (secondary data collected) must be specific to the phenomenon that is investigated by the study (Johnston 2014:620). According to Johnston (2014:620), secondary data can be described as literature retrieved from the researcher who is not a participant throughout the present study or who had developed the literature (data) for a different reason or previous research. Beri (2010:12) further explains secondary data as relevant information retrieved by the researcher to provide background for the new research path or collection of primary data.

According to Johnson and Christensen (2013:35) and Bryman (2012:8), in the process of collecting secondary data, researchers must consider the significance, precision, quality, promptness and suitability in line with the requirement of the current study. Accordingly, the secondary data collected should depend on both the problems and objectives of the study (Wegner 2010:27). Therefore, the secondary data arguably refers to available literature that can be used to provide solutions to emerging questions that are explored by the current study. This implies that a literature review is largely recognised as a secondary data collection (study) focused on historical knowledge (Babbie 2016:119) which is considered significant in attempting to solve the current research phenomenon.

The researcher collected secondary data that was considered relevant, significant and suitable specifically to the study. The purpose of collecting and analysing documentation was to examine how organisations in selected case studies and others build their SV-led organisational strategies. In line with this thinking, previous studies were also reviewed to locate suitable and relevant SV practices and possible variables influencing the South African mining industry's operational efficiency, competitive advantage and sustainability. Literature and observation units of this data collection technique were systematically chosen to generate sample sizes that reflect the practices and strategies of the organisations that have adopted SV (O'Leary 2017:203-266), with a particular focus given to those in the South African mining industry. Therefore, several data searches were done at Nelson Mandela University repositories, and through directories including EBSCO, Emerald searches, Google scholars, Yahoo searches, Dissertation Abstracts, and

leading SV and CSR journals. The review also included press releases, web publications and policy papers.

#### **6.7.2.2 Primary data**

The main research data is distinguished by the method of collection and source of origin (Jones 2014:8). Reid and Bojanic (2010:222) suggest that main data, also referred to as primary data, is highly valued in academic research due to its ability to discover new solutions and/or knowledge to an emerging phenomenon or research questions. In addition, primary research data (information) is generated by conducting primary research (Rugg & Petre (2006:32). This also implies that the use of information and knowledge gained in the current study extends to secondary data in future studies. According to Hair et al. (2014:186), primary information is gathered to augment the literature review so as to appropriately address the questions and objectives of the study. Reid and Bojanic (2010:222) refer to primary data as the unique material accumulated for the cause of a particular study. Wegner (2010:26) reinforces this concept by noting that primary data is new and original information received from a representative sample for analysis of a specific study.

In addition, Wegner (2010:27) define primary data as executing original research for acquiring original knowledge to address existing problems. In this approach, the researcher has control over data accuracy and integrity. In addition, primary data are often considered to be highly authentic and authoritative for use in specific studies to address specific problems (Babbie 2016:248; Morgan & Summers 2005:110). Wiid and Diggines (2013:115-118) argue that there are also various processes for primary data collection. However, data for each study can be grouped and categorised based on the selection methods; for instance, through observation, experimentation, simulation, or reference data (Collis & Hussey 2014:196). Hence, based on the research paradigm and methods, a study may collect data through interviews, focus groups, surveys, field notes, and recorded transcripts of social interactions that help in solving the research questions (Ahmed, Opoku & Aziz 2016:82; Bryman & Bell 2011:163; Nykiel 2007:56; Saunders et al. 2007:148). These methods compete with each other. Observation enables the

researcher to observe the data on the topic of study (Yin 2011:131). According to Collis and Hussey (2014:154), simulation involves data derived from test models, while reference data emanates from documents and records that have been published or curated. However, the surveys are by far the most predominant mechanism for collecting primary data in a business study (Zikmund 2003:66; Nykiel 2007:56; Saunders et al. 2007:148). The survey is the technique applied by this research.

A survey refers to a study methodology that uses a questionnaire to gather information from a representative sample (Eybers 2010:130). In other terms, a survey is a structured way of collecting information from individuals with similar characteristics of the broader population to which the individuals belong. It must be noted, the survey method of accumulating data in positivistic paradigm research is recommended by many researchers (Collis & Hussey 2014:154). Furthermore, Du Plooy, Davis and Bezuidenhout (2014:105) state that surveys are important to a study because they enable a researcher to describe and interpret the research problem and to source information to solve those problems. The survey method is commonly used to facilitate data to be analysed statistically for generalisation of the results to a population (Collis & Hussey 2014:62; Ahmed et al. 2016:82; Saunders et al. 2007:148). Based on this understanding, this study collected primary data through survey questionnaires.

Information obtained through surveys empowers the researchers by documenting a high amount of respondents' subjective behaviours, attitudes, identities, and definitions (Gupta 2016:44). Surveys are therefore successful at collecting data that otherwise cannot be assessed through observation such as uncertainty, fear, opinions and attitudes of ethnicity. Dolnicar (2019:20-23) states that surveys also provide a convenient way of getting input within a short space of time from a significant number of people on the same subject. The simplicity of the survey methodology is a source of its primary data gathering strength (Cooper & Schindler 2008:215). The survey questionnaires differ over countless ways from how to address respondents to how to administer and answer questions. The influence of these inequalities significantly affects the results they generate (Wiid & Diggines 2013:125-126). More so, self-administration surveys (questionnaires)

improve the ability of respondents to share sensitive information relative to structured interviews (Bryman & Bell 2011:163; Saunders et al. 2007:148).

Therefore, this study adopted the survey methodology for collecting primary data regarding the study variables to assess perceptions of SV within the South African mining industry. A self-administered questionnaire is also prevalent in the positivism paradigm (Collis & Hussey 2003:66), hence, the adoption by this study.

### **6.7.3 Questionnaire design**

Before researchers start collecting data, a research instrument (questionnaire) must be developed. According to Mligo (2016:78), questionnaires are the most widely used research instrument, particularly in quantitative research design. Questionnaires are not only effective in gathering volumes of data in an organised and controllable manner, but also more effective and efficient than any other research instrument (Bryman & Bell 2011:163; Cooper & Schindler 2008:215). Babbie (2016:248) explains that the survey questionnaire is a research instrument that includes a set of statements (items) used to collect data on specified variables from the sampled respondents. Mligo (2016:78) defines the questionnaire as an instrument which researchers use to collect data from respondents for analysis of study variables and generalisations of the result to the population in answering the research questions.

According to Mligo (2016:78), at the questionnaire design stage, researchers may create a new questionnaire or use an existing tool developed by other researchers (Mligo (2016:78). Irrespective of whether the questionnaire is newly developed or adopted, the researcher must ensure validity and reliability. Furthermore, Mligo (2016:78) maintain that it is a researchers' responsibility to confirm that items of the questionnaire are succinct and descriptive so as to stimulate the completion rate. Hence, pretesting helps avoid misconception and other methodology related risks.

Despite the subject of study, Leedy and Ormrod (2013:196-197) guide researchers on the creation of a questionnaire that is considered acceptable. In support of this notion, Pellissier (2008:72) points out that the structure of the questionnaire should be planned



before the final design occurs. More so, the characteristics of the survey, including the design, content, appearance and simplicity of interpretation, are central to the development of a reliable instrument. The importance of the appropriateness of the questionnaire design is of value to the extent that the instrument must be able to generate answers to survey questions (Leedy & Ormrod 2013:196-197).

Collis and Hussey (2014:205) indicate that closed-ended questionnaires provide consistency in responses. In contrast, open-ended questionnaires involve survey participants using their own answers. The closed-ended questionnaire must encompass firm items which require responses that are measured using ordinal (Likert scale) or nominal levels for the demographic information (Jonker & Pennink 2010:155).

For this study, a closed-ended questionnaire has been adopted for collecting data from the respondents. Structured survey questionnaires were considered appropriate and beneficial for this study because of ease of understanding (respondents) and coding for analysis (STATISTICA program). The structured and closed-ended questionnaires are supported by other researchers because of convenience, ease to complete for the respondents, high rate of return and the ease to code for data analysis (Bailey 2008:118-119).

The design phase of the questionnaire considered the items the study variables and hypotheses presented in the introductory chapter of the study. Literature relating to hypotheses and operationalisation of the study variables are reviewed and discussed in the previous chapter. The aspects and attributes for each variable were also defined. The questionnaire of this study has been divided into four sections (Table 6.6): Section A for demographic and background of mining organisations, Section B for items on independent variables, Section C for items on the intervening variable and Section D for items on dependent variables. Section B, C and D consisted of 60 statements measured with a 7-point Likert scale. The questionnaire is presented in Annexure A.

#### **6.7.4 Scales of measurement**

According to Leedy and Ormrod (2013:196-197), the selection of a suitable measuring instrument scale enables researchers to perform appropriate analysis of deductive (quantitative) statistics. In Section A, nominal levels of measurement have been used to classify data which is impossible to rank numerically (Saunders et al. 2007:418). A 7-point Likert scale has been adopted for Section B, C and D to enable the quantitative analysis of data. The 7-point Likert scale enables the respondents to decide their answers more effectively in comparison to a 5-point scale (Boone & Boone 2012:1), while also being considered to be the most effective compared to the latter.

The questionnaire has been designed for collecting data which validates the presumed links of a hypothesised model and thus, defining SV elements that influence the organisational performance, competitive advantage and sustainability of organisations in the South African mining industry. The covering letter provided information about the research purpose and the relevant information required. The cover letter also included confidentiality assurances and guidelines on how to answer to survey claims. As mentioned, the questionnaire was compiled in this study in four sections, which are briefly discussed below.

- Section A of the survey captures background data of the respondents and the mining organisations for which they are responsible. This section consists of nominal-scale items used to collect basic information such as education and employment background of the respondents. Furthermore, it solicits information about the mining organisations themselves, namely the forms of organisations, the number of mines and their types and subsidiaries they operate, and the size of the workforce along with the estimated value to revenue. The nominal level scale has been used to characterise the results, making conclusions on parity or distinction, but nothing else (Collis & Hussey 2003:161).
- Section B gathers data on six independent variables that influence SV.
- Section C gathers data on respondents' perceptions regarding SV.
- Section D gathers data on the dependent variables.

The items in all the sections of the questionnaire, with the exception of Section A, are investigating the respondents' perceptions of SV within the South African mining industry. These Sections (B, C and D) use a 7-point Likert ordinal scales to demonstrate respondents' degree of agreement on each statement or item.

The variable items and/or attributes are a mixture of those developed by the researcher and those retrieved from other researchers' instruments (which were reworded to fit the requirement of this study). The study supervisors provided expert reviews to ascertain the questionnaire's accuracy. The experts are researchers from the Department of Business Management, Faculty of Business and Economics Sciences at the Nelson Mandela Metropolitan University.

Table 6.6 provides insight into the questionnaire designs and statements (items) developed to test specific variables of the hypothetical model constructed in Chapter One and further operationalised in Chapter Five.

**TABLE 6.6: QUESTIONNAIRE DESIGN AND VARIABLES**

VARIABLES	ATTRIBUTES	NUMBER OF ITEMS
<b>SECTION A – DEMOGRAPHIC INFORMATION</b>		
<b>Biographical information</b>	<ul style="list-style-type: none"> <li>• Demographical information</li> <li>• Employment and educational information</li> <li>• Organisational background information</li> </ul>	10 – Nominal level measurement
<b>SECTION B – INDEPENDENT VARIABLES</b>		
<b>H<sub>1</sub>:Environmental impact</b>	<ul style="list-style-type: none"> <li>• Protection of environment</li> <li>• Waste and energy use</li> <li>• Pollution management</li> </ul>	5 – Ordinal level measurement
<p>Adidas (2017)</p> <p>Edgeman and Eskildsen (2014)</p> <p>Fernández-Gámez et al. (2019)</p> <p>Pfitzer et al. (2013).</p> <p>Porter and Kramer (2011)</p> <p>Rio Tinto (2018)</p> <p>Wu (2019)</p>		
<b>H<sub>2</sub>:Employment conditions</b>	<ul style="list-style-type: none"> <li>• Employee involvement</li> <li>• Employee skills and education</li> <li>• Contracts and rewards</li> <li>• Employee health and safety</li> <li>• Diversity</li> </ul>	5 – Ordinal level measurement
<p>Daood and Menghwar (2019)</p> <p>Kang and Na (2020)</p> <p>Madlala and Govender (2018)</p> <p>Moon et al. (2011)</p> <p>Porter and Kramer (2011)</p> <p>Rio Tinto (2018)</p>		
<b>H<sub>3</sub>:Value/ supply chain consideration</b>	<ul style="list-style-type: none"> <li>• Procurement and logistical efficiency</li> <li>• Resource and energy use</li> <li>• Location of facilities/cluster (including involvement of local communities, youth and women)</li> </ul>	5 – Ordinal level measurement

VARIABLES	ATTRIBUTES	NUMBER OF ITEMS
	<ul style="list-style-type: none"> <li>Local enterprise and supplier development and procurement</li> <li>Host community recruitment (employment)</li> </ul>	
<p>Adidas (2017)</p> <p>Belton, Hein, Htoo, Kham, Phyo and Reardon (2018)</p> <p>Dufwa and Meconnen (2016)</p> <p>Gonzalez-Poblete, Ferreira, Silva and Cleveland (2018)</p> <p>Kang and Na (2020)</p> <p>Nestlé (2016; 2018)</p> <p>Pfizer et al. (2013)</p> <p>Porter and Kramer (2011)</p> <p>Rio Tinto (2018)</p>		
<b>H4: Automation and innovation</b>	<ul style="list-style-type: none"> <li>Technological automation and innovation (innovative solutions and modernisation)</li> <li>Clean technology</li> <li>Research and development</li> <li>Innovative business models- new revenue stream/Independent Power Production</li> <li>Access to/quality of orebody</li> </ul>	5 – Ordinal level measurement
<p>Anderson, Potocnik and Zhou (2014)</p> <p>Brent and Felder (2014)</p> <p>Chen and Huang (2009)</p> <p>Columbia Center on Sustainable Investment (2018)</p> <p>Evans et al (2017)</p> <p>Ghebrihiwet (2018)</p> <p>Pfizer et al. (2013)</p> <p>Porter and Kramer (2011)</p> <p>Ralston, Hargrave and Dunn (2017)</p> <p>Rocky Mountains Institute (2017)</p>		

VARIABLES	ATTRIBUTES	NUMBER OF ITEMS
<b>H<sub>5</sub>:Infrastructure development</b>	<ul style="list-style-type: none"> <li>• Water and electricity</li> <li>• Transport and rail network</li> <li>• Healthcare and educational facilities</li> <li>• Government partnerships (Integrated Development Partnerships) – Renewable energy and clean drinking water/sanitation</li> <li>• Mineral beneficiation</li> </ul>	5 – Ordinal level measurement
Campbell (2004) International Monetary Fund (2014) Jedwab and Moradi (2016) Modiemong (2017) Porter and Kramer (2011) McKinsey Global Institute (2013) Saghir (2017) South African Institute of Race Relations (2019) World Bank (2006; 2018)		
<b>H<sub>6</sub>: Regulatory and legislative considerations</b>	<ul style="list-style-type: none"> <li>• Government policies</li> <li>• Mining Charter and BBBEE</li> <li>• Environmental legislation</li> <li>• Transparency and accountability</li> <li>• Socioeconomic transformation – tax/royalties</li> <li>• Government policy on nationalisation</li> </ul>	5 – Ordinal level measurement
Aikins (2009) Columbia Center on Sustainable Investment (2018) Du Plessis (2011) Hamann (2019) Maroun, Jaywant Ram and Kok (2019) Porter and Kramer (2011) The Extractive Industries Transparency Initiative (2009) South African Institute of Race Relations (2019)		

VARIABLES	ATTRIBUTES	NUMBER OF ITEMS
<b>SECTION C – INTERVENING VARIABLE</b>		
<b>Shared Value (Perceptions)</b>	<ul style="list-style-type: none"> <li>• Net positive impact (socioeconomic and environmental impact)</li> <li>• Social values (wages, purchasing, infrastructure, wealth)</li> <li>• Economic contribution (growth of wages throughout the value chain, taxes and profits)</li> <li>• Efficiency in the use of input factors</li> <li>• Host communities/Social License to Operate</li> <li>• Stakeholder involvement and collaboration</li> <li>• Reputation</li> <li>• Operational costs</li> <li>• Voluntary compliance</li> </ul>	15 – Ordinal level measurement
Adidas (2017) Discover (2019) Hills et al. (2012) Høvring (2017) Kottke et al. (2017) Michellini and Fiorentino (2012) Nestlé (2016; 2018) Pfizer et al. (2013) Porter and Kramer (2011) Rio Tinto (2018) Scheyvens, Banks and Hughes (2016)		
<b>SECTION D – DEPENDENT VARIABLES</b>		
<b>H<sub>7</sub>:Organisational performance</b>	<ul style="list-style-type: none"> <li>• Revenue</li> <li>• Profitability</li> <li>• Return on investment/assets</li> <li>• Operational efficiencies</li> <li>• Productivity</li> <li>• Financial and organisational sustainability/survival</li> </ul>	5 – Ordinal level measurement

VARIABLES	ATTRIBUTES	NUMBER OF ITEMS
Aakhus and Bzdak (2012) The European Commission (2015) Grameen Bank (2016) Michellini and Fiorentino (2012) Moon et al. (2011) Neilson and Rossiter (2008) Nestlé (2016; 2018) Porter and Kramer (2011) Porter et al. (2011)		
<b>H<sub>8</sub>:Competitive advantage</b>	<ul style="list-style-type: none"> <li>• New market and market share growth</li> <li>• Core competencies/expertise</li> <li>• Differentiation and low cost benefits/Low production input</li> <li>• Access to global and domestic markets</li> <li>• New capital venture and investment</li> <li>• Brand awareness and agility (Quality/innovative solution)</li> </ul>	5 – Ordinal level measurement
The European Commission (2015) Grameen Bank (2016) Neilson and Rossiter (2008) Nestlé (2016, 2018) Porter and Kramer (2011) Porter et al. (2011) Hills et al. (2012)		
<b>H<sub>9</sub>:Sustainability</b>	<ul style="list-style-type: none"> <li>• CO2 emissions and green water/rehabilitation</li> <li>• Responsiveness to natural disasters</li> <li>• Human rights and labour rights</li> <li>• Rural development</li> <li>• Community education, health and safety</li> <li>• Employment (host communities, youth and women)</li> <li>• Standard of living</li> </ul>	5 – Ordinal level measurement



VARIABLES	ATTRIBUTES	NUMBER OF ITEMS
The European Commission (2015) Grameen Bank (2016) Neilson and Rossiter (2008) Nestlé (2016;2018) Porter and Kramer (2011) Porter et al. (2011)		

Source: Researcher's own construction

Table 6.6 presents the attributes of each variable of the study around which the items of the questionnaire were modelled. For this study, the nominal (Section A) and ordinal (Section B, C and D with 60 items) measurement level were used to classify data. Smith, Gratz and Bousquet (2008:8) argue that a nominal scale standard utilises terms or digits as a way of marking variables. A 7-point Likert scale with ordinal level measurement (1 means strongly, 2 means disagree, 3 means somewhat disagree, 4 means undecided, 5 means somewhat agree, 6 means agree, 7 means strongly agree) was adopted in line with recommendations of Zikmund (2003:297) who stated that the ordinal scale of measurement organises items based on significance and through an orderly relationship. In ordinal level measurement, the attributes of the variables are assessed and orderly ranked (Salkind 2010:140). In addition, the ordinal scale further extends a variety of techniques, including mean and regression coefficients, for use in statistical analysis (Hoyle 2014:214) which are also discussed in this chapter.

### 6.7.5 Pilot study

The researcher should pretest the survey questionnaire to ascertain whether it is free from error and able to collect accurate and relevant data. According to Leedy and Ormrod (2010:110), the pilot study (pretesting the questionnaire) is appropriate for assessing the consistency of the questionnaire. Johnson (2014:218) describes the pretesting as a process of objective evaluation of the questionnaire and provisional analysis before conducting the main research. In order to evaluate potential errors, the proposed questionnaire is distributed to a small portion of study participants (Johnson 2014:218).

In addition, the pre-testing helps researchers to determine whether the proposed questionnaire will be successful in obtaining the relevant information and whether the items in the questionnaire are straightforward and consistent (Burns & Bush 2014:103; Leedy & Ormrod 2010:110-111).

In this research, the pretesting proved advantageous in evaluating the consistency and usefulness of the questionnaire. Pretesting was conducted at mines in Gauteng, Mpumalanga and the Northwest. The 20 respondents who participated had minimal knowledge of SV and required clarification of the importance and benefits of SV. In order to overcome some of the problems, the researcher developed a precise description of SV in the informed consent letter annexed to the questionnaire. The 20 participants considered the study to be relevant and essential especially on issues of productivity, economic wealth, accommodation, retirement rewards for the workforces and community development. The pre-test exercise was also useful in identifying problems that could adversely affect the accuracy and credibility of the results (Saunders et al. 2007:394). There was nothing of concern noted in the instrument except for the length of the questionnaire being considered to be too long.

#### **6.7.6 Administration of questionnaires**

Identifying prospective mining organisations began in July 2019 and continued until March 2020 using convenience and snowballing sampling methods. The researcher was able to establish the mining organisations making up the sampling frame in South Africa from those exchanges. Due, however, to COVID-19 and the state of lockdown, the study collected the original data by circulating the survey questionnaires to respondents electronically via e-mail. This was done by sending out an introductory letter which included a link for an online survey questionnaire. The SurveyMonkey software was also used for consolidating responses from the respondents. Interactions with respondents were on Nelson Mandela University's official letterhead to augment the credibility of the study and boost the respondents' chances of completing the survey questions. Furthermore, the official LinkedIn profiles of different mining organisations have been used to send out reminders.

The ethical clearance expounded on the research objectives and the specific primary data required and provided confidentiality guarantees to the respondents. Moreover, respondents were guaranteed to receive the synopsis of the results to encourage improved cooperation throughout the study. Occasionally, communication was kept with the respondents to remind them about the questionnaire and to encourage them to participate in the study. More than 450 questionnaires were made available to potential respondents. 600 questionnaires were circulated amongst the potential respondents and a total of 340 responses received were all considered usable. The study sought to solicit 450 responses or a minimum of 250 responses. However, the study achieved an effective response rate of 75.5% (340 questionnaires).

#### **6.7.7 Data analysis**

In the positivism paradigm researchers concentrate on accumulating data about the variables of the study. In addition to the use of the literature review to define a number of theories of interlinked variables, to develop hypotheses and to formulate assumptions, quantitative research validates hypotheses by obtaining and analysing primary data (Collis & Hussey 2014:201). The data analysis includes multiple computational activities and takes a fair amount of statistical knowledge from the researcher. The procedure of data analysis enables the researcher to turn mathematical data into valuable knowledge about a phenomenon (Taylor & Cihon 2004:1). Researchers evaluate and interpret primary data to test theories and resolve study problems.

Taylor and Cihon (2004:1) describe data analysis as a process whereby raw data is transformed into valuable statistics. In addition, statistical analysis refers to a process which includes several components, like data processing, labelling and interpretation. Kumar (2010:254) argues in support of the thinking that researchers need to design a plan for primary data analysis. The researchers should transform raw data into meaningful information by subjecting it to different techniques (Correa 2012:4). Data processing involves different stages from input capture, analysis and translation into information which offers solutions to the research problem (Siddiqui 2011:655). Scientific data is used

to test theories and then, based on results, the hypothesis can be dismissed or upheld (Collis & Hussey 2014:201).

Analysis of the data helps the researcher to summarise information into concise trends, charts, diagrams, interactions and associations that discover new knowledge about a particular phenomenon. Accordingly, Jonker and Pennink (2010:142) define data analysis as a logical use of statistical methods to mathematically summarise and present data to inform decision-making. In quantitative research, the analyses are mostly descriptive or inferential (Collis & Hussey 2014:226). In addition to descriptive and inferential predictive analysis, Russo and Stol (2019:33) propose that quantitative research should rather conduct descriptive and inferable-predictive analysis. Russo and Stol (2019:33) further clarify that descriptive analysis refers to statistical interpretations of data sets in frequencies that are useful for understanding a phenomenon, whereas inferential-predictive analysis refers to advanced analysis that demonstrates the interplay of variables in order to generalise the results and predict the future or draw conclusions. In this study conclusions are drawn after considering the descriptive and inferential-predictive analysis and the test of the hypotheses.

In this research, primary data was processed and configured for final analysis using Microsoft Excel and STATISTICA. This study adopted a descriptive and exploratory research approach, which necessitated exploring the interactions between variables by means of descriptive, exploratory and an inferential-predictive analysis. These techniques include: descriptive statistics (mean and standard deviation), exploratory factor analysis, Cronbach's alpha coefficients utilised to evaluate internal reliability, correlation analysis and multiple regression analysis. Furthermore, the Analysis of Variance (ANOVA) technique was adopted to test relationships between demographic variables and the other variables in the study's hypothetical model. The selected statistics for this are explained below.

#### **6.7.7.1 *Exploratory Factor Analysis***

EFA refers to an advanced numerical procedure widely used across various fields of research (Wiid & Diggines 2013:161, 241-242). This technique reduces data to a smaller set of summary variables and to explore the underlying theoretical structure of the phenomena. In addition, it is used to identify the structure of the relationship between the variable and the respondents. EFA also assesses the amount of contributing influences accountable for data co-variation (Wiid & Diggines 2013:161).

Wiid and Diggines (2013:242) also suggest that EFA is a complicated quantitative multivariate procedure used to establish the basic structure of a diverse number of variables. In addition, within factor analysis, EFA is a process of research which seeks to discover or examine the fundamental correlations between assessed variables. Brown (2015:11) agrees that EFA restricts data to the collection of a few condensed variables and discusses and describes the interaction framework between variables and the participants of the study. Furthermore, Brown (2015:11) maintains that EFA procedures are far more effective when several assessed variables are present in the study for each variable. Researchers using EFA analyse whether a single measure explains the inter-correlations between measures and assesses if the items are appropriately measuring the underlying structure (Brown 2015:11).

Rubin (2009:263) notes that EFA explores how items interrelate with each other. In addition, EFA helps researchers to determine similarities between the variables and items within the questionnaire. Kline (2014:10) also notes that EFA can be applied by the researcher when analyses are complicated (ambiguous) and/or when the researcher is unsure about what the more significant variables are in the study. The principal objective of EFA is to identify the major constructs or dimensions of the variables (Kline 2014:7). Furthermore, variable loadings help researchers understand variables (Kline 2014:10). Munro (2005:324) describes variables as objects belonging to or standing in a group together. EFA analysis were followed by the test of validity.

#### **6.7.7.2    *Validity of the measuring instrument***

Validity is the degree to which the results of the study are merited against the strength of the survey data which is considered credible (Gray 2017:191). Credibility is closely related to internal validity. McDaniel and Gates (2013:289) also refer credibility to the degree to which an evaluation assesses what it intends to evaluate. In other words, validity explains the level by which the true meaning of theory under investigation is accurately represented by an empirical test (Gray 2017:192). Validity is essential for a questionnaire to ensure that it actually tests what it was designed to measure accurately (Zikmund & Babin 2010:432). When a research instrument (questionnaire) has a higher validity, it presents a higher probability of testing the conceptual frameworks for which it is primarily designed. Study results can be deemed transferable only if they match into a current setting beyond the existing study population (Gray 2017:192).

According to Zhang, Schunn, Li and Long (2020:2-3), validity takes different forms. Below is a summary of the validation tests used for this study.

- **Face validity** infers that statements contained in the survey questionnaire test the concepts/theories they are intended to test. The items represent a copy of the definitions to be measured (Babin et al. 2015: 116; Bailey 2008:69). This study thus recognises face validity as the extent to which objects tend to be testing the specified concepts/theories.
- **Content validity** is the degree to which the objects on the questionnaire sufficiently cover the subject of study (Babin et al. 2015:116). Accordingly, the questionnaire's content validity is dependent on the assessment of an expert (Polit & Beck 2008:459).
- **Construct validity** measures whether the questionnaire accurately tests the framework it is designed to test. This validity tests the degree to which a test measures what it claims, or purports, to be measuring (Li 2016:808). In other words, data in the test must relate to the study's hypothesised model.

- **Convergent and discriminant validity** are the subclasses which test for construct acceptability (Hair et al. 2014:124). According to Babin et al. (2015:117), although they are opposite concepts, they calculate the same thing in terms of similarity. Li (2016:808) claims that convergent validity is formed when measurements of structures which should be logically interrelated display evidence that they are in fact interrelated with one another. Discriminant validity contrasts with divergent validity. Discriminant validity tests whether concepts or measurements that are not supposed to be related are actually unrelated (Wiid & Diggines 2013:161, 241-242).

Hair et al. (2014:124) argue that convergent validity is the degree to which scores on a measure share a high, medium or low relationship with scores obtained on another measure designed to test the same construct. In addition to using it to consider links between variables, Pearson's correlation coefficient can be used to assess to what degree the measures are interrelated (Hair et al. 2014:124). Therefore, the correlation coefficient is applied to calculate the converging and discriminatory validity of the data. In addition, where the correlation coefficient is 0.4 or greater, there is convergence validity and a coefficient of 0.3 or less is considered evidence of discriminatory validity (Hair et al. 2014:124). Another important stage of analysis is instrument reliability.

### **6.7.7.3 Reliability of the measuring instrument**

Cooper and Schindler (2011:282) explain that reliability is the degree to which the questionnaire delivers consistent results with equal values. In addition, Collis and Hussey (2014:275) also refer to reliability as a degree to which outcomes can still be replicated under the same environments once the study has been repeated. The more accurate the results obtained in the same repetitive tests by the objects, the greater the precision of the process of measurement. In other words, Dahlberg and McCaig (2010:243) believe that if a statement or a question is completely reliable, then a different sample group would understand and interpret the same question and statement in the same way. Reliability confirms the quality issues that should be considered before the implementation of a tool or the compilation and analysis of data in a study.

The reliability (internal consistency) is usually measured with Cronbach's alpha coefficients, which essentially test the accuracy of the questionnaire (Collis & Hussey 2014:275; Salkind 2006:118). Cooper and Schindler (2007:322) and Gliem and Gliem (2003:84) describe Cronbach's alpha as a form of internal accuracy reliability assessment. Cronbach's alpha is a test technique which requires only one administration to provide a valid estimate of the dependability and accuracy of the test (Gliem & Gliem 2003:84). Cronbach's alpha coefficients measure the degree to which the items of the questionnaire are homogeneous and replicate the equivalent basic structures (Cooper & Schindler 2007:322). Babin, Carr, Quinlan and Zikmund (2013) state that Cronbach's alpha coefficient varies from zero to one in establishing the overall reliability of the questionnaire. Historically a coefficient of reliability above 0.80 is deemed a fair threshold for high-risk reviews (Collis & Hussey 2014:275). While 0.85 reliability ratings are reasonable and exceeded in practice (Salkind 2010:162), the reasonable reliability of research-built structures with a minimum of 0.60 is achievable (Babin et al. 2015:113; Suhr & Shay 2009:3). Accordingly, a Cronbach alpha of 0.7 is, therefore, the criterion for evaluating the reliability of this study's internal accuracy of the questionnaire.

#### **6.7.7.4 Descriptive statistics**

After the data collection phase was concluded, the data was analysed and interpreted in order to define its meaning. Statistical techniques may be either descriptive or inferential. McDaniel and Gates (2013:458) define descriptive statistics as a numerical procedure that offers descriptions, illustrations and summaries of data. Descriptive statistics is another important step in analytics. According to Nestor and Schutt (2015:23), conclusions on the assumptions and/or generalisation of results to the wider population need not be drawn on the premise of the outcomes of the descriptive statistics.

According to Zikmund (2003:402), descriptive statistics may be defined as statistics used to explain or contextualise the population or study details. Collis and Hussey (2003:346) state that descriptive statistics refer to a group of analytical statistics used for summarising, interpreting or presenting quantitative data used in the exploratory analysis of data. Zikmund, Babin, Carr and Griffin (2010:593) further clarify that descriptive



statistics should explain and summarise data in a concise and understandable form. Admittedly, Blaikie (2003:52) extend that descriptive statistics should be inclusive of statistical measures such as distributions of frequencies, means and standard deviations.

In this study, the descriptive analysis was used to summarise demographic data in Section A of the survey, which includes items such as the age of participants, ethnicity and gender. Sections B, C and D of the questionnaire were also analysed through descriptive statistics to summarise and interpret information on factors affecting SV and information on organisational performance, competitive advantage, and sustainability.

- **Frequency, counts, distributions and percentages**

Descriptive statistics, in short, helps describe and understand the features of a specific data set by giving short summaries about the sample and measures of the data (Blaikie 2003:52). This study provides concise findings by illustrating data expressed in the survey's nominal categories based on demographics (Section A).

- **Measures of central tendency**

According to Nestor and Schutt (2015:23), data is summarised in mode, average and mean. Mode is the most common and regularly appearing value in a distribution, while the median is the mid-point. On the other hand, mean is an average (Black 2009:47; Nestor & Schutt 2015:23). The analysis describes the properties of statistical distributions of the respondents.

- **Measures of variability (dispersion)**

Variation tests provide a summary of the level of variation (McBurney & White 2009:396). Therefore, measures of variation determine a degree to which ratings differ and have been dispersed out over a sample or population. In other words, the variance tests include range, variance and standard deviations (Nestor & Schutt 2015:23).

The computation of descriptive statistics is followed by the calculation of inferential statistics, correlation analysis in particular.

#### **6.7.7.5 Correlation analysis**

The correlation analysis (Pearson Product-moment correlation) deals with the relationship between variables. Furthermore, the purpose of correlation analysis is to analyse and quantify the intensity of the relationship between variables (McNabb (2015:194). Madrigal (2012:193) defines correlation analysis as a standard quantitative procedure used to evaluate co-variation between variables. Data in this study was subjected to a Pearson product-moment correlation.

Pearson correlation tests the extent of linear variable interaction (Parasuraman, Grewal & Krishnan 2006:441). Accordingly, it is referred to as the most advanced form of statistical (correlational) analysis. In other words, the Pearson correlation coefficient is the core of sophisticated multivariate analytical techniques. Causal relationship analysis (similarity) is assessed by a correlation coefficient that defines the significance of the linear relationship between variables (Cooper & Schindler 2008:322).

The correlation coefficient analysis helps researchers calculate the interaction between variables and the intensity and trajectory of particular variables using the Pearson Product-Moment Correlation (McNabb 2015:194). The Pearson correlation coefficient ( $r$ ) varies from -1.0 to +1.0. According to Ruel, Wagner & Gillespie (2016:84), when the value of the measured coefficient ( $r$ ) is approximately or equal to 1, the reliability is considered to be significantly higher or rather depicting a perfect relationship (McNabb 2015:194). Consequently, the coefficient is perceived to be significant once above the positive 0.7 point, while any value below a positive 0.5 (moderate relationship) will be assumed to reflect a pessimistic and/or neutral relationship (Collis & Hussey 2014:275).

The study uses correlation (Pearson Product-Moment Correlations) (Collis & Hussey 2014:270) and regression analyses (multiple regression) (Struwig & Stead 2013:168) in order to assess relationships between the study's variables to test the stated hypotheses.

#### **6.7.7.6     *Multiple regression analysis***

The ultimate analysis in this study is multiple regressions. Regression is similar to correlation, they both deal with similarities amongst the variables. However, regression analysis is the most widely applied quantitative data analysis procedure applied across different academic disciplines (Yan & Su 2009:4). Sen and Srivastava (2012:4) refer to regression as a numerical technique performed to uncover and estimate the association between variables. Analysis of regression aims to assess the effect of predictor variables on the dependent variable. In other words, regression analysis helps researchers to establish a causal relationship between variables (Maree 2016:272).

The multiple regression analysis is among the widely used techniques for analysis of regression. This is an advanced technique of numerical analysis which forecasts the unspecified significance of the dependent variables based on the defined significance of independent variables (Hopkins & Ferguson 2014:55). Multiple regression is primarily explained by the relationship between multiple independent or predictor variables and one dependent or criterion variable (Salkind 2013:324). As a predictive analysis, multiple linear regression analysis is used to explain the relationship between a continuous dependent variable and two or more independent variables (Maree 2016:272). Although the multiple regression results are often difficult for a new researcher, the analysis helps create prediction models required for the meaningful interpretation of data. According to Maree (2016:272), the researcher can develop predictive models once the multiple regression analysis results demonstrate the existence of the relationship between the multiple variables and dependent variables and their influence thereof. The researcher has primarily followed variants of the general linear model, including ANOVA and multiple linear regression, to test the results of the study.

#### **6.7.7.7     *Analysis of Variance***

Analysis of variance (ANOVA) is a statistical procedure concerned with comparing means of several samples (Cooper & Schindler 2011:492). It can be thought of as an extension of the t-test for two independent samples to more than two groups. The purpose is to test for significant differences between class means, and this is done by analysing the

variances. In the one-way ANOVA, there is only one dependent variable, and hypotheses are formulated about the means of the groups on that dependent variable (Ostertagová & Ostertag 2013:256). In addition, the study adopted the post-hoc Scheffè Test, which is utilised to identify significant differences between the mean scores of the various categories within each demographic variable. To measure the difference in an ideal situation, if the significance/p-value is less than 0.05, that means that between some of the groups of the demographic variables there is a significant difference (Hair, Black, Babin & Anderson 2010:117). If the significance/p-value is larger than 0.05, there is no significant difference (Hair et al. 2010:117). In order to conclude the process of data analysis, the study adopted the Analysis of Variance (ANOVA) to test in particular the impact of demographic factors on the intervening variable, thus SV, which is an emerging construct for which there is limited literature.

## **6.8 RESEARCH ETHICS**

This study collected and analysed data using a quantitative approach, a survey questionnaire in particular. In order for the study to be conducted, the researcher had to consider ethics. According to Greener (2008:40), studies that recognise the importance of ethics can produce knowledge with maximum benefits without causing harm or substantial difficulty. In addition, Struwig et al. (2013:68) maintain that a study should be conducted in such a way that is considerate. In other words, research should not violate the privacy of the respondents, use inappropriate methods, and create data that does not exist or use secondary data without acknowledgement.

Neuman (2006) notes that the following characteristics are indispensable in the field of research: the respondents should be informed of the study objectives; respondents should be made aware that their participation is voluntary and clarity must be provided before the data collection process; any information provided by the respondents treated as confidential at all times, and confidentiality maintained such that the respondents feel free to rate their responses without fear or favour. In light of the above, the researcher obtained ethics clearance at the Nelson Mandela University Research Ethics Committee - Human before the commencement of the study (see Annexure B). The cover letter of

the questionnaire (part of Annexure A) provides the respondents with an unconditional undertaking that their participation is voluntary and will be treated with privacy, anonymity and confidentiality. In addition, the letter explained the study objectives to all participating respondents. The research coordinators with significant research expertise within the management sciences discipline provided the researcher with guidance in maintaining adherence to the research principles.

## **6.9 CHAPTER SUMMARY**

This chapter extensively expanded on the research methodology and design of this study. The distinction was made between two types of paradigms, namely, positivism and phenomenological paradigms. The research paradigm is a concept or collection of fundamental beliefs that guide the actions of a researcher. There are various research approaches a positivism study can follow including descriptive, exploratory, experimental and quasi-experimental approaches. Based on this study, exploratory and descriptive research approaches were selected on the basis that the study considered describing SV perceptions in the mining industry in South Africa by various respondents as well as it presents a relatively unexplored research area within the SA mining context.

The quantitative method followed in the study was adopted based on the research paradigm and approach suitable to address the purpose of the study. The adoption of quantitative methodology made it possible for the researcher to review the relevant literature as part of secondary research before collecting data from the respondents for the primary research part of the study. While the secondary research element focused on the literature review of the mining environment and SV practices as well as the supporting theories, the primary research concentrated on the development of a survey questionnaire to gather data on aspects or attributes of each research variable (based on relevant stakeholders' perceptions) in order to answer research questions.

The sample design phase has been debated in this chapter, providing a clear illustration of different levels of the process. This section included details about the population of the study, defining sample frame, selecting sampling techniques and sample size. The closed-ended survey questionnaire for the study was designed to collect data from

respondents in specific categories based on the variable type, Section A (demographical information), Section B (independent variables), Section C (intervening variable) and Section D (dependent variables). Details were provided on how the measuring scales were developed, based on existing scales, literature and some items were self-developed.

This chapter concludes by providing a detailed description of the six analysis techniques that the research instrument and data were subjected to. In order to ensure that the results of the study are valid and reliable, both the validity and the reliability of the questionnaire were tested. Specifically, the six data analysis techniques include EFA, Cronbach's alpha, descriptive statistics, correlation and regression analysis as well as ANOVA tests.

Chapter Seven will explain the empirical results achieved from the main data analysis.

## CHAPTER SEVEN

### EMPIRICAL RESULTS OF THE STUDY

#### 7.1 INTRODUCTION

The previous chapters discussed the background and theoretical overview of the study. The secondary sources consulted provided the background to the South African mining industry, the SV concept and its implementation in the South African business environment. The SV-related theories, approaches and strategies were also presented in this chapter. In addition, case studies reflecting the implementation of SV were also discussed. Chapter Six discussed the research methodology utilised in the empirical study. The chapter also provided an overview of the measuring instrument, the population and sampling technique employed in this study. The statistical techniques used to test the validity and the reliability of the measuring instrument were also discussed, and further steps in the data analysis process to be followed, was highlighted therein.

In this chapter, the empirical results of the research are presented and analysed. This chapter provides a detailed discussion of the empirical results of the primary data gathered during the investigation. The research hypotheses are presented as a reminder of the evaluation and analysis of data needed for this study. The chapter discusses the results of the EFA for the measurement of the validity of the research instrument, Cronbach's alpha correlations conducted to measure reliability, descriptive statistics, Pearson Product-Moment correlation coefficients and multiple regression analyses. This chapter concludes by presenting the influence of the demographic variables on perceptions of SV, by using one-way ANOVA tests to view results linked to different groups' views on the intervening variable, *Shared Value*.

#### 7.2 PRESENTATION OF OBJECTIVES AND HYPOTHESES OF THE STUDY

The primary objective of this study is to investigate perceptions of SV within the mining industry of South Africa. Achieving this objective will entail establishing the current SV perceptions of stakeholders in the mining industry as well as the antecedents and outcomes of SV. For this study, to attain the objectives the following variables are subject

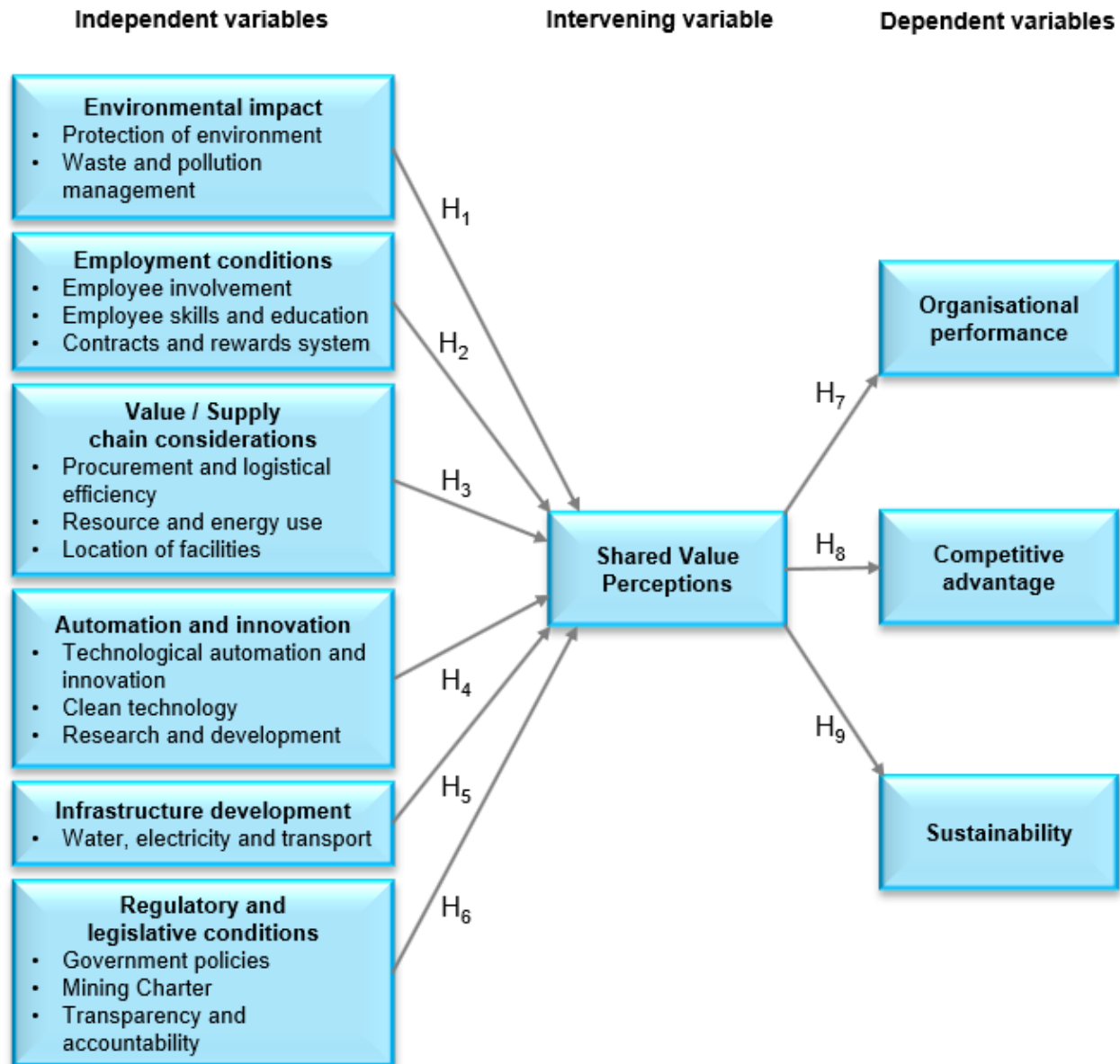
to empirical evaluation and analysis: environmental impact, employment conditions, value/supply chain considerations, automation and innovation, infrastructure development and regulatory and legislative conditions (as independent variables); Shared Value perceptions (as the intervening variable); organisational performance, competitive advantage and sustainability (as dependent variables). The hypotheses presented in Chapter One are repeated for ease of reference as follows:

- H<sub>1</sub>: There is a positive relationship between *environmental impact* and perceptions regarding SV in the mining industry in South Africa.
- H<sub>2</sub>: There is a positive relationship between *employment conditions* and perceptions regarding SV in the mining industry in South Africa.
- H<sub>3</sub>: There is a positive relationship between *value/supply chain considerations* and perceptions regarding SV in the mining industry in South Africa.
- H<sub>4</sub>: There is a positive relationship between *automation and innovation* and perceptions regarding SV in the mining industry in South Africa.
- H<sub>5</sub>: There is a positive relationship between *infrastructure development* and perceptions regarding SV in the mining industry in South Africa.
- H<sub>6</sub>: There is a positive relationship between *regulatory and legislative conditions* and perceptions regarding SV in the mining industry in South Africa.
- H<sub>7</sub>: There is a positive relationship between perceptions regarding SV and *organisational performance* in the mining industry in South Africa.
- H<sub>8</sub>: There is a positive relationship between perceptions regarding SV and *competitive advantage* in the mining industry in South Africa.
- H<sub>9</sub>: There is a positive relationship between perceptions regarding SV and *sustainability* in the mining industry in South Africa.



The hypotheses to be empirically tested are illustrated in Figure 7.1.

**FIGURE 7.1: THE HYPOTHESISED MODEL OF THE IMPACT OF SHARED VALUE WITHIN THE SOUTH AFRICAN MINING INDUSTRY**



Source: Researcher's own construction

In addition to the hypotheses developed to test the relationships between the study model's variables, the study will evaluate the influence of demographic variables on the intervening variable of the study, thus on the assumptions that age, ethnicity classifications, level of education, length of experience, size of the organisation and their

main activities significantly influence perceptions of SV within the mining industry of South Africa.

### **7.3 DATA ANALYSIS STEPS FOR THIS STUDY**

The data analysis for this study was divided into six parts, as outlined below.

**Step one:** The first part of the data analysis was to test the validity of the measuring instrument (questionnaire). Validity was tested and established by conducting an EFA in order to assess construct validity of the measured variables. Furthermore, EFA reduced the primary data to a smaller set of summarised variables and it uncovered underlying relationships between the variables measured in this study. In this study, only items with EFA factoring above 0.4 were considered to be a valid measure of the construct.

**Step two:** The second phase of the data analysis by means of statistical analysis was to test the internal reliability (also known as internal consistency or homogeneity) of the measuring instrument. This aimed at ensuring that the measuring instrument was consistent in producing similar results when utilised repeatedly. This was done using the Statistica (version 13) software package to assist in computing the Cronbach's alpha ( $\alpha$ ) values for each variable as formed by the EFA. The Cronbach's alpha values were computed and the value considered appropriate for this study was 0.7 and above.

**Step three:** The third phase of the data analysis process calculated the descriptive statistics of the empirical data. Descriptive statistics involves statistical techniques that aim to reduce a large set of data in a summarised and meaningful way. Accordingly, the descriptive statistics summarised and described data presented in measures of central tendency and dispersion (means and standard deviations). In other words, this phase of the data analysis is concerned with the descriptive statistics which includes the discussion of biographical information of the respondents in the form of numbers, averages and percentages.

**Step four:** The fourth part of the data analysis consists of the results of the analysis of Pearson's Product-Moment correlations. The correlation analysis examined how multiple

independent variables are related to the intervening variable as well as the dependent variables.

**Step five:** The fifth part of the data analysis consisted of multiple regression analyses; similar to correlation analysis. These examined relations between variables, comparing the results against the correlation analysis. Based on the results of the multiple regression analyses, the hypothesised relationships were then either rejected or accepted.

**Step six:** In the final phase, ANOVA tests were used to test the relationships between demographic variables and SV as the intervening variable of the study's hypothetical model. In line with the literature review, the evaluation sought to confirm the demographic aspects that influence SV perceptions and further determine relationships between respondents' demographic aspects.

This study also used abbreviations to label the variables of the study in order to assist in interpreting the empirical results. Table 7.1 provides a summary of the abbreviations of all the variables used in this study.

**TABLE 7.1: ABBREVIATIONS OF VARIABLES**

VARIABLES	ABBREVIATION
Environmental Impact	EI
Employment Conditions	EC
Value/Supply Chain Considerations	VC
Automation and Innovation	AI
Regulatory and Legislative Conditions	RL
Mineral Resource Governance	MG
Shared Value Perceptions	SV
Organisational Performance	OP
Competitive Advantage	CA
Sustainability	SU
Sustainability Performance	SP

Source: Researcher's own construction

#### **7.4 VALIDITY OF THE MEASURING INSTRUMENT**

The validity of the measuring instrument determines whether the research instrument is accurate in the measurement of the intended data and truthful to the research objective (Franklin, Allison & Garmen 2014:47). According to Hilsenroth, Segal and Hersen (2004:8), the concept of construct validity can be further deconstructed as the construct is seen as the initial question or hypothesis (idea, belief, concept), that determines which data is to be gathered during the research process as well as how the data is to be gathered. When analysing the content validity, the measuring instrument's content will be measured concerning the content related to the variable (Heale & Twycross 2015:66). The purpose of testing construct validity is to determine whether the interpretations made about the results of the research instrument serve the purpose of the research instrument (Golafshani 2003:599-600).

According to Ursachi, Horodnic and Zait (2015:680), construct validity can be divided into various parts, namely, discriminant validity, convergent validity, nomological validity and face validity. In this study, convergent validity and discriminant validity (the two parts of construct validity) were considered for further statistical analysis. In addition, Goodwin (2009:132) states that convergent validity is the degree to which two measures of construct that are designed to measure the same construct are related. Convergence between the two measures of the construct must be seen and the correlation between the two constructs identified in order for a relationship to be established. Discriminant validity refers to the level of correlation between two variables that were designed to measure similar but conceptually different constructs. The construct can be considered to be discriminant if a low correlation is found between the variables (Ursachi et al. 2015:680). In this study, factor analysis was used to reduce the large number of variables to smaller subsets and was used to establish construct validity (Taber 2017:7).

A series of factor analyses were performed in this study to assess the validity of the scales measuring the independent, intervening and dependent variables. The objective of the factor analyses was to ascertain whether the scales used in this study truly measured their hypothesised constructs. In addition, the factor analyses were used to determine

whether each of the scales only measures one particular construct and whether each variable is indeed unidimensional. According to Hair et al. (2014:123), the use of summated scales reduces the measurement error associated with the individual items. The EFA was also used to establish which questionnaire items loaded onto which factors, in order to see which factors form the model, that is, which factors remained from the original hypothesised model.

EFA is a statistical technique that simplifies the presentation of an ( $n \times p$ ) data matrix; this means that the technique reduces a large number of variables to a more manageable set of factors (Brown 2015:11). In this study, the sample size was 340, clearing the factor analysis size rule of having a minimum of 10 observations per variable in order to avoid computational difficulties (Sidanius 2018; Tabachnick & Fidell 2001:588; Kline 2014:10). In this regard, Preacher and MacCallum (2002:160) note that “as long as communalities are high, the number of expected factors is relatively small, and model error is low, researchers should not be overly concerned about small sample sizes”. Although factor loadings of  $\pm 0.30$  to  $\pm 0.40$  are minimally acceptable, values greater than  $\pm 0.50$  are generally considered necessary for practical significance (Asthana & Bhushan 2016:206; Hair et al. 2014:116). Furthermore, there should be at least a difference of 0.20 between loadings, therefore, if an item loads 0.50 in one factor, the highest loading of this item on the other factors should not exceed 0.70 (Costello & Osborne 2005:3-4).

In this study, the Statistica (version 13) software package was used to conduct three sets of EFA. The first EFA considered the loading of items relating to the independent variables, namely, environmental impact (EI), employment conditions (EC), value/supply chain considerations (VC), automation and innovation (AI), infrastructure development (ID) and regulatory and legislative conditions (RL). The second EFA involved the loading of items relating to the intervening variable, Shared Value (SV), while the third EFA involved the loading of items of the dependent variables, namely, organisational performance (OP), competitive advantage (CA) and sustainability (SU). The cut off in this study was determined as three items to load per factor, with only those items above 0.4 being considered. This would confirm discriminant validity, as loadings greater than 0.4 are significant. In this study, all items had a factor loading greater than 0.4 and some

loaded onto more than one factor. Accordingly, the acceptance criteria of cross-loading in factor analysis in this study was based on whether item loadings in the main factor are higher than loadings in the other.

#### 7.4.1 Management perceptions of the independent variables

The results of the EFA on the independent variables comprised of the constructs of environmental impact, employment conditions, value/supply chain considerations, automation and innovation, infrastructure development and regulatory and legislative conditions. The EFA is a statistical technique used to uncover the underlying structure of a relatively large set of variables, particularly applied in this study because it is a study that concerns a new concept or phenomenon, SV, and its associated independent and dependent variables. EFA was conducted to firstly identify the independent variables relevant as antecedents of SV and a total of three independent variables emerged, namely, *automation and innovation*, *mineral resource governance* and *employment conditions*.

The EFA reduced 30 items developed to measure six independent variables to a smaller set of variables, namely three factors (Table 7.2). Accordingly, Table 7.2 shows the factor loadings of the first EFA, relating to the study's independent variables.

**TABLE 7.2: EFA RESULTS PERTAINING TO THE INDEPENDENT VARIABLES**

ITEMS	FACTOR 1	FACTOR 2	FACTOR 3
	AUTOMATION AND INNOVATION	MINERAL RESOURCE GOVERNANCE	EMPLOYMENT CONDITIONS
EI2	0.750	0.120	0.228
EI4	0.582	0.482	0.186
EC1	0.583	0.461	0.396
VC2	0.630	0.401	0.232
VC3	0.580	0.503	0.214
VC4	0.574	0.562	0.401
AI1	0.683	0.277	0.243

ITEMS	FACTOR 1	FACTOR 2	FACTOR 3
	AUTOMATION AND INNOVATION	MINERAL RESOURCE GOVERNANCE	EMPLOYMENT CONDITIONS
AI2	0.539	0.176	0.504
AI3	0.676	0.383	0.369
AI4	0.635	0.381	0.35
AI5	0.647	0.270	0.176
ID1	0.630	0.381	0.346
ID2	0.546	0.449	0.268
ID3	0.653	0.551	0.261
ID5	0.626	0.589	0.259
RL3	0.607	0.466	0.283
RL4	0.574	0.348	0.365
EI1	0.519	0.541	0.347
EI3	0.431	0.442	0.352
EC4	0.348	0.487	0.433
VC5	0.314	0.599	0.207
RL1	0.198	0.562	0.148
RL2	0.514	0.656	0.335
EI5	0.242	0.448	0.483
EC2	0.244	0.137	0.670
EC3	0.018	0.241	0.691
EC5	0.310	0.396	0.537
VC1	0.274	0.140	0.551
ID4	0.318	0.433	0.627
RL5	0.228	0.071	0.551
Prop Variance	26.572	18.244	15.675

Source: Researcher's own construction

The first set of EFA on independent variables resulted in three factors, termed *automation and innovation*, *mineral resource governance* and *employment conditions*, and each factor is discussed in the subsection below.

#### **7.4.1.1    *Automation and innovation***

The first factor that resulted from the EFA consisted of 17 items. Some of those were originally developed to measure automation and innovation, namely items AI1, AI2, AI3, AI4 and AI5. In addition, items EI2 and EI4 that were developed to measure environmental impact loaded onto this factor. Item EC3 developed to measure employment conditions also loaded onto this factor. Items created to measure value/supply chain considerations (VC2, VC3, VC4), infrastructure development (ID1, ID2, ID3, ID5) and regulatory and legislative conditions (RL3, RL4) also loaded onto factor one. All the items that loaded onto factor one related to automation and innovation and therefore, this factor was retained as *automation and innovation*.

The items from environmental impact which loaded onto this first factor, EI2 and EI4, measured the use of renewable energy (e.g. solar, wind, biodiesel and hydropower) as well as the development of mining dumps and closed sites for alternative use respectively. EC1 developed for employment conditions related to involvement of employees in decision-making processes. The items that loaded onto the first factor from value/supply chain considerations related to local procurement (VC2), use of cost-effective movement of materials and products (VC3) and capacity building programmes for underprivileged communities. In addition, ID1, ID2, ID3 and ID5 related to the development of reliable transportation networks, investing in electricity supply facilities, construction of water purification facilities and beneficiations of ecosystems around the mine, while both RL3 and RL4 related to inclusive procurement (BBBEE) and integrating employees and communities to value chains. Since these items are all about innovative business models, innovation for an inclusive value chain, and infrastructure development, it is justified that they loaded onto the first factor which inherently comprised of all items (AI1, AI2, AI3, AI4, AI5) which were intended to measure automation and innovation. Therefore, all 17 items



which loaded onto the first factor are confirmed to measure the same construct, termed *automation and innovation*.

#### **7.4.1.2 Mineral resource governance**

The second factor of the first EFA consisted of six (6) items that were originally developed to measure environmental impact (EI1, EI3), employment conditions (EC4), value/supply chain considerations (VC5) and regulatory and legislative conditions (RL1, RL2). The items from environmental impact considerations which loaded to the second factor, EI1 and EI3 measured the compliance to the minimum environmental legislative requirements and protection of natural resources such as water from degradation respectively. EC4 related to fair remuneration of employees, while VC5 related to extraction of saleable products and disposal of residues to maximise profits. In addition, items (RL1, RL2) from regulatory and legislative conditions related to compliance with the Carbon Tax Act and the Mining Charter. All six items (EI1, EI3, EC4, VC5, RL1, RL2) which loaded onto the second factor measured the effectiveness of governance tools that are critical for mitigating the adverse impacts of resource extraction and for enhancing positive economic, social and environmental outcomes. Therefore, these items are confirmed to measure the same construct (second factor), termed *mineral resource governance*. The *mineral resource governance* is operationalised in a similar way to regulatory and legislative conditions, and comprised of all items relating to environmental laws and socioeconomic transformation imperatives.

#### **7.4.1.3 Employment conditions**

The EFA's third factor consisted of seven items and this factor consequently measures employment conditions as an independent variable of the study. In line with Table 7.2, three items intended to measure *employment conditions* (EC2, EC3, EC5) loaded onto the third factor of the EFA. In addition, item EI5 created to measure environmental impact loaded onto this factor. Item VC1 developed to measure the value/supply chain considerations also loaded onto this third factor of the EFA. Finally, item ID4 and RL 5 created to measure infrastructure development, and regulatory and legislative conditions also loaded onto this factor. Since all these items (EI5, EC2, EC3, EC5, VC1, ID4, RL5)

loaded onto the third EFA factor, confirmed to measure the same construct, the study retained the third factor termed *employment conditions*.

Specifically, the items that loaded to the employment conditions (third factor), EC2, EC3 and EC5, related to training and development of the employees, health and safety as well as job security. In addition, item EI5 related to disposal of water waste and mineral waste that posed risks of environmental degradation and health and safety of the mine employees, while VC1 measured sustainable prospecting and exploring programmes to ensure the commercial viability of the mines. Items ID4 and RL5 both related to investment in community development projects (e.g. healthcare and education facilities, also for employees and their family) and payment of royalties to the stakeholders, including the shares ownership (for employees) as enshrined in the Mining Charter. The link between each of these items' content and mine employees are thus clear. All the items that loaded onto the third factor related to *employment conditions* and were thus retained for further analysis.

Table 7.2 shows sufficient evidence of construct validity for all variables was found as the loadings are greater than 0.40 (Hair et al. 2014:115), while the correlation between the constructs can be established were variables originally designed to measure six constructs loaded into three factors. Therefore, this study retains *automation and innovation*, *mineral resource governance* and *employment conditions* as the independent variables (and possibly the antecedents of SV in the mining industry) in this study.

#### **7.4.2 Management perceptions regarding Shared Value**

SV was conceptualised as the intervening variable of the hypothesised model in this study. The factor loadings for items measuring SV are captured in Table 7.3.

**TABLE 7.3: FACTOR LOADINGS FOR PERCEPTIONS REGARDING SHARED VALUE**

ITEMS	ATTRIBUTE	FACTOR 1
		SHARED VALUE
<b>SV1</b>	Redesigned product/social innovative product	<b>0.865</b>
<b>SV2</b>	Innovatively address the needs of communities profitably	<b>0.855</b>
<b>SV3</b>	Conceiving complimentary products/services	<b>0.766</b>
<b>SV4</b>	Reconceiving the new markets	<b>0.741</b>
<b>SV5</b>	Driving social change from product development stage	<b>0.832</b>
<b>SV6</b>	Increase investment in infrastructure connectivity	<b>0.797</b>
<b>SV7</b>	Integrating low-income suppliers to value chain	<b>0.839</b>
<b>SV8</b>	Eliminate value chain activities that cause pollution and global warming	<b>0.683</b>
<b>SV9</b>	Local suppliers and enterprise development	<b>0.807</b>
<b>SV10</b>	Establish effective value chain governance (open participation, equity and accountability)	<b>0.719</b>
<b>SV11</b>	Access to interconnected value chain	<b>0.705</b>
<b>SV12</b>	Collaborate with value chain participants to improve efficiency and flexibility	<b>0.805</b>
<b>SV13</b>	Develop collaborative relationships with the host communities	<b>0.739</b>
<b>SV14</b>	Enhance local collaboration to optimise benefits of specialised competence and expertise	<b>0.811</b>
<b>SV15</b>	Localise international expertise, skills and technology	<b>0.843</b>
<b>Prop variance</b>		<b>62.266</b>

Source: Researcher's own construction

*Shared Value* was conceptualised as an intervening variable of the hypothesised model. The factor loadings presented in Table 7.3 indicate that all the 15 items designed to measure *Shared Value* (SV1 to SV15) loaded together as intended and explain a proportion of 62% of the total variance in the data. Factor loadings ranging between -0.683 and 0.865 show that sufficient evidence of construct validity for this variable exists, as the loadings for all the items are greater than 0.40 (Hair et al. 2014:115) and measure a single construct. The eigenvalues ( $9.342 > 1$ ) for the factor confirm that the factor is unidimensional and significant, and that it can be retained for further interpretation in the study. The operationalisation of *Shared Value* therefore, remains unchanged, as no items were disregarded or deleted from the original factor.

#### **7.4.3 Management perceptions of the dependent variables**

The hypothetical model in this study had three dependent variables, namely, organisational performance, competitive advantage and sustainability. The conceptualisation of the organisational performance variable was based on the multidimensional approach to measuring organisational performance at both financial and non-financial levels (Schaltegger & Wagner 2006:2; Porter & Kramer 2011). The conceptualisation of competitive advantage follows the principles developed by Porter (1985) as well as Porter and Kramer (2011), while the sustainability variable was developed from the vision of UN's SDG 2030 and Porter and Kramer (2011). An EFA was conducted on these three variables to assess construct validity and the results are presented in Table 7.4.

**TABLE 7.4: EFA RESULTS PERTAINING TO THE DEPENDENT VARIABLES**

ITEMS	FACTOR 1	FACTOR 2
	COMPETITIVE ADVANTAGE	SUSTAINABILITY PERFORMANCE
OP2	<b>0.825</b>	0.235
OP4	<b>0.805</b>	0.273
CA1	<b>0.773</b>	0.233
CA2	<b>0.710</b>	0.390
CA3	<b>0.677</b>	0.377
CA4	<b>0.682</b>	0.308
CA5	<b>0.872</b>	0.170
SU2	<b>0.852</b>	0.234
SU5	<b>0.810</b>	0.271
OP1	0.090	<b>0.663</b>
OP3	0.158	<b>0.628</b>
OP5	0.494	<b>0.512</b>
SU1	0.247	<b>0.540</b>
SU3	0.362	<b>0.586</b>
SU4	0.242	<b>0.662</b>
<b>Prop Variance</b>	<b>40.176</b>	<b>19.325</b>

Source: Researcher's own construction

In line with Table 7.4, the following subsection discusses the two factors derived from the results of the EFA of the dependent variables, namely, competitive advantage and the sustainability performance.

#### **7.4.3.1 Competitive advantage**

The first factor of the dependent variables that resulted from the EFA consisted of nine items that were created to measure aspects of competitive advantage, organisational performance and sustainability. The EFA loadings presented in Table 7.4 indicate that the five items measuring *competitive advantage* (CA1, CA2, CA3, CA4, CA5) all loaded together as intended in the first factor, and explain a proportion total of 64% of the variance in the data. In addition, the respondents viewed OP2 (flexible and reliable supply chains), OP4 (organisational learning), SU2 (business continuity during natural hazards) and SU5 (improvement of the standard of living achieved through social innovation) as measures of the same construct of *competitive advantage* (EFA factor one of the dependent variables). Overall, the factor loadings range between 0.677 and 0.872 indicating that sufficient evidence confirming construct validity. The eigenvalues ( $3.20 > 1$ ) for the factor confirm that the factor is unidimensional and significant. The original factor (*competitive advantage*) can, therefore, be retained for further interpretation with the inclusion of OP2, OP4, SU2 and SU5 (as the links with competitive advantage were shown) as these items also measure the same construct.

In this study, the competitive advantage variable is operationalised as the perception that an organisation develops and maintains a competitive edge over rival organisations by maintaining lower input cost, gaining global recognition for expertise and high-quality products, and leading innovation. This means that respondents viewed these items as measures of a single construct *competitive advantage*.

#### **7.4.3.2 Sustainability performance**

The second factor of the EFA results of the dependent variables show that the factor consisted of seven items that were created to measure organisational performance and sustainability. The EFA results in Table 7.4 reveal that items OP1, OP3, OP5 loaded to this factor. The factor loadings presented in Table 7.4 further indicate that the three items measuring sustainability (SU1, SU3, SU4) also loaded together onto the second factor of the dependent variables. The second factor of the dependent variables is termed *sustainability performance* because it is formed from a combination of items loading from

two aspects previously identified as separate dependent variables, which include three items retained from organisational performance (OP1, OP3, OP5) and three items measuring sustainability (SU1, SU3, SU4). OP1 is concerned with sustained revenue increases while OP3 and OP5 are concerned about increased productivity and committed and loyal workforces, respectively. In addition, the three items retained for sustainability are focused on the maximisation of positive environmental impact (SU1), observing human rights in operations of the organisation (SU3) and finally, contributing to healthy communities and workforce (SU4). The joint loading of these items onto one factor make sense since all items relate to the long term performance of an organisation in various sustainability areas (for example economic, social and environmental areas). Thus, this factor's focus on an organisation's sustainable performance becomes clear. Factor loadings range between 0.512 and 0.663, indicating that sufficient evidence of construct validity, as the loadings for two items are greater than 0.40 (Hair et al. 2014:115). The original factor of organisational performance can, therefore, be retained for further interpretation in part by integrating it with sustainability (since items developed to measure this variable also loaded onto the second factor), and therefore it is revised into (re-named as) *sustainability performance* (SP). Therefore, the operationalisation of *sustainability performance* integrates items of organisational performance (OP1, OP3, OP5) and items of sustainability (SU1, SU3, SU4).

In this study, the *sustainability performance* variable is operationalised as the perception that an organisation is more profitable and productive, and has continuously improved over other organisations in the industry while also maximising the protection of the environment and solving social development concerns of communities. In other words, *sustainability performance* is rationalised from the fact that sustainability is achieved at the point where economic and social prosperity is achieved without negatively affecting the environment. This means that respondents viewed these items (OP1, OP3, OP5, SU1, SU3, SU4) as a measure of a single construct termed *sustainability performance*.

## 7.5 RELIABILITY OF THE MEASURING INSTRUMENT

The reliability of the measuring instrument refers to the consistency or stability of the measurement and the ability to duplicate the results with the same respondents using the same measuring instrument under the same conditions (Brink, Van Der Walt & Rensburg 2006:118; Collis & Hussey 2009:64). Accordingly, the internal consistency of the measuring instrument is calculated to ensure an accepted measure of reliability (Heale & Twycross 2015:66; Klee & Moore 2013:256). Therefore, this study utilised EFA and the Cronbach's alpha coefficients to assess validity and reliability respectively.

As a result of the discriminant validity assessment with the EFA, certain changes occurred causing new variables to be formed and the original hypothetical model to be adapted. These changes are shown in Table 7.5. From the EFA, three independent factors emerged, namely *automation and innovation* (AI), *mineral resource governance* (MG) and *employment conditions* (EC). This necessitates that the reliability of the new and adapted variables be assessed. In addition, reliability of the intervening variable (thus *Shared Value*) and two dependent variables that resulted from EFA, *competitive advantage* (CA) and *sustainability performance* (SP), needed to be assessed. The reliability of the constructs is very important as it pertains to the extent to which an instrument is expected to give the same results when the measurements are repeated (Taber 2017:2). The measure most commonly associated with instrument reliability is Cronbach's alpha.

Cronbach's alpha is a measure of the squared correlation between the measured values and the true values. Reliability is therefore measured by comparing the true value variance to the observed value variance (Ursachi et al. 2015:680). A test is seen as being reliable if the measurement error is minimised. A Cronbach's alpha score of 0.6 to 0.7 indicates an acceptable level of reliability, and a score of 0.8 or higher indicates a very good level of reliability. For this study, Cronbach's alpha coefficient was used to measure internal consistency reliability.

The internal consistency of each of the factors was assessed by calculating Cronbach's alpha. The results presented in Table 7.5 indicate Cronbach's alpha values between 0.80 and 0.97, which specifies a satisfactory level of internal consistency of the measuring



instrument. The high Cronbach's alpha values, therefore, reveal that the instrument had a high degree of reliability (Zikmund et al. 2010). In conclusion, the study retains *automation and innovation* (AI), *mineral resource governance* (MG), *employment conditions* (EC), *Shared Value* (SV), *competitive advantage* (CA) and *sustainability performance* (SP) since their Cronbach's alpha values were above the cut-off point.

Table 7.5 presents a summary of Cronbach's alpha for all variables extracted from the EFA.

**TABLE 7.5: CRONBACH'S ALPHA VALUES OF MEASURING CONSTRUCTS: HYPOTHETICAL MODEL**

MEASURING CONSTRUCT	INITIAL VALUE	FINAL VALUE
Automation and Innovation (AI)	0.89	0.97
Mineral Resource Governance (MG)	0.82	0.87
Employment Conditions (EC)	0.83	0.85
Shared value (SV)	0.96	0.96
Competitive Advantage (CA)	0.90	0.95
Sustainability Performance (SP)	0.80	0.80

Source: Researcher's own construction

Table 7.5 shows the constructs (each based on the loaded items) regarded as measures of individual variables in the hypothetical model, following the EFA. The study retains AI, MG, EC, SV, CA and SP, since their Cronbach's alpha values were above the cut-off value of 0.7. Tables 7.5 and 7.6 indicate that all the Cronbach reliability measurement values are above 0.80, which is regarded as acceptable for this study.

This indicates that all instruments have a fair reliability of 0.80 and above, as Taber (2017:6) describes the different Cronbach's alpha ranges as follows:

- relatively high (0.70 - 0.77),
- good (0.71 - 0.91),
- high (0.73 - 0.95),

- fairly high (0.76 - 0.95),
- reliable (0.84 - 0.90),
- strong (0.91 - 0.93), and
- excellent (0.93 - 0.94).

The factors, with each factor's loading items and Cronbach's alpha are summarised in Table 7.6. This resultant factor structure was used for the regression analysis to follow.

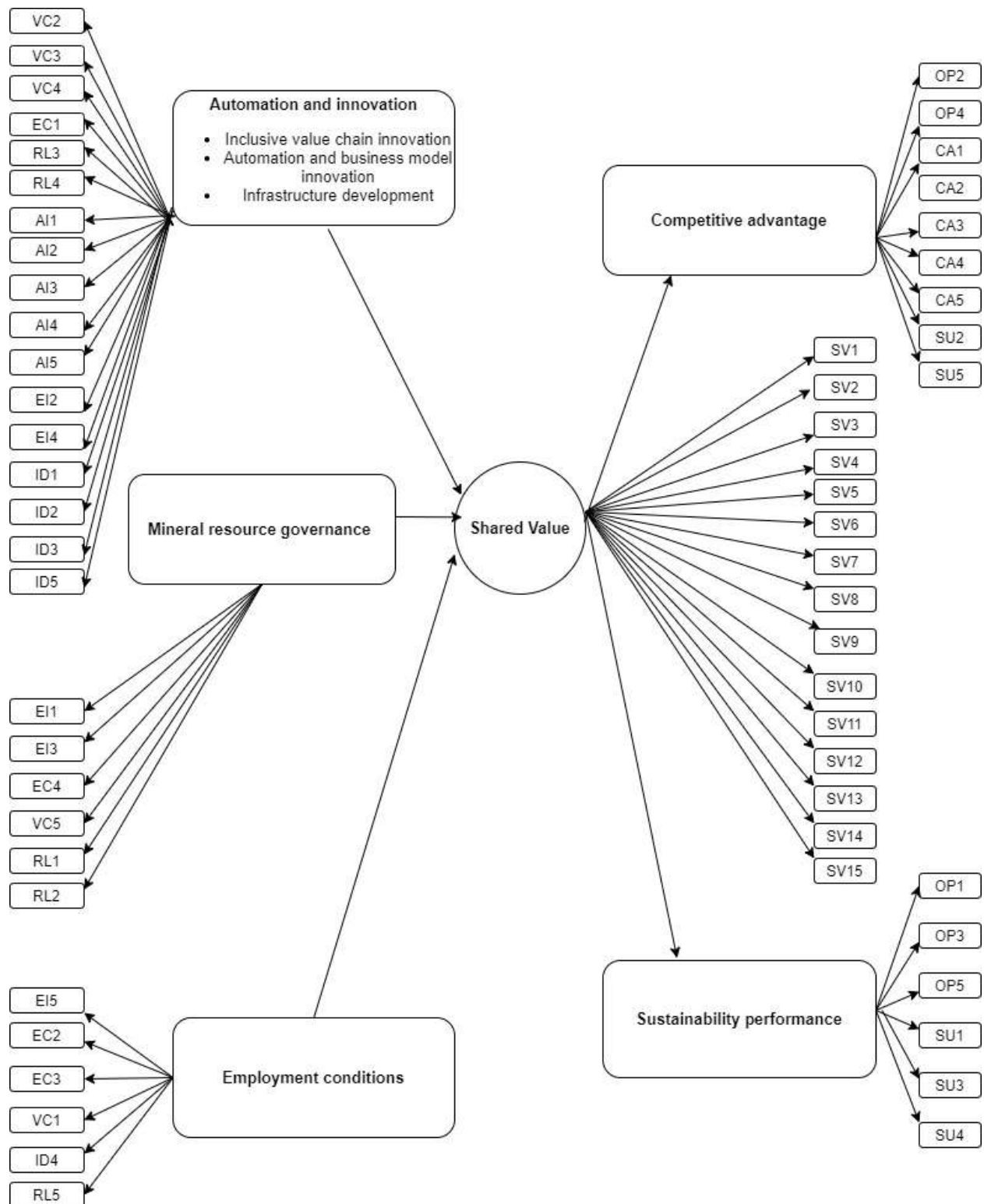
**TABLE 7.6: CRONBACH'S ALPHA COEFFICIENTS OF THE VARIABLES BASED ON THE EXPLORATORY FACTOR ANALYSIS**

VARIABLES	ITEMS	CRONBACH'S ALPHA
Automation and Innovation (AI)	EI2, EI4, EC1, VC2, VC3, VC4, AI1, AI2, AI3, AI4, AI5, ID1, ID2, ID3, ID5, RL3, RL4	0.97
Mineral Resource Governance (MG)	EI1, EI3, EC4, VC5, RL1, RL2	0.87
Employment Conditions (EC)	EI5, EC2, EC3, EC5, VC1, ID4, RL5	0.85
Shared Value (SV)	SV1, SV2, SV3, SV4, SV5, SV6, SV7, SV8, SV9, SV10, SV11, SV12, SV13, SV14, SV15	0.96
Competitive Advantage (CA)	OP2, OP4, CA1, CA2, CA3, CA4, CA5, SU2, SU5	0.95
Sustainability Performance (SP)	OP1, OP3, OP5, SU1, SU3, SU4	0.80

Source: Researcher's own construction

Based on the reliability and validity evaluation, three independent variables (AI, MG, EC), one intervening variable (SV) and two dependent variables (CA, SP) remained in the empirical model. The variables, and the individual items measuring each, are summarised in Table 7.6. As a result of the EFA refinement, the hypothetical model (presented in Figure 7.1) was adapted, therefore, the original hypotheses were reformulated, as evident in Figure 7.2.

**FIGURE 7.2: THE ADAPTED MODEL OF THE IMPACT OF SHARED VALUE WITHIN THE SOUTH AFRICAN MINING INDUSTRY**



Source: Researcher's own construction

## **7.6 REFORMULATION OF HYPOTHESES**

The results of the EFA in relation to the original hypothesised model (Figure 7.1) presented in Chapter One and Chapter Five of the study were revised. Accordingly, the hypothesised model (Figure 7.2) with its restated hypotheses was subjected to further testing as detailed in the ensuing sections of this chapter.

### **7.6.1 The first set of hypotheses concerning Shared Value within the South African mining industry**

H<sub>3</sub>, H<sub>4</sub> and H<sub>5</sub> are modified into H<sub>1.1</sub>

H<sub>1.1</sub>: There is a positive relationship between *automation and innovation* (including aspects relating to inclusive value chain innovation, automation and business model innovation and infrastructure development) and perceptions regarding SV in the mining industry in South Africa.

H<sub>1</sub> and H<sub>6</sub> is modified into H<sub>2.1</sub>

H<sub>2.1</sub>: There is a positive relationship between *mineral resource governance* and perceptions regarding SV in the mining industry in South Africa.

H<sub>2</sub> is modified into H<sub>3.1</sub>

H<sub>3.1</sub>: There is a positive relationship between *employment conditions* and perceptions regarding SV in the mining industry in South Africa.

### **7.6.2 The second set of hypotheses concerning Shared Value within the South African mining industry**

H<sub>8</sub> is presented as H<sub>4.1</sub>

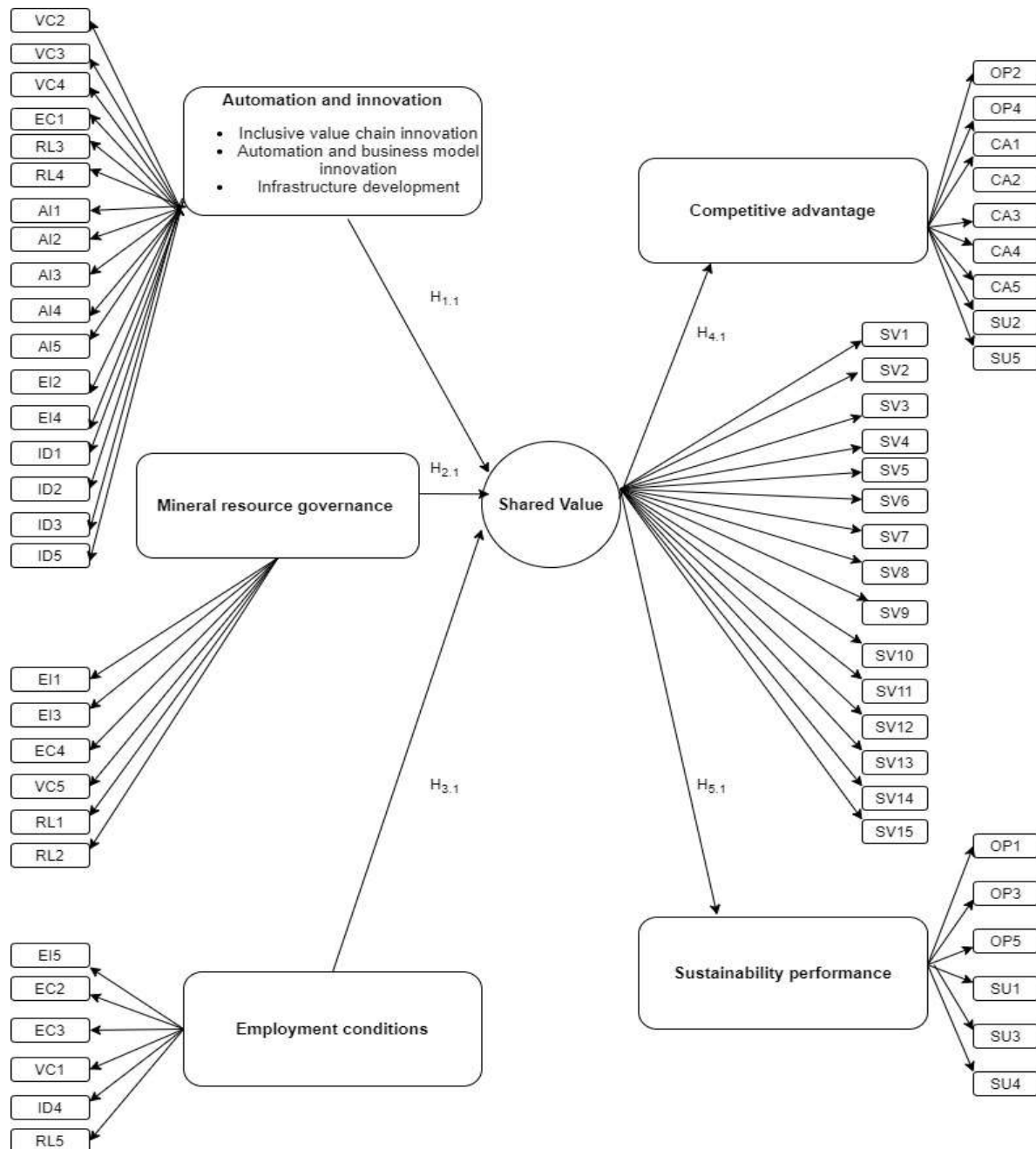
H<sub>4.1</sub>: There is a positive relationship between perceptions regarding SV and *competitive advantage* in the mining industry in South Africa.

H<sub>7</sub> and H<sub>9</sub> are modified into H<sub>5.1</sub>

H<sub>5.1</sub>: There is a positive relationship between perceptions regarding SV and *sustainability performance* in the mining industry in South Africa.

Figure 7.1 presents the hypothetical model adapted, as a result of the EFA results.

**FIGURE 7.3: THE HYPOTHESISED MODEL OF THE IMPACT OF SHARED VALUE WITHIN THE SOUTH AFRICAN MINING INDUSTRY**



Source: Researcher's own construction

## 7.7 DESCRIPTIVE STATISTICS OF THE VARIABLES UNDER INVESTIGATION

Taylor (2018:1) defines descriptive statistics as a statistical method that uses numerical and graphic procedures to identify, summarise or show data from a sample in such a way that patterns may be seen to emerge from the data. Descriptive statistics are used to measure central tendency, including mean, median, mode, distributions of the median and mean and can also be used as a measure of standard deviation (Taylor 2018:1).

Descriptive statistics are distinguished from inferential statistics (or inductive statistics), in that they aim to describe, show or summarise a sample, rather than use the data to learn about the population that the sample is thought to represent. The results of descriptive statistics, as calculated and shown in Table 7.7, formed the foundation of the quantitative data analysis of this study. Table 7.7 shows the descriptive statistics of each variable, as measured on a seven-point Likert-type scale. Options 1, 2 and 3 on the scale represented the degree to which the respondents disagreed with the statements. Option 4 on the scale indicated a response of neutrality or indifference. Options 5, 6 and 7 on the scale indicated the degree to which the respondents agreed with the statements. Specifically, Table 7.7 shows the mean and standard deviation of each variable.

**TABLE 7.7: DESCRIPTIVE STATISTICS FOR EACH VARIABLE: MEANS AND STANDARD DEVIATIONS PER VARIABLE**

VARIABLES	MEANS	STANDARD DEVIATION
Automation and Innovation (AI)	4.23	1.58
Mineral Resource Governance (MG)	4.96	1.43
Employment Conditions (EC)	5.49	1.04
Shared Value (SV)	4.53	1.39
Competitive Advantage (CA)	4.69	1.61
Sustainability Performance (SP)	5.53	0.93

Source: Researcher's own construction

The mean scores for all the factors, as presented in Table 7.7, indicate that the respondents agree somewhat with the statements relating to all the factors (means ranged between 4.23 for *automation and innovation* and 5.53 for *sustainability performance*). This showed respondents to be somewhat more agreeable towards *mineral resource governance* and *employment conditions* than *automation and innovation* to which they are neutral, in terms of the three independent variables. The small standard deviations for the factors confirm the existence of slight variation between the responses. The responses for the factor *sustainability performance* (0.93) had a low variation while the responses for the factor *competitive advantage* (1.61) showed a higher variation.

*Automation and innovation* within South Africa's mining industry had a mean score of 4.23 (neutral) and a standard deviation of 1.58 (much variation around mean score). This implies that managers in the mining industry are neutral regarding the existence of automation and innovation in the mining industry. As a second factor of the independent variables, *mineral resource governance* had a mean of 4.96 (agree somewhat) and a standard deviation of 1.43 (much variation around mean score). This means that managers agree somewhat on the effectiveness of the mineral resource governance in the mining industry of South Africa. In addition, *employment conditions* had the highest mean of 5.49 (agree somewhat) amongst the independent variables and a standard deviation of 1.04 (relatively not much variation around mean score). This showed that managers of mining organisations are somewhat agreeable on the need and importance of *employment conditions* conducive of SV within the mining industry of South Africa.

Furthermore, in line with Table 7.7, perceptions regarding the SV (intervening variable) within the mining industry of South Africa had a mean score of 4.53 (agree somewhat) and a standard deviation of 1.39, which is relatively high and indicative of dispersion around the mean value. This implies that managers agree somewhat to the existence and influence of perceptions regarding SV within the mining industry of South Africa. Moreover, the results in Table 7.7 show that *sustainability performance* had the highest mean score of 5.53 (agree) and a standard deviation of 0.93 (not much dispersion around mean score). Table 7.7 also shows that *competitive advantage*, which is also an outcome

of SV, had a mean of 4.69 (agree somewhat) and a standard deviation of 1.61 (much variation around mean score). The results confirm that most respondents agreed that sustainability performance as a focus area could be an outcome of the implementation of SV in the South African mining industry, while some also somewhat agreed that competitive advantage is of importance and could be an outcome of SV in the mining industry. The descriptive statistics on competitive advantage indicate that the respondents from various mining organisations agreed somewhat that their organisations are cost-effective, low-cost providers in the mining industry and are renowned for best mining core competencies, expertise and innovation. In addition, the descriptive statistics regarding sustainability performance also indicates that the respondents from different mining organisations agree that their organisations have sustained increasing revenues and productivity, secured the commitment and loyalty of their employees and maximised their positive effects on the environment and the communities.

## **7.8 CORRELATION ANALYSIS RESULTS**

The relationship results between the variables were measured using inferential statistics. Inferential statistics is performed on a sample in order to make conclusions related to the whole population in the study (Collis & Hussey 2009:221). Inferential statistics, therefore, infer the probable patterns governing the data and generate conclusions that reach beyond the observable data set. According to Kern (2012:3), these observed patterns are then used to answer specific questions raised prior to the study. Inferential statistics, correlations and multiple regressions can also be used to disprove a hypothesis of relationships in a population, established from a literature study or from an earlier theoretical prediction

This study's data analysis of the relationship results between the variables were explored through Pearson's Product-Moment correlations. Correlation analysis determines the degree and direction of the relationship between two variables under study. Correlation is a statistical technique that measures (the measure of correlation is called the correlation coefficient) and analyses the degree of relationship (expressed by a coefficient range from correlation  $-1 \leq r \leq +1$ ) between two variables, while correlation analysis



indicates the association between two or more variables (Saunders et al. 2012:459). The degree of association can vary between +1.0 as a maximum positive correlation, 0.0 as no correlation and -1.0 as a maximum negative correlation. The degree of association does not infer cause and effect, that is, one variable does not depend on the other.

Ideal values for the correlation coefficients vary but, according to Cristobal, Flavian and Guinaliu (2007:327), Brzoska and Razum (2010) and Pedhazur and Schmelkin (1991), items with corrected item-total correlation lower than 0.30 are not acceptable. In this study, variables with coefficient values above 0.70 (as a cut-off point) were considered to have significant correlations.

Table 7.8 shows that all the correlations between all the variables are positive.

**TABLE 7.8: CORRELATIONS ANALYSIS MATRIX**

VARIABLES	AI	MG	EC	SV	CA	SP
Automation and Innovation (AI)	1					
Mineral Resource Governance (MG)	0.879**	1				
Employment Conditions (EC)	0.727**	0.742**	1			
Shared Value (SV)	0.865**	0.785**	0.743**	1		
Competitive Advantage (CA)	0.804**	0.789**	0.667**	0.864**	1	
Sustainability Performance (SP)	0.545**	0.542**	0.699**	0.620**	0.614**	1
** Correlation is significant at the 0.01 level (2-tailed).						

Source: Researcher's own construction

The correlations will be discussed in terms of strength of association, with weak strength = 0.1 - 0.3, moderate strength = 0.3 - 0.5 and strong strength = 0.5 - 1.0 (Cristobal, Flavian & Guinaliu 2007:327). The variables of this study have strong significance (strength) of correlations shown in their correlation scores which range between 0.5 and 0.8. However, this study uses 0.70 as the cut-off of significance, since correlation coefficients whose magnitude are between 0.7 and 1.0 indicate variables which can be considered highly correlated.

Table 7.8 shows that all independent variables, namely, *automation and innovation*, *mineral resource governance* and *employment conditions* are positively correlated to perceptions regarding *Shared Value* with correlation coefficient scores above 0.70. Furthermore, the perceptions regarding *Shared Value* is significantly and positively correlated to *competitive advantage* (CA) with a coefficient score above 0.70, thus indicating a significant or strong strength of association. In other words, Table 7.8 shows that perceptions regarding *Shared Value* positively correlated to *competitive advantage* (CA) with a correlation coefficient of 0.86. However, the perceptions regarding *Shared Value*, moderately correlated to *sustainability performance* (SP) with a coefficient score of 0.62, thus indicating a moderate strength of association in terms of the cut-off adopted by this study.

In terms of overall strength of correlations, it can be shown that a strong relationship exists between all the independent variables (AI, MG, EC) and the intervening variable (SV). In addition, a significantly strong correlation is noted between the perceptions regarding SV and CA. However, a moderately correlated relationship is present between SV and SP.

## **7.9 MULTIPLE REGRESSION ANALYSIS RESULTS**

Rawlings, Pantula and Dickey (1998:2-4) define regression analysis as a statistical technique (mostly used for prediction and causal inference) that is used to determine the relationship between two or more variables, by showing how the variation in one variable co-occurs with the variation in another. Furthermore, regression analysis can also be used to indicate whether independent variables have a significant relationship with a dependent variable, to show the strength of different independent variables' effects on a dependent variable, and to make predictions through a comparison of the beta weights and the partial correlations (Sarstedt & Mooi 2014:194). In order to establish the relationships formulated in the related set of hypotheses, a regression analysis was performed on the modified hypothetical model in this study. The regression analysis was used to assess the influence of the selected variables on *Shared Value* within the South African mining industry (Figure 7.3). This assists to either accept or reject the hypotheses, based on the results of the regression analysis.

### 7.9.1 Regression analysis results of influence of independent variables on perceptions regarding Shared Value within the South African mining industry

In this study, multiple regression analysis had been executed in order to assess whether the identified independent variables exerted a significant influence on *Shared Value* in the mining industry. The results are summarised in Table 7.9 and confirm the influence of the independent variables on the intervening variable.

**TABLE 7.9: REGRESSION ANALYSIS OF INFLUENCE OF THE INDEPENDENT VARIABLES ON THE INTERVENING VARIABLE**

REGRESSION SUMMARY FOR DEPENDENT VARIABLE: SHARED VALUE						
Factors		Unstandardized Coefficients		Standardized Coefficients	T value	P -value
		B	Std. Error	Beta		
(Constant)		0.210	0.203		1.036	0.301
1	Automation and Innovation (AI)	<b>0.606</b>	0.049	<b>0.691</b>	<b>12.427</b>	<b>0.000*</b>
2	Mineral Resource Governance (MG)	-0.001	0.055	-0.001	-0.025	0.980
3	Employment Conditions (EC)	<b>0.321</b>	0.052	<b>0.242</b>	<b>6.121</b>	<b>0.000*</b>
R		R Square	Adjusted R Square		Std. Error of the Estimate	P
.881a		0.777	0.773		0.66189	p< .00000
*P<0.001						

Source: Researcher's own construction

According to Table 7.9, *automation and innovation* ( $b = 0.606$ ,  $p < 0.001$ ) positively and statistically significantly related to perceptions regarding SV in the mining industry of South Africa, and this relationship is confirmed by a regression b-value of 0.606 and a p-value that is  $< 0.001$ . In addition, *employment conditions* ( $b = 0.321$ ,  $p < 0.001$ ) positively and statistically significantly related to perceptions regarding SV in the mining industry of

South Africa. This implies that the respondents believe that *automation and innovation*, and *employment conditions* positively influence the organisation's SV strategy and operationalisation thereof. Accordingly, access to reliable infrastructure, inclusive value chains and automation/technology and innovative business models significantly and positively influence the creation of SV. This further suggests that the availability of, and access to, reliable and affordable enabling infrastructure and technological innovation as well as the adoption of innovative business models effectively enhances the creation of SV in the mining industry. In addition, the collaborative support of the host government, the unions, communities and NGOs of the host country, is required to effectively facilitate the acceptance and implementation of SV strategies by mining organisations.

*Mineral resource governance* ( $b = -0.001$ ,  $t = -0.025$ ,  $p = 0.980$ ) has a negative regression on the successful operationalisation of SV in the mining industry, and shows an insignificant correlation coefficient of 0.784. This implies that *mineral resource governance* influences the creation of SV in the mining industry, but not significantly. It is known that SV depends on *mineral resource governance*. It can also be further argued that this inverse correlation between *mineral resource governance* (regulations and legislation requirements) and SV (referring to specific behaviour of mining organisations) is inherent because over-regulation (too much regulation) tends to have adverse results than intended. In other words, too much governance negatively influences SV. This argument is supported by many researchers, investors and other stakeholders who state that South Africa's mining industry is under the pressure of regulatory uncertainty which results in negative or often unintended outcomes (Hayes & Cloete 2019; South African Institute of Race and Relations 2020; Stevens 2014).

In total, the independent variables (through the  $R^2$  of 0.777) denote 77% of the variance in the intervening variable (SV), as shown in Table 7.9. Moreover, Table 7.9 indicates that except for *mineral resource governance*, the *employment conditions* as well as an inclusive value chain, automation and innovative business model and infrastructure development (pillars of *automation and innovation*) exert significant, positive influence on mining organisations' SV.

## 7.9.2 Regression analysis results of the influence of Shared Value within the South African mining industry on the dependent variables

The subsections below present the analysis of the two dependent variables by interpreting the regression analysis of each against the intervening variable.

### 7.9.2.1 The influence of perceptions regarding Shared Value on competitive advantage

Table 7.10 shows the results of regression analysis of SV perceptions on *competitive advantage*.

**TABLE 7.10: REGRESSION ANALYSIS OF SHARED VALUE PERCEPTIONS ON COMPETITIVE ADVANTAGE**

REGRESSION SUMMARY FOR DEPENDENT VARIABLE: COMPETITIVE ADVANTAGE						
Factor		Unstandardised Coefficients		Standardised Coefficients	T value	P –value
		B	Std. Error	Beta		
1	(Constant)	0.137	0.151		0.904	0.367
	SV	1.005	0.032	0.864	31.489	0.000*
R		R Square	Adjusted R Square	Std. Error of the Estimate		P
.864a		0.746	0.745	0.81695		p< .00000
*P<0.001						

Source: Researcher's own construction

The 75% ( $R^2$  of 0.746) variation in *competitive advantage* is how much of the dependent variable (CA) is explained by the intervening variable SV. As shown in Table 7.10, the empirical results reveal that perceptions on SV in the mining industry has a statistically significant positive influence on *competitive advantage* ( $b= 1.005$ ,  $p < 0.000$ ). This implies that the management of mining organisations regard SV strategies as having an influence on an organisation's *competitive advantage* in terms of its positive long term impact on

input cost reduction and harnessing core competencies through innovation while also being a mechanism for the creation of employment, stimulating the growth of the associated industries and making a positive contribution to the global value chains. Therefore, by organisations increase their competitive advantage by implementing SV.

### 7.9.2.2 The influence of perceptions regarding Shared Value on sustainability performance

Table 7.11 presents results of regression analysis on SV perceptions on *sustainability performance*.

**TABLE 7.11: REGRESSION ANALYSIS OF SHARED VALUE PERCEPTIONS ON SUSTAINABILITY PERFORMANCE**

REGRESSION SUMMARY FOR DEPENDENT VARIABLE: SUSTAINABILITY PERFORMANCE						
Factor		Unstandardised Coefficients		Standardised Coefficients	T value	P-value
		B	Std. Error	Beta		
2	(Constant)	3.645	0.136		26.771	0
	Shared Value	0.417	0.029	0.62	14.53	0.000*
R		R Square	Adjusted R Square	Std. Error of the Estimate		P
.620a		0.384	0.383	0.73491		p< .00000
*P<0.001						

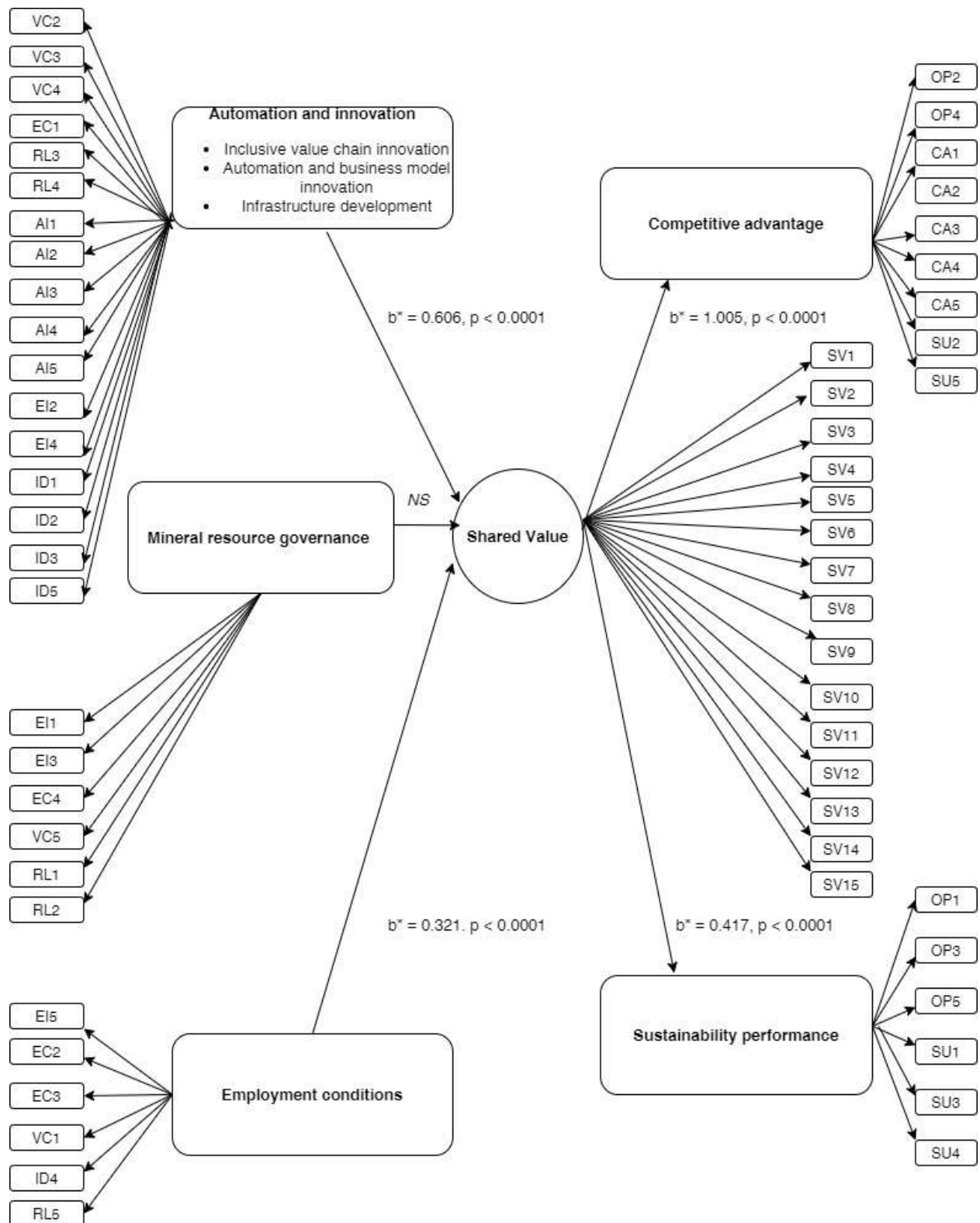
Source: Researcher's own construction

The 38% ( $R^2$  of 0.384) of variance in *sustainability performance* is how much of the dependent variable (SP) is explained by the intervening variable SV. This means that perceptions on SV in the mining industry has a statistically significant positive influence on *sustainability performance* ( $b = 0.417$ ,  $p < 0.000$ ), as presented in Table 7.11. This implies that an organisation's SV strategy positively influences the broader *sustainability performance* of it in the South African mining industry, through increased profitability,

improved productivity and efficiencies while optimising positive impact on the environment and sustainable development of the local communities by means of adopting a new business thinking and practice that solves social and environmental issues in a way that increase profitability.

It can therefore be concluded that most of the relationships between the variables are positive and significant. These relationships are presented in Figure 7.4.

**FIGURE 7.4: SUMMARY OF THE REGRESSION ANALYSIS RESULTS**



Source: Researcher's own construction



## 7.10 ANALYSIS OF VARIANCE (ANOVA) RESULTS

In concluding the analysis, Analysis of Variance (ANOVA) tests and post-hoc Scheffè Tests were conducted. This section presents the ANOVA test results for the influence of demographic characteristics of the respondents, retrieved in Section A of the survey questionnaire (see comparisons in Annexure E), on the intervening variable (*Shared Value*). According to Cooper and Schindler (2011:492), ANOVA is a statistical procedure used to compare means of several samples, while the post-hoc Scheffè Test is a procedure utilised to determine significant differences between the mean scores of the various categories within each demographic variable. In both ANOVA and the post-hoc Scheffè Test, scores are considered to significantly differ when  $p < 0.05$  within the extant means (Gravetter & Wallnau 2012:232). The influence of the various demographic variables was analysed by means of one-way ANOVA tests to determine their influence on the intervening variable (SV). The demographic variables included age, level of education, population group, tenure (years of employment) with current organisation, position in the organisation, form of ownership of organisation, main activity of organisation and number of employees in organisation.

The ANOVA results of these demographic variables are summarised in Table 7.12.

**TABLE 7.12: ANALYSIS OF VARIANCE FOR SHARED VALUE**

<b>ANOVA ON INTERVENING FACTOR: SHARED VALUE</b>		
<b>Demographic Variable</b>	<b>F-value</b>	<b>P-value</b>
Age	1.655	0.160
Level of education	0.291	0.748
Population group	1.265	0.279
<b>Tenure (years of employment) with current organisation</b>	<b>3.493</b>	<b>0.008*</b>
<b>Position in the organisation</b>	<b>4.178</b>	<b>0.006*</b>
Form of ownership of organisation	1.081	0.357
<b>Main activity of organisational activity</b>	<b>3.560</b>	<b>0.004*</b>
<b>Number of employees in organisation</b>	<b>7.305</b>	<b>0.001*</b>
*P<0.05		

\*All demographic variables with P-value below 0.05 (P<0.05) are considered to be significant.

Source: Researcher's own construction

In Table 7.12, the ANOVA results show that age ( $p = 0.16$ ), education level ( $p = 0.748$ ), population classification ( $p = 0.279$ ) and ownership structure of the mining organisations ( $p = 0.357$ ) do not influence perceptions regarding SV, the intervening variable of the study ( $p > 0.05$ ). There were no significant differences noted within these categories in the multiple comparisons. The results of ANOVA tests which revealed significant influences of demographic variables are discussed below.

#### **7.10.1 ANOVA results on the influence of tenure on Shared Value**

The ANOVA test results revealed that the factor scores for SV differed significantly for participants based on their tenure (or years of experience) ( $F = 3.493$ ,  $p = 0.008$ ). Using the post- hoc multiple comparisons to determine which tenures differed significantly, it was found that respondents with a tenure of one to five years ( $M = 4.755$ ,  $SD = 1.329$ ) and 16 – 20 years ( $M = 3.772$ ,  $SD = 1.463$ ) differed significantly in their mean score for

SV ( $p = 0.030$ ). These results indicate smaller significance values compared to the 0.05 threshold. Therefore, there was a significant difference between the average scores of these respondents with different durations of experience to SV. In explaining the ecosystem of SV, Kramer and Pfitzer (2016) claim that solving many of the world's problems, from income inequality to climate change, requires the expertise and scalable business models developed by organisations with employees and management who are experienced and involved in significant SV initiatives. The ANOVA results suggest, therefore, that perceptions of industry leaders varied for respondents with one to five years' experience and the group of 1-5 years experience have more views than people in other groups in relation to existence of SV perceptions within the mining industry of South Africa.

#### **7.10.2 ANOVA results on the influence of occupational positions on Shared Value**

The ANOVA test result further revealed that the average factor scores for SV differed significantly for participants with different occupational positions ( $F = 4.178$ ,  $p = 0.006$ ). Using the post-hoc multiple comparisons to determine which positions differed significantly, it was found that respondents at director level ( $M = 5.371$ ,  $SD = 1.307$ ), middle management ( $M = 4.622$ ,  $SD = 1.375$ ) and executive management ( $M = 4.097$ ,  $SD = 1.324$ ) differed significantly in their mean score for *Shared Value* ( $P < 0.05$ ). These test results indicate a significant difference between the average scores of the occupational levels of respondents and *Shared Value*. While top management (directors) and middle management showed more agreeable perceptions on *Shared Value*, executive management showed some level of neutrality. Gutberg and Berta (2017) affirm the results of this study by arguing that, aside from the directors who set the strategic direction of every organisation, middle managers are the most influential because of the unique position they occupy between the upper and lower levels of management and because they engage in 'ambidextrous' learning that is necessary for implementing and sustaining change and innovation. In a study conducted by Wachira, Barnard, Lutseke and Ger (2020:13), 92% of the respondents acknowledged that SV has to be directed from top management, especially the Chief Executive Officers or Directors.

### 7.10.3 ANOVA results on the influence of organisational activity on Shared Value

Furthermore, ANOVA test results show that the organisational activity demographic variable at a p-value of 0.004 and F-value of 3.560 influenced SV ( $p < 0.05$ ) significantly. The post-hoc multiple comparisons results also show that respondents at different mining activities or commodities, namely coal ( $M = 4.903$ ,  $SD = 1.367$ ), diamond ( $M = 3.877$ ,  $SD = 0.909$ ) and gold ( $M = 4.710$ ,  $SD = 1.265$ ) categories, differed significantly in their mean score for *Shared Value*. The relationships showed values of significance between coal and diamond of  $p = 0.002$  and between diamond and gold is at  $p = 0.037$ . This confirms that perceptions of the respondents in different organisational activities vary significantly on *Shared Value*. These results show that respondents in the coal and gold categories are more agreeable to the importance and influence of SV in their organisations than the respondents in the diamond mines and other commodities. Porter (2014) argues that organisations do not value SV opportunities accurately and underestimate the business benefits of *Shared Value*. Coal and gold mines are major contributors to exports and employment (influencing GDP), and significantly affect the environment and communities because gold is mined in deep underground mines while coal is generally mined in open cast mines which heightens their risks and opportunities to create value for stakeholders (MCSA 2018). Therefore, it makes sense that coal and gold mines have a greater focus on SV.

### 7.10.4 ANOVA results on the influence of size of the organisation on Shared Value

The results of ANOVA confirm that size of the organisation (number of employees) at a p-value of 0.001 and F-value of 7.305 influences perceptions of SV ( $p < 0.05$ ). Additionally, the post-hoc multiple comparisons results revealed respondents at organisations of employee numbers of 1 – 59 employees ( $M = 5.368$ ,  $SD = 1.272$ ), 51 – 199 employees ( $M = 3.7193$ ,  $SD = 1.690$ ) and over 200 employees ( $M = 4.528$ ,  $SD = 1.349$ ) differed significantly in their mean score for *Shared Value* ( $p < 0.05$ ). This is implied in the statistically significant difference in the means of the respondents' perceptions of SV based on the number of employees within their organisations. Employees within small and larger mining organisations revealed to be more agreeable to the importance and

significance of SV within their organisation than respondents from medium-sized organisations. Porter and Kramer (2011) show that larger organisations like Coca-Cola and Nestlé have resolved the problems of communities as the early adopters of SV. Wachira et al. (2020:17) also argue that in Africa, although small organisations (SMEs) create SV, their impact is yet to be reflected in literature the same way as the impact of large organisations which implement SV as their competitive or sustainability strategy. Amah and Nwuche (2013) and Daft (2003) also state that small and large organisations have their unique characteristics, enabling them to expand market share and revenue jointly while transforming communities.

The results of this study show that significant differences in perceptions *regarding Shared Value* varied based on respondents' tenure/years of experience, positions within organisations, organisational activities (the type of commodities mined) and size of the organisations.

## **7.11 RESULTS ON THE HYPOTHESISED RELATIONSHIPS**

To indicate the results of the statistical analysis on the hypothesised relationships, all the results are summarised in Table 7.13. This is followed by a detailed explanation of each outcome.

**TABLE 7.13: SUMMARY OF THE ACCEPTANCE OF THE HYPOTHESES BASED ON THE STATISTICAL ANALYSIS**

Hypothesis Number	Hypothesis	Comment
H <sub>1.1</sub>	There is a positive relationship between <i>automation and innovation</i> (including aspects relating to <i>inclusive value chain innovation, automation and business model innovation, infrastructure development</i> ) and perceptions regarding SV in the mining industry in South Africa.	Accepted
H <sub>2.1</sub>	There is a positive relationship between <i>mineral resource governance</i> and perceptions regarding SV in the mining industry in South Africa.	Rejected
H <sub>3.1</sub>	There is a positive relationship between <i>employment conditions</i> and perceptions regarding SV in the mining industry in South Africa.	Accepted
H <sub>4.1</sub>	There is a positive relationship between perceptions regarding SV and <i>competitive advantage</i> in the mining industry in South Africa.	Accepted
H <sub>5.1</sub>	There is a positive relationship between perceptions regarding SV and <i>sustainability performance</i> in the mining industry in South Africa.	Accepted

Source: Researcher's own construction

### 7.11.1 Results on the first set of hypotheses

The analysis and interpretation of inferential statistics show which hypotheses have been accepted or rejected.

- **Hypothesis H<sub>1.1</sub>:** There is a positive relationship between *automation and innovation* and perceptions regarding SV in the mining industry in South Africa. Table 7.9 reports a statistically significant positive relationship between *automation and innovation* and SV ( $p < 0.001$ ). This means that there is a significantly positive correlation between *automation and innovation* and SV, with  $r = 0.606$  and a t-value of ( $t = 12.427$ ). In addition, Table 7.8 shows that there is a positive significant correlation between *automation and innovation* (coefficient of 0.865) and SV. Therefore, H<sub>1.1</sub> is accepted.

- **Hypothesis H<sub>2.1</sub>:** There is a positive relationship between *mineral resource governance* and perceptions regarding SV in the mining industry in South Africa. Table 7.9 reports that *mineral resource governance* is negatively influenced by SV. This is marked by a negative regression between *mineral resource governance* and SV, with  $r = -0.001$  and a t-value of ( $t = -0.025$ ) as well as a p-value of 0.980. Thus, Table 7.8 shows that there is a positive correlation between *mineral resource governance* (coefficient of 0.785) and the perceptions of SV, while at the same time the regression analysis shows an inverse relationship of -0.001. Therefore, H<sub>2.1</sub> is rejected.
- **Hypothesis H<sub>3.1</sub>:** There is a positive relationship between *employment conditions* and perceptions regarding SV in the mining industry in South Africa. Table 7.9 reports a statistically significant positive relationship between *employment conditions* and SV ( $p < 0.001$ ). This means that there is a significant positive correlation between *employment conditions* and SV, with  $r = 0.321$  and a t-value of ( $t = 6.121$ ). In addition, Table 7.8 shows that there is a positive significant correlation between *employment conditions* (coefficient of 0.743) and the adoption of SV. Therefore, H<sub>3.1</sub> is accepted.

### 7.11.2 Results on the second set of hypotheses

The second set of hypotheses are analysed and interpreted based on the results of further inferential statistics.

- **Hypothesis H<sub>4.1</sub>:** There is a positive relationship between perceptions regarding SV and *competitive advantage* in the mining industry of South Africa. Table 7.11 reports a statistically significant positive relationship between SV and *competitive advantage* ( $p < 0.001$ ). This means that there is a significant positive correlation between SV and *competitive advantage* with  $r = 1.005$  and a t-value of ( $t = 31.489$ ). Furthermore, Table 7.8 shows that there is a positive significant correlation between SV (coefficient of 0.864) and *competitive advantage*. Therefore, H<sub>4.1</sub> is accepted.

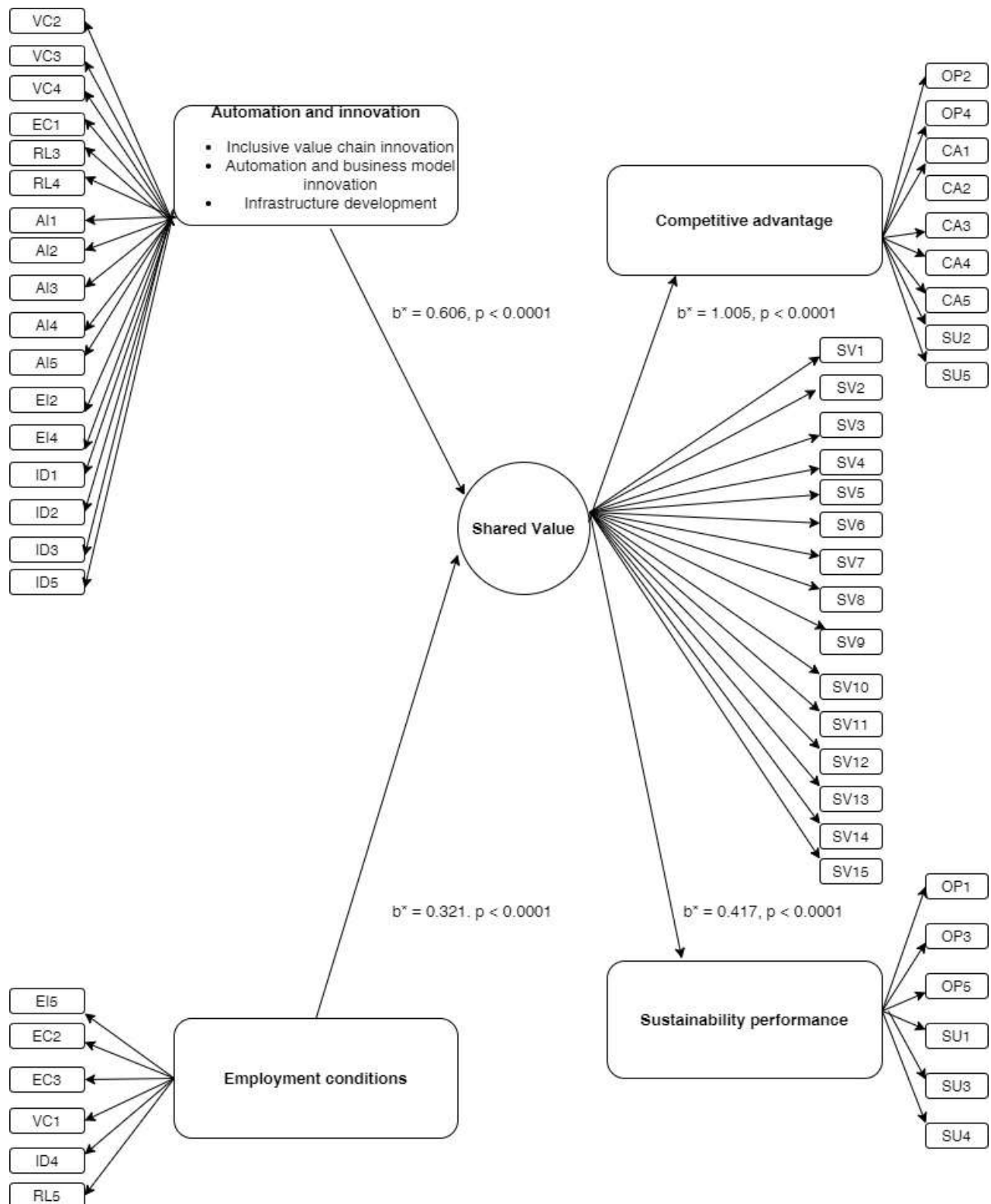
- **Hypothesis H<sub>5.1</sub>:** There is a positive relationship between perceptions regarding SV and *sustainability performance* in the South African mining industry. Table 7.10 reports a statistically significant positive relationship between SV and *sustainability performance* ( $p < 0.001$ ). This means that there is a significant positive correlation between SV and *sustainability performance* with  $r = 0.417$  and a t-value of  $t = 14.530$ . In addition, Table 7.8 shows that there is a positive significant correlation creation of SV (coefficient of 0.620) and *sustainability performance*. Therefore, H<sub>5.1</sub> is thus accepted.

In line with the results of the inferential statistics on the hypotheses of this research, the final model has been formed based on statistically significant relationships and this model is one of the main contributions of this study to the body of knowledge on SV. Figure 7.5 presents an empirical model of the impact of SV within the South African mining industry, which is based on significant relationships between the independent, intervening and dependent variables of the study.

The empirical results of this study show that *automation and innovation* and *employment conditions* in the mining industry of South Africa have a significantly positive influence on SV, and that SV enhances *competitive advantage* and *sustainability performance*. The study also empirically revealed that although the need and importance of *mineral resource governance* is widely recognised within the mining industry, too much government intervention in the form regulations and legislation can negatively affect the effort of creating SV. In essence, policymakers, mining organisations and communities should recognise that through collaboration, without imposing the will of one over the other, they can reciprocally create sustainable mutual benefits. Therefore, prioritising *automation and innovation* and improving the *employment conditions* should not be an option for organisations, instead, these should be recognised as the core drivers of *Shared Value* and ultimately enhanced competitive positioning and sustainable performance which underpin a significant contribution to the attainment of SDGs on the global stage.



**FIGURE 7.5: EMPIRICAL MODEL OF THE IMPACT OF SHARED VALUE WITHIN THE SOUTH AFRICAN MINING INDUSTRY**



Source: Researcher's own construction

## 7.12 CHAPTER SUMMARY

This chapter presented and discussed the results of the statistical analysis, including the re-introduction of the original hypotheses and the initial hypothetical model, as discussed in Chapter One and Chapter Five. The validity and reliability of the measuring instrument were tested using EFA and Cronbach's alpha. In terms of the factor analysis, three sets of EFA were carried out to measure the construct validity of the variables. The first set of factor analysis involved the influence of the independent variables, environmental impact, employment conditions, value/supply chain considerations, automation and innovation, infrastructure development and regulatory and legislative conditions on SV. The second set of factor analysis considered shared value and the impact of SV (intervening variable) on organisational performance, competitive advantage and sustainability (the three dependent variables). The EFA resulted in showing the variables formed, that is, which items loaded onto which factor, resulting in three independent variables, namely, *automation and innovation*, *mineral resource governance* and *employment conditions*. While SV remained unchanged as the study's intervening variable, two of the dependent variables, namely, organisational performance and sustainability were merged into one factor/variable termed *sustainability performance* with the other dependent variable being *competitive advantage*. The hypothetical model and the hypotheses were amended in line with the results of the validity and reliability test results. Thereafter, descriptive statistics and various other inferential stats such as Pearson's Product-Moment correlations and multiple regression analyses were conducted. Finally, ANOVA tests were conducted to identify the influence of demographic variables on SV perceptions. The chapter concluded by reporting on the results of the hypothesised relationships by either accepting or rejecting each of the reformulated hypotheses.

Chapter Eight will provide an overview of the interpretation, implications and limitations of the empirical results of the study. Chapter Eight also includes a discussion on the contribution of the study to the field of SV and the identification of possible areas for future research.

## **CHAPTER EIGHT**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **8.1 INTRODUCTION**

Chapter Eight is the final chapter of this study. The theoretical background to the study was provided in previous chapters. Chapter Two provided an overview of the South African mining industry and Chapter Three presented theories related to SV, while Chapter Four discussed the theoretical perspectives on SV. The hypothesised model of SV perceptions was operationalised in Chapter Five, whilst Chapter Six explained the research design and methodology employed in this study. To generate the analysis and interpretations appropriate to the accomplishment of the primary objective of this study, the results of the empirical investigation were presented in Chapter Seven. The primary data of this study was analysed in six phases; validity was assessed by the EFAs on the independent variables, intervening variable and dependent variables, the Cronbach's alpha values were determined to assess the reliability of the measuring instrument, descriptive statistics were calculated to measure central tendency and dispersion, and inferential statistics including Pearson's product correlations and multiple regression analyses were performed to analyse variable relationships. In the final phase, the ANOVAs were conducted to test the relationships between the demographic variables and SV.

This final chapter of the study provides summaries, conclusions and recommendations relevant to the study. Firstly, a summary of the study's chapters is presented. Thereafter, conclusions on the problem statement and the research questions, a summary of empirical results and empirical results and implications of the study are discussed.

The main results are presented, conclusions from the results outlined and recommendations, based on statistical results, presented to organisations seeking to incorporate SV in the South African mining industry, as well as other relevant industries in which SV can be implemented. This chapter concludes by discussing the contribution

of this study to the discipline of SV and the mining industry, as well as the limitations and areas for future research.

## **8.2 SUMMARY OF THE CHAPTERS OF THIS STUDY**

**Chapter One** of this thesis offered introductory and context information about the study. The research problem and purpose were identified and discussed to guide the conceptualisation of the primary and secondary objectives, research questions and hypotheses. To explain what needs to be examined, a short literature review on Shared Value was introduced. The chapter, therefore, defined and explained the expected study variables. In line with the study objectives and purpose, Chapter One briefly presented the research methodology and the proposed hypothetical model. The chapter concluded by providing a brief outline of the study.

**Chapter Two** presented an overview of the mining industry of South Africa. This chapter mainly presented the landscape of the South African mining industry, its history, importance and contributions through a discussion based on the PESTEL approach. Furthermore, Chapter Two discussed the practice of CSR and SV in the mining industry, and compared South Africa's mining industry to the same industries in BRICS. Chapter Two further presented a review of the current literature on mining, by highlighting the difficulties and topical issues relevant to the industry as a whole.

**Chapter Three** provided detailed information on six theories that support the foundation of SV from various concepts. The literature review provided a discussion on how organisations interpret and implement various concepts as well as how these concepts are similar, despite specific differences. In addition, considering the debate about CSR and SV amongst academics and management professionals, the chapter discussed how the theories interlink. The chapter also explained SV as an umbrella term that incorporates CSR. Stakeholder theory, the theory of reciprocity and interdependence, the integrative social contract theory, the BoP theory and the concept of Social Entrepreneurship, which is focused on creating social innovative solutions, were also discussed to provide context.

**Chapter Four** provided a comprehensive overview of SV, including a discussion regarding the history of SV, the evolvement of the concept, SV challenges and benefits to organisations as well as processes and case studies related to SV. This chapter also provided an overview of the ways and approaches firms can follow to implement SV. In addition, the chapter discussed the factors that influence SV and the potential outcomes of SV. The process of operationalising SV with the strategic management framework and the ecosystem for the successful implementation of SV were also discussed. In addition, various case studies of SV implementation were presented. Furthermore, the chapter discussed the SV opportunities in the mining industry and concluded by discussing the current limitations to the implementation of SV.

**Chapter Five** operationalised the theoretical variables described in the hypothetical model in the context of the mining industry. Literature that supports the hypotheses and variables of the study was also discussed, thus to identify the antecedents and outcomes of SV. In addition, the chapter presented an overview of the current literature and observations that reinforce the existence of relationships between SV and the following variables: environmental impact ( $H_1$ ), employment conditions ( $H_2$ ), value/supply chain consideration ( $H_3$ ), automation and innovation ( $H_4$ ), infrastructure development ( $H_5$ ), and the regulatory and legislative conditions ( $H_6$ ). The literature review and anecdotal evidence in this chapter also supported the influence of SV on the following three dependent variables: organisational performance ( $H_7$ ), competitive advantage ( $H_8$ ) and sustainability ( $H_9$ ).

**Chapter Six** offered a comprehensive discussion on the research design and methodology adopted in the study. The chapter described the various research paradigms and methodologies from which the researcher chose the one considered most suitable to address the objectives of the study. The chapter discussed the quantitative research method adopted in the study and the sampling process. Moreover, information was given in this chapter on the data collection methods as well as the design, structure and scale of the measurement instrument. The chapter also offered comprehensive information about the demographics of the survey participants and concluded by providing a detailed description of the six analysis techniques that the research instrument

and data were subjected to in order to ensure that the results of the study are valid and reliable.

**Chapter Seven** presented the statistical analysis and results of the empirical study. The study assumptions and objectives were reiterated as a reminder of what the study seeks to achieve through the data analysis. The chapter briefly discussed and presented the results from the statistical analysis that was performed by using a six-phase approach. The six phases included the EFAs, Cronbach's alphas calculated to measure reliability, descriptive statistics as well as Pearson Product-Moment correlations and multiple regression analyses. The ANOVA results were also presented and discussed in this chapter. The chapter concluded by presenting the results of the proposed relationships, either by accepting or rejecting the modified hypotheses. The final adapted model (Figure 7.5) was presented as one of the study's main contributions to the SV body of knowledge in respect of the mining industry.

### **8.3 CONCLUSIONS ON THE PROBLEM STATEMENT AND THE RESEARCH QUESTIONS OF THE STUDY**

The research problem is an area that requires substantive understanding. Upon the completion of this study, this section seeks to provide conclusions on the problem of the study (Section 1.2 of Chapter One), the purpose (Section 1.3 of Chapter One), and objectives (Section 1.4 of Chapter One) as well as the research questions (Section 1.7 of Chapter One) presented in the introductory chapter of the study.

In line with the review of the extant literature and the empirical results of this study, the sections below provide conclusions about aspects raised in the study's problem statement and the research objectives of the study.

### **8.3.1 Perceptions regarding Shared Value as well as its antecedents and outcomes within the mining industry of South Africa**

In view of the lack of literature and empirical evidence relating to SV, and the gap of minimal relevant studies in the South African mining industry, this study sought to investigate the following problem (formulated as a question), which was addressed both in the literature review and in the empirical results of the study: *What are the perceptions on SV as well as its antecedents and outcomes within the mining industry in South Africa?*

This study conducted a detailed literature review of SV. Apart from Chapters One, Six and Seven, all other chapters provided an extensive review of SV literature. The evidence and knowledge were gained from existing and most current literature on SV, and discussions covered the history, conceptualisation and scope of SV, perspectives and approaches to the operationalisation of SV, the operationalisation of SV within the strategic planning framework, the ecosystem of SV, and the benefits and challenges of SV. In addition, case studies on the implementation of SV relevant to the South African mining industry context were also addressed.

Literature and empirical results from previous studies showed the association between SV adoption and environmental impact, employment conditions, value/supply chain considerations, automation and innovation, infrastructure development as well as regulatory and legislative conditions, as relevant to organisations. The empirical results of the study demonstrated that *automation and innovation* as well as *employment conditions* are the antecedents of SV, and *competitive advantage* and *sustainability performance* are the outcomes of SV in the South African mining industry.

The broad exploration discovered that South African mining organisations focus on utilising CSR and sustainability planning rather than SV to address some of the issues affecting the industry. In addition, there has been very limited or no study in South Africa on the adoption of SV in the mining industry. In other words, in South Africa, the existence of SV is in the periphery of economic activities, not formally adopted as the new strategy of creating value for all stakeholders. The view about the dearth of academic studies on the adoption of SV in South Africa is also maintained by Nicholson (2017).

In relation to the adoption and implementation of SV, the literature review and the results of this study close the gap that exists in South African literature. The collection of primary data from the managers of various mining organisations created awareness of the SV discourse and led to the prevalence of consciousness of SV within the mining industry. As mentioned, this study and its empirical results revealed that *automation and innovation* and *employment conditions* significantly influence SV, and the outcomes of SV within the mining industry are *competitive advantage* and *sustainability performance*. Therefore, the study's research problem was addressed through the literature and the empirical investigation.

### **8.3.2 The gap in the literature regarding the adoption and implementation of Shared Value within the South African mining industry**

The study also initially highlighted that a gap exists in literature regarding the adaption of SV in mining and whether it can ensure socioeconomic development. The literature review provided a broad discussion of theories that underpin SV. In order to explain the purpose of SV, the study distinguished the CSR theory as a motivation for SV strategies and discussed the perspectives and ways for implementation of SV. In addition, the study discussed the factors influencing the creation of SV and potential outcomes of SV. In developing the framework for operationalising SV strategy, the study further discussed the measurement, challenges and opportunities of implementing SV. It is clear that the study filled the literature gap concerning SV implementation among mining organisations. In addition, the primary data obtained by the researcher helped to discover the influence of SV implementation on organisations employing it.

The study further provided information on the approaches and benefits available to the mining industry for implementation of SV at a global level. The observations of the literature review show that organisations in South Africa may apply and comprehend the importance of SV. However, the adoption and implementation of SV as a formal organisational and/or competitive strategy still takes place on the sidelines of economic activities. This implies that organisations in South Africa have utilised various socially responsible projects to accomplish organisational objectives. Odia (2018:144) maintains



a similar view that SV is a veritable instrument for addressing the bottom of the pyramid resulting in an inclusive economy, and that it has the potential to unleash the next wave of global economic growth, prosperity and sustainable development in developing countries. Flynn, Gould, Hsiao and Naicker (2018) also maintain that South African organisations should identify SV creating opportunities and skills critical for driving productivity, innovation and entrepreneurship; then prioritise initiatives that will maximise value for all stakeholders.

The study includes discussions and case studies that demonstrate the benefits of SV adoption in South Africa. The benefits include the achievement of the organisational performance targets, competitive advantage and sustainability. The regulatory and legislative environment of South Africa is meant to some extent to influence mining organisations to create value for all stakeholders. The BBBEE, Mining Charter, Carbon Tax Act, MPRDA and NEMA, for instance, are geared towards creating socio-economic growth and protecting the environment. However, the literature review also shows that this legislation alone fails to adequately enhance organisational performance and increase competitiveness and sustainable development in the mining industry. The complexity of the mining regulatory environment is one that requires consistent and strategic monitoring by the mining organisations in order to create any form of real value rather than incurring costs. On the one hand, if mining organisations perceive the industry to be over-regulated, this can have a negative impact on the industry. On the other hand, when there is regulatory instability, the industry would be left at a position where the competitive environment is uneven, unregulated and dictated to by market conditions to the detriment of the imperatives of progressive transformation. In support of this notion, the South African Institute of Race and Relations (2019) and Hayes and Cloete (2019) state that despite the government's policy on mining and foreign investments that South Africa is 'open for business', mining organisations and the government must find a common ground between the competing interests of the stakeholders in order to build sustainable value. In reality, the situation is more complex, as the promotion of investment in mining is frequently subordinated to South Africa's domestic agendas of black economic empowerment, affirmative action, land restitution and redistribution, and

decolonisation. Hence, the UN (2015) revealed that sustainable development, economic growth and competitiveness can be attained through collaborations between the government, profit-oriented organisations and civil society.

In addition, this study's literature review proves that SV adoption produces benefits for all stakeholders, including the broader ecological system and the economy. Many organisations worldwide use SV as an enhanced, innovative and effective way to build a win-win situation for employees, organisations and government. The study has reviewed the existing literature demonstrating that the SV is supported by governments all over the world as a policy to raise productivity (employee empowerment), expand share capitalism, stimulate economic growth and facilitate organisational progress. Moreover, the current literature review also revealed that SV is the most appropriate and enhanced way of achieving the interest of the organisations while solving the needs of communities and employees, among other methods. SV can be effectively used by the government and the mining industry, among other market methods, as a policy to maximise socioeconomic prosperity. These results agree with the results of Porter et al. (2013), where the study showed that cross-industry collaborations and social innovations create value for all stakeholders beyond the traditional value chain of an organisation.

The literature of the study also explained extensively ways in which SV can be implemented to create mutual and reciprocal benefits for the host communities, employees, the government and the mining organisations. In addition, SV can lead to competitive advantage and sustainability performance when properly managed in that it solves environmental and social problems as the core of the business. The study also included a literature review and empirical results which revealed the value of integrating SV to South African mining organisations' existing competitive strategies. Moreover, SV needs to be integrated and implemented as part of organisational strategies for competitiveness and/or sustainability of the mining organisations to catalyse socio-economic transition, sustainable development and protection of the environment. The World Bank (2018) and Saghir (2017) also support this view and indicate that SV represents a paradigm shift in CSR and sustainability strategy to a new approach where organisations start to think and take long-term views of social investments and economic

prosperity, and look at organisational decisions and opportunities through the lens of SV by incorporating social and societal values into their economic agenda. As a new concept which prompts 'new thinking', visionary leadership is needed to drive the operationalisation of SV.

There is limited academic literature on SV in South Africa, especially concerning the mining industry. A notable study in South Africa focused on SV to assess the SV created by a wildlife and tourism organisation through a protected area and its unique relationship with local communities (Nicholson 2017). In the South African mining industry, studies include assessment of the impact of acid mining (McCarthy 2011) and a study on prospects and challenges for small-scale mining entrepreneurs (Mkubukeli & Tengeh 2016). Therefore, it is noticeable from this study's literature and empirical results that the study filled the SV knowledge gap within the South African mining industry and the South African economic landscape in general.

The study shows that the South African mining industry has prospects for the adoption of SV, and that mining organisations will increase their economic prosperity by resolving social and environmental issues of mutual interest to communities, mining organisations, government and other key stakeholders. In this regard, the study also illustrated the landscape of the mining industry in South Africa, using the PESTEL framework to demonstrate the contribution of the industry to socioeconomic development and environmental impacts. Thus, the results of the study confirm that when SV is created, it improves the competitive advantage and sustainability performance in the South African mining industry. It is evident that SV can act as a catalyst for socioeconomic development. In essence, from the above sections it is clear that both the research problem and the purpose of the study were addressed by identifying and defining the antecedents and outcomes of SV in the mining industry.

### **8.3.3 Conclusions to the research questions of the study**

Study objectives are more general while the research questions are specifically designed to provide the basis for the objectives to be achieved. In this study, the objectives and the research questions are aligned with the overall problem under investigation.

Consequently, the research objectives are achieved by answering the research questions.

The results of the literature review and empirical result of this show that the secondary and methodological objectives have been met. SO1 to SO3 have been met through developing the measuring instrument (questionnaire) and by conducting the statistical analysis of the empirical results in Chapter Seven. In addition, the methodological objectives have been met as follows:

- MO1: To undertake a detailed literature review on SV and its relevance in the context of the South African mining industry – comprehensive literature review provided in Chapters Two, Three, Four and Chapter Five.
- MO2: To find support for and formulate several hypotheses summarising the relationships to be tested in the empirical study – hypotheses formulated in Chapters One and Chapter Five and empirically tested in Chapter Seven which also presented the results.
- MO3: To determine an appropriate research design and methodology to address the objectives of the research study – detailed research methodology and design provided Chapter Six.
- MO4: To source primary data from a sample of stakeholders in the South African mining industry and to test the hypotheses put forward – developing a measuring instrument, administered to 450 respondents and statistical analysis of data presented in Chapter Seven.
- MO5: To provide recommendations to stakeholders in the mining industry, based on the results of the research study, in terms of how SV can be effectively implemented to improve organisational performance, competitive advantage and sustainability in the mining industry – recommendations and managerial implications are outlined in Chapter Eight.

This study also adequately addressed the initial research questions. Table 8.1 gives discussions on extant literature as well as relevant empirical results of this study, and through that answers each of the RQs.

**TABLE 8.1: SUMMARY OF ANSWERS TO THE RESEARCH QUESTIONS**

<b>RQ1: What is the influence of <i>environmental impact</i> on SV in the SA mining industry?</b>
<p>The existing literature examined in this study shows that <i>environmental impact</i> influences the creation of SV. Organisations are required to evaluate their impact on the environment (National Department of Environmental Affairs 1998:8). Researchers view mining projects as the source of possible adverse effects by the release of substances in the environment. In addition, communities tend to suffer severe social dislocation, infrastructure deterioration and environmental destruction as a result of mining activities (Leonard 2017; Schoenberger 2016:119). As a result, organisations in developing their strategies should perform a PESTEL analysis, which would indicate areas that influence their strategic direction, their impact on the environment and the society as well as on other stakeholders. The empirical investigation led to the formation of a <i>mineral resource governance</i> (MG) variable that covers the <i>environmental impact</i> (EI) aspects relevant to the mining context. The study revealed an insignificant, negative relationship between <i>mineral resource governance</i> and SV. This means that, although not statistically significant, as mining organisations' focus on environmental impact (through an abundance of regulations) increases, their SV efforts decrease.</p>
<b>RQ2: What is the influence of employment conditions on SV in the SA mining industry?</b>
<p>The existing literature examined shows that employment conditions influence the creation of SV. Employment conditions refer to philosophies and operating practices that align the expectations and beliefs of employees with those of the employer (Mamun &amp; Ahmed 2009:632). Employees perspectives and attitudes are positively affected by various practices of the employer organisations, including rewards, trust, honesty, equity, transparency, training and development, and health and safety amongst many other factors. As a result, these factors affect the productivity of organisations (Schnackenberg &amp; Tomlinson 2014). The literature review confirmed that organisations can create SV by implementing policies that stimulate the achievement of organisational objectives and the needs of the employees. For example, by offering broad-based skills training related to future job opportunities, the organisations reduce their potential recruiting costs and obtain a Social License to Operate while the local communities acquire the employability and wage-earning capacities. In addition, increased performance can be secured by employee's engagement and involvement in decision-making. This study also empirically confirmed a significant positive relationship between <i>employment conditions</i> (EC) and SV. This means that as mining</p>

organisations' focus on employment conditions increases, their SV efforts also increase.

**RQ3: What is the influence of *value or supply chain* on SV in the SA mining industry?**

The extant literature reviewed in this study shows that value or supply chain influences the creation of SV. Organisations that adopt innovation for the inclusive value chain improve their productivity and competitiveness through addressing the societal and ecological challenges that impede the reliability and performance of their activities. This notation is supported by Wachira, Barnard, Lutseke and Ger (2020) who state that in the long run, organisations will not survive when communities struggle. Therefore, SV organisations innovate their supply chain for inclusivity by reducing their supply costs, using environmentally sustainable transport, relying on sustainable energy, turning their mine dumps into economic uses, improving the productivity of employees and promoting local suppliers through local procurement and suppliers' empowerment programmes. The results of this study confirmed a significant positive relationship between *automation and innovation (AI)* and SV. Based on the factor loadings, value/supply chain (VC) items were incorporated in the AI factor. Therefore, it can be stated that value or supply chain has an impact on SV. As a result, as mining organisations' focus on value/supply chain increases, their SV also increases.

**RQ4: What is the influence of *automation and business model innovation* on SV in the SA mining industry?**

Both the literature consulted on *automation and innovation* and the results of the study confirm the existence of a positive significant influence of *automation and innovation* on SV. While automation is described as the intelligent control of systems using suitable technologies to function without human input, innovation is defined as the development of new solutions that address the unmet needs which create lasting impact (Ralston, Hargrave & Dunn 2017). In the mining industry, organisations improve the way mines operate, focusing on increasing productivity, safety and health, capability and reliability through the adoption of innovative technology and automation of certain functions (MCSA 2019). Furthermore, organisations create SV by redesigning new products and markets, which may include the supply of energy and water over and above the traditional products of mining (minerals). This view is supported by Pfitzer et al. (2013) and the World Bank (2018). The results of this study confirmed a significant positive influence of *automation and innovation (AI)* on SV. Based on the EFA factor loadings of this study, automation and business model innovation (AI) items were retained in the AI factor. Therefore, this research question can be answered by stating that automation and innovation do influence SV. As the focus and efforts of mining organisations on automation and innovation expand, their SV practices are also enhanced.

**RQ5: What is the influence of *infrastructure development* on SV in the SA mining industry?**

The review of literature and the results of the study show that *infrastructure development* positively and significantly influence SV. Organisations that improve the broader market and infrastructure facilities strengthen the macroeconomic variables of productivity and contribute towards the development of the local communities within which they operate (Ralston, Hargrave & Dunn 2017:733). In addition, by improving local infrastructure that enhances the health of local communities and their level of literacy, expertise and knowledge, and by providing prospects for economic growth, organisations can also enhance their supporting environment because there is increased access to reliable infrastructure such as roads, water and energy. This notation is supported by studies of Lynas and Horberry (2011:74) and the World Bank (2018). As mentioned, the results of this study confirmed a significant positive relationship between *automation and innovation (AI)* and SV. Based on the factor loadings, infrastructure development (ID) items were incorporated in the AI factor. Therefore, it can be stated that there is an influence of infrastructure development on SV. This implies that as mining organisations' focus on infrastructure development increases, their SV efforts also increase.

**RQ6: What is the influence of *regulations and legislative conditions* on SV in the SA mining industry?**

The existing literature examined in this study shows that positive regulatory and legislative conditions (also within the area of mineral resource management) can promote economic progress and social prosperity. In contrast, the economies of countries can decline as a result of policy uncertainty or policies that are not considered unfavourable to markets. Government control of natural resources positively enhanced the efficiency of the economy and the welfare of workers and other stakeholders where they are perceived to be favourable by the organisations. However, there have been mixed results regarding the outcomes of government interventions (new regulations) within the mining industry. In South Africa, mining occurs under the free economy and all economic strategies, including the NDP, the New Growth Path and the Industrial Policy Action Plan, are aimed at promoting investments, economic growth and creation of employment. Organisations are required to conform to the regulatory conditions of the host country, and the PESTEL analysis helps determine investment opportunities and possible barriers (Mkhize 2010:94; World Bank 2018). Contrary to the literature, the results of the study revealed that regulatory and legislative conditions (RL), of which items loaded onto the *mineral resource governance (MG)* factor, have an insignificant influence on SV.

**RQ7: Does perceived SV influence *organisational performance* in the SA mining industry?**

The results of this study, including a literature review, showed that the implementation of SV results in enhanced *organisational performance*. This means that SV-enabled organisations increase efficiency, reduce production costs and increase revenues, increase quality and brand recognition, improve customer satisfaction and loyalty, and increase employee commitment and retention. In addition, studies of Nicolson (2017), Bocken (2017) and Schroeder, Anggraeni and Weber (2018:79) confirmed that SV implementation leads to organisational performance, employee retention, commitment, participation, satisfaction and innovation and environmental protection. The empirical results of this study confirmed a significant positive relationship between SV and *sustainability performance* (SP). Based on the factor loadings, organisational performance (OP) items were incorporated in the SP factor. Therefore, it can be stated that there is an influence of SV on organisational performance. This means that if SV increases, the organisational performance of a mining organisation will also increase.

**RQ8: Does perceived SV influence *competitive advantage* in the SA mining industry?**

The anecdotal evidence derived from the literature review and the empirical result of this study showed that the implementation of SV results in enhanced *competitive advantage*. For example, the World Bank (2018) also supports this suggestion by maintaining that the mining industry can be beneficial to the economic growth of the host country by increasing competitiveness that leads to higher productivity, lower prices and higher efficiency. Kotabea and Kothari (2016:5) and Moon et al. (2011:57) explain that organisations outperform their rivals when they are able to retain their customer base, increase their market share, demonstrate growth and ensure continuous improvement in productivity. The results of this study confirm that mining projects when properly managed have the potential to create competitive advantage over their rivals through increased production efficiency and effectiveness, reliable supply chain, social innovation, the culture of continuous improvement, brand and quality superiority, and developing core competence and expertise. Therefore, the results of the study reveal that SV does significantly and positively influence *competitive advantage* (CA) of mining organisations. This means that if an organisation's focus on SV increases, the competitive advantage of the mining organisation will also increase.



#### **RQ9: Does perceived SV influence *sustainability* in the SA mining industry?**

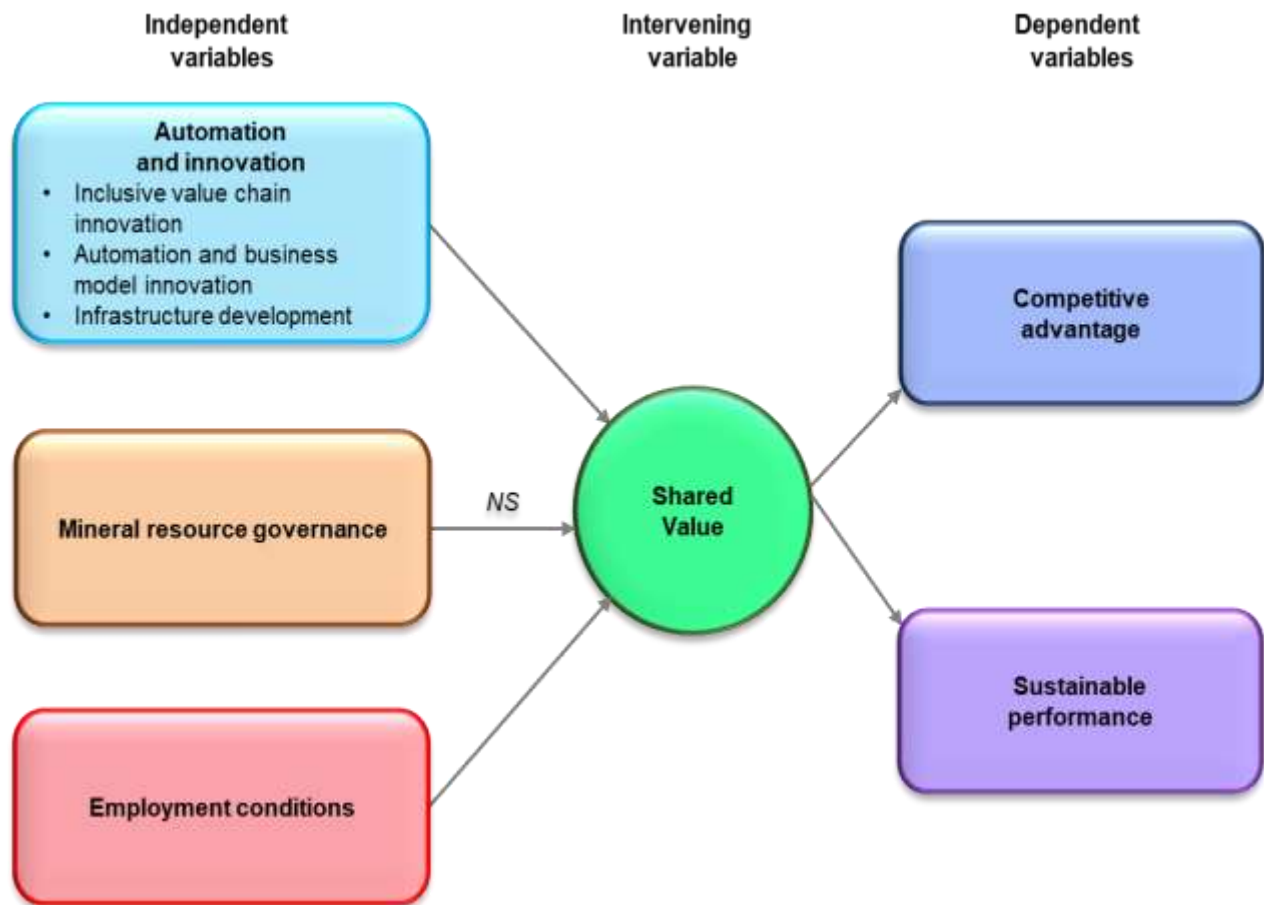
The study presented literature and anecdotal evidence that demonstrates the significant impact of the implementation of SV strategies on sustainability outcomes. This means that SV enabled organisations to achieve their economic objectives (increase productivity, revenue and profitability, brand awareness, retentions of customers and employees) while resolving the societal issues which include improving the standard of living, enhancing healthy living (including health and safety of the employees), positive environmental impact and observation of human rights as well as growing the local economy. Sustainability performance is multidimensional and achieved through the integration of social, economic and environmental factors into planning, implementation and decision-making. This is supported by studies of Barbier and Burgess (2017), Bocken (2017) and Schroeder, Anggraeni and Weber (2018). The results of this study confirmed a significant positive relationship between SV and *sustainability performance* (SP). Based on the factor loadings, sustainability (SU) items were also incorporated in the SP factor. This implies that when SV increases, sustainability will also increase.

It is evident from Table 8.1, which shows how the study's results addressed the research questions, that the research confirmed the factors which significantly influence SV in the South African mining industry, as well as the outcomes achieved by the adoption of SV. Although these were the initial nine research questions of the study (linked to the six independent variables and three dependent variables), the empirical results proved that three antecedents (factors) appear to influence SV in the mining industry in SA and that SV leads to two outcomes. Therefore, it is clear that the study's research questions were adequately addressed.

#### **8.4 SUMMARY OF EMPIRICAL RESULTS**

Figure 8.1 demonstrates a synopsis of the scientific results presented and discussed in Chapter Seven. Each of the models in Figure 7.2 and Figure 7.3 show the variables which have a significant influence on SV within the South African mining industry. Therefore, Figure 8.1 summarises the significant and insignificant relationships between the study's variables.

**FIGURE 8.1: EMPIRICAL EVALUATION OF THE PERCEPTIONS REGARDING SHARED VALUE WITHIN THE SOUTH AFRICAN MINING INDUSTRY**



Source: Researcher's own construction

The model shown in Figure 8.1 illustrates the variables relevant to the creation of SV in the South African mining industry. Significantly positive relationships were established between *automation and innovation* as well as *employment conditions* (independent variables) and SV. The influence of *mineral resource governance* on SV was found to be insignificant and negative. Furthermore, Figure 8.1 shows that SV exerts a significantly positive influence on both *competitive advantage* and *sustainability performance* in the South African mining industry.

## **8.5 EMPIRICAL RESULTS AND IMPLICATIONS OF THE STUDY**

The empirical results revealed the variables that are antecedents to and outcomes of SV in the South African mining industry. These results pose specific implications.

### **8.5.1 Empirical results and implications based on the influence of the independent variables on Shared Value within the South African mining industry**

The study found that *automation and innovation* (inclusive of aspects relating to inclusive value chain, automation and business model innovation as well as infrastructure development) and *employment conditions* exert significantly positive influences on SV within the South African mining industry.

#### **8.5.1.1 Automation and innovation**

This study defines *automation and innovation* as the development of technological ingenuity and new business models that enable organisations to redesign the processes and products to competitively meet the requirements of stakeholders with sustainable solutions while minimising human intervention. Automation and innovation have a wide range of dimensions, including business model innovation, research and development, digitisation (technological modernisation / artificial intelligence) and product redesign (solution) (Schwab 2017; Amit & Zott 2012:44). Innovation presents an opportunity for reimagining new economies or market or business and social innovative solutions that create value for organisations, communities and other stakeholders (Rampersad 2015; Brent & Felder 2014). Accordingly, *automation and innovation* have three pillars, namely inclusive value chain innovation, automation and business model innovation, and infrastructure development. The Mineral Council of South Africa (2020), the United Nations (2015), the World Bank (2018) and the World Economic Forum (2017) all concur that mining is an industry driven by value chain innovation, automation/technology innovation and infrastructure development. Hence, this study considers *automation and innovation* to be an umbrella variable that influences SV.

Accordingly, inclusive value chain innovation refers to the recognition of social or economic gaps within the value-creating network of activities, which, when reconfigured innovatively, contribute to sustainable development gains for communities while increasing the productivity and competitiveness of the organisations. Inclusive value chain innovation as a pillar of automation and innovation contributes to the creation of SV worldwide. This includes a country's natural resources, social capital in the form of employees, communities and entrepreneurs, and value-generating practices and policies. As a result, inclusive value chain innovation integrates human resources, information technology and procurement. The essence of the inclusive value chain is linking stakeholders in the value chain with local communities and suppliers with input organisations and related processing organisations such as factories or mining equipment manufacturers. In support of this view, Swinnen and Kuijpers (2020) maintain that organisations need to innovate and adopt technology throughout their production, transport, storage and distribution channels in order to ensure product quality, safety and supplies.

According to MCSA (2019), automated and remote-controlled machines increase productivity and make mining more efficient and safer than manual labour. Furthermore, innovation potentially contributes to an organisation's organisational ingenuity of creating new business (market) (Anderson, Potocnik & Zhou 2014). Mining organisations can transform the business ideas into a product/service that generates value for or fulfils the unmet needs of the customers and/or fulfils own organisational operational requirements by fostering innovation. Mining organisations have the opportunity to rethink the established order and the ability to innovate beyond the operational process in search of new markets (business). Similarly, the adoption of artificial intelligence, automating mining processes, reporting and planning process leads to improved safety and security of the employees, and increased productivity and protection of the environment. Innovation on the other hand is the primary opportunity for organisations to penetrate a new market or dominate the existing market or increase revenues/reduce input cost and create a sustainable competitive edge. The results of the study show that business model innovation as a key pillar of automation and innovation influence the creation of SV. Evans

et al. (2017) affirm this notion by maintaining that business model innovation is a vital approach to realise innovations for sustainability and improved organisational performance, competitiveness and social value.

Collaborative innovations enable the organisations to form complementary alliances with other industries by finding functional interconnections between productive/economic activities and establishing gaps within and outside the value chain to ensure innovative infrastructure development. Prno and Scott (2012) argue that organisations that stimulate social progress in every region of their operations would invariably increase their profits and gain the Social License to Operate. The sustainability development issues are beyond the control of any organisation or government if acting alone in isolation. The results of this study are supported by OECD (2016), which emphasises that development of infrastructure involves the creation of essential services in order to achieve economic growth and contribute to sustainable development. The United Nations (2019), on the other hand, claims that infrastructure development and innovation are crucial drivers of economic growth and development of resilient communities that does not leave anyone behind. In essence, organisations in developing countries have an immense but underexploited opportunity for infrastructure development and innovation, according to the United Nations (2019), in that building resilient infrastructure accessible to everyone in an economical and inclusive manner promotes automation and innovation, which in turn allows organisations to be more competitive and efficient whilst increasing social mobility. Hence, this study reveals that *automation and innovation* by improving value chain inclusivity, automation and business model innovation and infrastructure development significantly influence SV.

#### **8.5.1.2    *Employment conditions***

This study defines employment conditions as conditions between employees and organisations that offer opportunities for employment and empowerment, with dimensions including safety and health, training and career development, equity (transformation) and diversity, fair remuneration and provision of other benefits such as housing as well other legislative requirements. The stakeholders to conditions of employment include the

organisations, existing employees and potential employees, host communities, government, institutions of higher learning and trade unions. Accordingly, adoption of SV requires meaningful multi stakeholder engagements which include the organisations, host communities, employees, trade unions and all groups seeking to advance their respective interests. SV creation, in the context of interests of a local community, cannot be seen only as creating economic value for the organisation, but also as helping to solve unemployment and related social problems of the local communities and government. Therefore, appropriate employment conditions increase employment opportunities and income, improve the health and safety of employees, stimulate the development of potential and existing employees, and contribute to the improved standard of living of the communities while stimulating the productivity and competitiveness of an organisation.

The results of this study confirmed a positive significant relationship between employment conditions and SV. This means that conditions of employment, generally influenced by the interests of the government, NGO's, trade unions, communities, employees and other stakeholders, can substantially contribute in an effort to create SV within the mining industry. Dembek et al. (2016) and Swanson (2017) support these results by maintaining that organisations can recognise and treat the local communities as the co-drivers of the SV project, thereby creating value for the local communities seeking to meet their needs and contributing to solving their challenges. The concept of SV at the organisational level can be understood, as the policies and practices that increase the competitiveness of an organisation at the same time improve the economic and social conditions of the community in which it operates (Porter & Kramer 2011). Therefore, the employment policies and practices implemented by an organisation are vital to productivity and the competitive position of an organisation.

#### **8.5.1.3    *Mineral resource governance***

Mineral resource governance did not exert a significantly positive influence on SV in this study. The United Nations Environment Programme (2019) defines mineral resource governance as the mechanism that guides decision-making, instills the culture of shared responsibility and accountability for control and use of natural resources in a sustainable

and mutually beneficial way for mining organisations, governments and communities. Although the wealth of minerals presents notable opportunities for mining organisations and government to harness their extractive wealth to advance economic development and well-being of the communities, not much can be achieved without sound governance mechanisms. The United Nations Environment Programme (2019) claims that the majority of resource-rich developing countries have failed to translate their mineral wealth into broad-based economic, human and social development.

Mining regulations should not only focus on enhancing state control of resource revenues or private investors' independence, but rather focus on balancing the role of government on oversight of critical issues such as resource rents, job generation, technological transfer, and broad socio-economic development (Ambe-Uva 2017:85). Despite the potential of the mining industry to serve as a catalyst for socio-economic development, the industry remains affected by high commodity prices, policy uncertainty, lack of transparency and accountability (including corruption), competing stakeholder interests, and global climate change mitigation and adaptation imperatives. Too much regulation of the industry negatively affects SV.

#### **8.5.2 Empirical results and implications based on management perceptions regarding Shared Value within the mining industry of South Africa**

This study defines SV as a practice of developing and implementing innovative strategies and business models that address social issues while in turn creating reciprocal financial and societal benefits for the interdependent stakeholders, including the environment. For Porter and Kramer (2011), SV refers to organisational policies and practices that enhance the economic outcomes of an organisation while simultaneously advancing social and economic conditions in the communities within which it operates. According to Pfitzer et al. (2013:4), SV seeks to integrate social purpose into organisational policies, strategies, processes, and communities, and to actively channel the core competencies and capital of organisations towards the creation of socially innovative products and services that resolve social issues.

The empirical results indicate that management believes that the mining organisations create benefits for shareholders, employees, communities, environment and other stakeholders by unlocking their influence, resources and capabilities to resolve essential global problems in ways that also reduce costs and increase revenues (Porter et al. 2011:1). The global challenges of poverty, resource depletion, exploitation of minority groups and climate change are associated with organisational activities (Porter & Kramer 2019), particularly in the mining industry. Although organisations have historically been viewed as benefactors of societal failure, complicit in widespread market failure, destruction of natural resources utilised for their production processes, and the unfair treatment of their employees and communities among other issues, by adopting the new thinking of the SV approach, organisations can align their economic incentives to broader social needs and environmental concerns. The new thinking (SV), according to Porter and Kramer (2011), can deliver economically beneficial strategies that simultaneously solve societal challenges by innovating and redesigning their products and services and finding a new market, redefining the approach to value creation and investing in enabling local cluster development.

The empirical results show that SV is promoted within the South African mining industry by solving social and environmental concerns and lowering the cost involved within the value chain. These strategies are underpinned by social innovations, collaborations and partnerships that benefit all stakeholders in the value chain activities of an organisation, including shareholders, employees, customers, suppliers and the communities in which they operate. Those empirical results are supported by Adidas (2017), Porter and Kramer (2019) as well as Dyllick and Muff (2016). These authors also revealed that SV is created through addressing the needs from a social, economic and competitiveness perspective by embedding those needs (social, environmental and economic) into the downstream and upstream operations of the mining industry, and by doing that mining organisations are able to increase the efficiency of suppliers and the local employees and decrease the consumption of natural resources in the production process.



Based on the outcomes of the EFA, *automation and innovation* (AI) and *employment conditions* (EC) act as antecedents by significantly and positively influencing SV. In addition, SV in the mining industry exerts significant, positive influences on *competitive advantage* (CA) and *sustainability performance* (SP).

### **8.5.3 Empirical results and implications based on the influence of the intervening variable (Shared Value) on the dependent variables in the South African mining industry**

The empirical results of this study showed the influence of SV on the identified SV outcomes in a mining context. The section below discusses the two outcomes of SV, namely *competitive advantage* and *sustainability performance*.

#### **8.5.3.1 Competitive advantage**

Kotabea and Kothari (2016:5) describe a *competitive advantage* as a position of dominance which gives the organisation an edge over its competitors and the potential to create increased value for the organisation and its associated shareholders. In addition, Moon et al. (20011:57) refer to *competitive advantage* as the ability of an organisation to operate at a superior level than rival organisations within the industry or market, achieved through the effective and innovative use of core competencies and resources. For this study, *competitive advantage* refers to a unique position attained by an organisation achieved by incorporating SV into the core competitive strategy or organisational strategy.

The *competitive advantage* of an organisation is characterised in the ability of the organisation to retain and grow its market share, increase its market penetration or new market, continuously improve productivity, improve operational efficiency, increase brand awareness and innovation and differentiation within the industry. Lall and Mortimore (2000) explain that competitive advantage can be gained by enhancing conventional labour-intensive operations to create the product of superior quality that returns maximum value, and can also be gained from the adoption of advanced technology and core competence. Furthermore, for this study, the *competitive advantage* also includes the

industry's ability to remain competitive during periods of natural hazards, fluctuating commodity prices and rising input costs.

As seen in Table 7.9, the scientific results of this study confirm the presence of a significant positive relationship between *competitive advantage* and SV perceptions within the South African mining industry. Porter et al. (2014) affirm the results of this study by stressing that SV in the developing nations can lead to improved competitiveness, and vice versa. Higher national competitiveness rankings can attract new investment and contribute to sustainable development. Corazza, Scagnelli and Mio (2017) also support this notion by stating that competitive advantage is regarded as a direct outcome of SV, increasing the profitability of the organisation while causing a positive impact on local organisations, communities and the environment because the potential is there for mining organisations to take profits and employment opportunities away from the host country. The study's results further indicate that SV strategies can positively affect performance on the global market by growing profits and incremental revenue in emerging industries. Furthermore, according to the results, managers of mining organisations believe that mining positively promotes innovations, local expertise and technological modernisation to reduce input costs and increase productivity and sales within domestic and global markets when they achieve economies of scale.

#### **8.5.3.2 Sustainability performance**

According to Schaltegger and Wagner (2006:2), *sustainability performance* refers to the performance of an organisation in all areas that drive sustainability. For this study *sustainability performance* means the achievement of economic value, ecological preservation and societal value in the delivery of core business activities as a way to maximise value for all stakeholders beyond the boundaries of a single organisation, including the performance of both upstream and downstream suppliers and customers in the value chain. In other words, sustainability performance recognises that for an organisation to achieve long term success, sustainability needs to be integrated to the core business activities in terms of operational excellence, risk management, future

growth and governance as well as innovation. Sustainability performance can also be recognised as a key business imperative that drives both cost savings and value creation.

The holistic management of sustainability is complex and involves an effective management system that combines environmental sustainability with the financial performance of the organisation (Johnson 2007), and SV lends itself to such a framework. With management constantly questioning how sustainability performance can be improved and the processes and mechanisms that can be built to enhance performance measurements (Epstein 2008), the adoption of SV approaches provide organisations with real business solutions to sustainability performance. Organisations that focus on sustainability performance improve business performance and create value for all stakeholders in the value chain.

The study results showed that managers consider the operationalisation of SV within South Africa's mining industry to have a positive influence on sustainable performance measured by the positive long-term environmental effects, created simultaneously in the process of developing economic growth opportunities by linking the emerging local economy to the global value chain. In other words, the organisations that operationalise SV strategies stimulate the sustainable organisational performance, including increased profitability and revenues, improved productivity and efficiencies, commitment and loyalty of employees and customers and gain the Social License to Operate from communities. In addition, SV approaches enable the organisations to improve the health and safety of the employees and host communities and create socioeconomic opportunities that improve the standard of living of the communities while maximising positive impact on the environment. Similarly, mining organisations that connect community development to existing long-term business interests in areas such as a labour market, competent suppliers and functioning infrastructure build sustainable SV for the stakeholders.

Dalal-Clayton and Sadler (2014) support the results of this study by maintaining that sustainability performance refers to the point where the social impact, economic results and the effects of the environment intersect. These dimensions also reflect the total sum of the SV key outcomes. Therefore, it can be argued that sustainability performance is a

direct outcome of implementing the SV strategies which increase productivity in developing and emerging economies by creating employment and linking the local economy into global networks. Moreover, SV is instrumental in improving the standard of living of local (host) communities, while increasing the economic benefits of the organisations. SV is also credited with attracting investments from investors who are sensitive to issues to the environment (climate change) and social impact investing.

## **8.6 RECOMMENDATIONS REGARDING ANTECEDENTS TO IMPROVE SHARED VALUE STRATEGIES IN THE SOUTH AFRICAN MINING INDUSTRY**

Based on the empirical results of the study, various recommendations can be presented to organisations in the mining industry of South Africa regarding the antecedents and outcomes of SV for variables and sub-elements thereof that have a significant influence on SV.

### **8.6.1 Strategies linked to automation and innovation**

The empirical results of this study confirm the existence of a significant relationship between *automation and innovation* (including aspects relating to inclusive value chain innovation, automation and business model innovation, infrastructure development) and SV. This viewpoint is supported by several other scholars who point out that the automation and redesign of the business model for innovation enable organisations to generate sustainable value (Zott & Amit 2010:216). According to the results of the EFA, although loaded as one factor (*automation and innovation*), three pillars could be identified, namely inclusive value chain innovation, automation and business model innovation and infrastructure development. Therefore, recommendations for leveraging *automation and innovation* to create SV are discussed below in accordance with the three pillars of *automation and innovation* as defined in the study model (clear in Figure 7.2 and Figure 8.1).

#### **8.6.1.1 *Inclusive value chain innovation***

Inclusive value chain innovation is about “positive or desirable change in a value chain to extend or improve productive operations and generate social benefits: poverty reduction, income and employment generation, economic growth, environmental performance, gender equity and other development goals” (UNIDO 2011:1). The mining industry should aim to introduce the low-income communities most probably as the suppliers of input to the mining value chain. Innovation for value chain inclusivity provides ways to achieve success on a larger scale, with potentially increased efficiency and sustainable development. This study confirms that the innovation for value chain inclusivity goes beyond economic objectives by integrating ecological and societal priorities so as to create sustainable value for all stakeholders and win-win strategic alliances between surrounding communities and suppliers and organisations. Management of mining organisations could implement the following recommendations to enhance inclusive value chain innovation.

##### **(a) Promote inclusive value chain development through stakeholder engagement**

The value chain interventions need to be tailored to fit the opportunities and constraints of particular places and targeted to reach specific groups. As a result, mining organisations need more critical analysis and mutual learning with local communities and suppliers to ensure that socioeconomic and environmental goals are adequately addressed and that trade-offs encountered along the way will be minimised through continuous improvement. Donovan, Franzel, Cunha, Gyau and Mithöfer (2016), in support of this recommendation, state that stakeholder engagement in value chain improves the design and allocation of resources across programmes with a better understanding of interventions which create maximum impact while being cost-effective. The stakeholder engagement in value chain can create meaningful collaborations and foster employee involvement in decision-making.

**(b) Integrate the Mining Charter and BEE transformation strategies with a Supply Chain Management Policy**

Mining organisations need to interpret the conditions and implications of the Mining Charter, BEE and other mining legislation. Mining organisations should integrate the Mining Charter and BEE transformation strategies to the Supply Chain Management (Procurement) Policy. For example, the Mining Charter requires that mining organisations procure 70% of products and 80% of services from BEE compliant local suppliers and contractors and procure 70% of equipment from local suppliers (DMR 2018). In order to build value beyond compliance, local procurement targets should be distributed across all organisational functions and calculators for adherence with the Mining Charter and for calculating the social impact introduced. The value beyond compliance approach to the inclusive value chain is most successful where the economic and policy environments support the rural enterprise development and where appropriate policy changes accompanied the interventions at an organisational level. Noreng (2004) and Jourdan (2012) support this proposal by reinforcing that in developing countries, rich in natural resources, foreign mining organisations with expertise should develop resources, promote local procurement, create meaningful employment opportunities (managerial, professional, skilled, semi-skilled) and transform ownership patterns (indigenisation).

**(c) Adopt an asset-based model for community capacity building programme – technical, business and financial services support**

Several of the issues facing the organisations in the pursuit of building a sustainable value chain for competitiveness cannot be addressed by a single supplier or by only one organisation single-handedly. Collaboration with other organisations, including rivals, NGOs, government and other stakeholders, will streamline the process and contribute to more efficient and effective reform for all stakeholders. Mining organisations should transform their value chain through asset-based models for community capacity building programmes, which will align sustainable development priorities of communities and the need for profit maximisation or productivity. For example, mining organisations can successfully integrate low-income communities to their value chains by collaborating on technical, business, and financial services, rather than registering local suppliers on

procurement databases. In other words, downstream value chain participants should be influenced by their upstream business partners, have the advantage of focusing on clearly identified needs and upgrading opportunities within and beyond the traditional value chain of the mining industry.

**(d) Innovate through collaborations for joint learning and continuous improvement**

Different stakeholders have specific perspectives, skills, technology and expertise. Mining organisations need to define appropriate forums and mechanisms for sharing and capitalising on the opportunities for innovation. The outcome of economic value creating alliances and communities of practice will be impactful if nurtured by genuine interest in learning and authentic commitment to continuous improvement. Organisations achieve innovation performance within the value chain through external collaborations because they enable organisations to access knowledge residing in other organisations, hence to improve organisational learning and innovation capabilities (Powell, Koput & Smith-Doerr 1996). The core of collaborative innovation includes engagement, co-creation and a compelling experience for value creation. For example, through collaboration, Glencore, Goldcorp, Kirkland Lake and Hecla Mining were amongst the first to use the battery-operated electric equipment which reduced noise, vibrations and emissions within the mine. Furthermore, the Mine of the Future initiative by Rio Tinto in 2008 progressively simulated innovation for mineral extraction while reducing the carbon footprint and enhancing safety of employees. This has projected Rio Tinto as the world leader of automated mining operations by using autonomous haulage systems and 71 automated trucks operating in Pilbara (Rio Tinto 2018).

**(e) Adopt a smart multimodal transport solution and shared use transport infrastructure model**

Transport is crucial for the economy and the mining industry because it enables the industry to achieve, explore, extract and distribute the minerals to the users (Havenga & Simpson 2013). In addition to the use of electric and autonomous vehicles, mining organisations could invest in building storage facilities closer to the rail infrastructure,

enter into Private Public Partnership with Transnet to build and operate a rail system and increase the bulk terminal for exports through water and air chartering. Furthermore, mining organisations can also create strategies for multi-purpose and multi-user infrastructure or explore double-track rail alternatives, or to enable single-tier rail and port developers or operators to participate in rail networks and keep them responsible for delivering supply chain planning and coordination (OECD 2016). In essence, mining organisations could partner with government (Transnet), competitors and communities to design and build integrated smart multimodal transport solutions with enhanced safety and security, real-time allocation including track and trace, reliability and agility capability and performance management. The smart multimodal transport system should enable organisations to select an effective mode of transport that will lower the costs whilst being environment friendly.

#### **8.6.1.2    *Automation and business model innovation***

The mining industry is influenced by mechanisation, modernisation and innovation similar to other industries (World Bank 2018). As a result, mining organisations have to pay attention to digital transformation to broaden value creation. The success of automation and or innovation heavily depends on comprehensive organisational transformation and adoption of innovative business models, which are not only focused on technology but people, culture and governance. For the past 15 years, the mining industry has experienced a constant decline in productivity, the rising cost of labour and weak infrastructure, declining employment and reduced productivity and access due to ores because of the deepening levels of mines (MCSA 2020; PWC 2019:5). To remain competitive, mining organisations have to recognise the need to urgently transition from deep mining level, intensive labour practices and conventional mining environments to one that is driven by technology and innovation. In order to create SV through automation and business model innovation, this study provides various recommendations.



### **(a) Integrate technology and human resource modernisation plans**

The adoption of digital innovations in any industry improves safety and operational efficiency, increases profit margins and can also be a source of competitive advantage. However, automation is not without challenges. There are also contrasting views about the impact of modernisation, the most notable of which is the safety of jobs. It can be argued that artificial intelligence (AI) or the 4IR or automation is not necessarily a zero-sum game where mining wins and communities lose, but rather an opportunity for the greater socioeconomic impact that can be achieved while increasing productivity and competitiveness. Management must develop integrated automation and human resource modernisation plans or strategies must be in place to address change.

### **(b) Prioritise research and development**

South African mining organisations should engage in novel joint projects and research and development to modernise technology and equipment. The ongoing research will also help to identify technological advancements that can lead to new market or solutions for increasing production efficiencies. Moreover, research and development lead to a win-win situation by ensuring that the priorities and interest of all stakeholders are established and are addressed profitably. For example, organisations can scientifically identify social problems that can be overcome by aligning their Infrastructure Development Plans (IDPs) and service delivery strategies.

### **(c) Collaborate to influence curricula, learning and teaching to build a future-ready generation of employees**

Mining organisations should strongly seek to influence curricula, teaching and learning practice in collaboration with the Mining Qualifications Authority, Department of Higher Education and Training, mining research organisations, colleges and universities in order to build a future-ready workforce. Development of online platforms that are part of the modern qualifications model, including the establishment of physical and digital simulation facilities and laboratories, Open Educational Tools (OER), Self-Organised Learning Environments (SOLEs) and Community-Based Education projects which challenge the conventional teaching methods to maximise impact lend themselves to collaborations.

These initiatives increase access to higher education and training. Therefore, Sector Skills Development Plans should be scientific and inclusive of the pivotal skills necessary for the future of digital mines.

**(d) Accelerate the establishment of a Mining Centre of Excellence (HUB)**

For the industry to remain competitive and sustainable, mining organisations should establish a Centre of Excellence to address the immediate and future challenges. Strategically investing in building a Centre of Excellence would provide a practical framework for government, mining and manufacturing industries, mining research organisations and civil society, which can all work together in a structured and systematic way to enable in-country SV creation.

**(e) Adopt a new digitally-enabled business model – ‘Intelligent Digital Mines’**

This study found that making use of remote and clean technology (digital mine technology, driverless locomotives, non-explosive rock-breaking and laser technology) positively influences the creation of SV which is based on competitive advantage and sustainability performance. In support of the researcher’s recommendation below, Deloitte (2017) posits that to create intelligent digital mines, mining organisations should broaden their organisational transformation to integrate smart technology, digitalisation and sustainability planning into decision-making and operations. Specific practical strategies can be considered by mining organisations to build mines of the future:

- Accelerate integration of digitally-enabled technologies to overhaul business processes. This includes the adoption of Robotic Process Automation (RPA), spatial data visualisation (Three-dimensional (3D) Modelling, Virtual Reality, Augmented Reality), Geographic information systems and X-ray Fluorescence, Artificial Intelligence for mineral processing and exploration, automated drones, autonomous hydrogen-powered vehicles and autonomous drillers and the Maintenance Artisan Assist which logs breakdowns, notifies and optimises the repair process through predictive data analytics. Develop laser mining technology to replace explosive blasting.

- Build the Digital Mine Intelligence Centre that brings together real-time data across the mining value chain in multiple time-horizons to improve planning, control and decision-making, in order to optimise production, reduce cost and capital expenditure, improve safety and reduce carbon footprint.
- Redefining the future work, for example by blending fieldwork with smart remote-controlled equipment and digital equipment that transmits important real-time information to the control centre for productivity, health and safety.

**(f) Pursue new business opportunities in energy, water, technology and waste management**

The study reveals that innovation offers plenty of opportunities to South African mining organisations to revolutionise their revenue-generating strategies and operational requirements. In order to capitalise on new business opportunities presented by innovation, management could consider the following strategic options:

- **Independent Power Production (IPP) and renewable energy:** Invest in producing localised electricity to reduce the cost of electricity and improve reliability, while exploring selling the excess to Eskom. The IPP initiative could also enable mines to create a secondary source of revenue by selling excess electricity to Eskom infrastructure, which is already failing to meet the demand. Furthermore, the IPP initiative provides the South African mines with an opportunity to convert unused mine site surfaces and closed mine sites into a new market for renewable energy, including hydrogen technologies, solar electricity production and wind farms. Bio-energy through carbon capture and storage (BECCS) is another alternative to use photosynthesis to address climate change. Mines operating in remote rural areas where there is the shortage of energy supply, in line with the creation of SV, could connect the local communities to their supply system and this would, in turn, activate economic activities of the local communities and fast sustainable development of the local communities. The grid-connected renewable energy offered by IPPs is becoming more dominant around the globe; however, the debates over the most effective policy instruments needed to accelerate and

sustain private investment in renewable-energy electricity-generating technologies continue (Eberhard, Leigland & Kolker 2014). Mining organisations should venture into the energy market and collectively lobby for the government to create an enabling environment, for example, simplifying the granting of IPP licenses to the mines by NERSA and offering tax allowances (incentives) to the mines which build renewable energy infrastructure.

- **Water reclamation:** Similar to investing in technology for renewable energy, mining organisations should pursue localised water purification for internal use, and public use, which in the long run would reduce the cost of treatment and operations, reduce reliance on municipal infrastructure while at the same time activating new economies which includes agribusiness.
- **Alternative minerals:** Use technology to identify metals from dumps.
- **Technological equipment:** Mines could sell some of their technology to new markets, including those in the construction, manufacturing and agriculture industries.

#### **(g) Diversify investments through mineral beneficiation and industrialisation**

There are 53 different types of minerals mined in South Africa on a daily basis which are mostly beneficiated outside its borders (Faku 2017:13). Mining organisations should recognise the effects of depleting minerals and the need to accelerate downward beneficiation and to build industrial capabilities to ensure a sustainable economic future. Diversification through industrialisation can be achieved through industrial development outside the mining industry and through building linkages from the mining industry. There is a need for mining organisations to recognise that the only way to sustain economic growth and transformation from mining is through processing minerals, beneficiation, and adopting downstream activities. This view is supported by Chang (2011) who asserts that although South Africa is endowed with mineral resources, utilising these resources without a sustained industrial policy will not bring economic growth or achieve economic efficiency. This theory is proven in countries like Canada, Australia and the United States

of America. They are wealthy, not because abundance of an natural resources but because they have developed manufacturing industries (Chang 2011; Walker & Jourdan 2003) and adopted the right strategies to build secondary industries (Khan & Fournier-Bonilla 2016). The success of diversification strategies will require mining organisations to collaboratively influence the new economic structure so that the government's policy on beneficiation and industrialisation are limited to facilitating private investments. In other words, mining organisations should recognise the significance of competing in comparative advantage specialisation rather than being reliant on absolute advantage that is based on the availability of minerals.

In line with the economic theory, beneficiation offers benefits which include the creation of more jobs, increases the use of advanced technologies and ultimately leads to a broader economic growth of the country. The political theory of beneficiation posits that beneficiation is a means to prevent the exploitation of countries' resources by foreigners who may cause a particular country to become just a cheaper supplier of raw materials (De Beers 2014:4). Shaban and Vermeylen (2015:70) write that among the BRICS nations, India has embraced industrial beneficiation of minerals and among SADC, Botswana is leading. Despite the government incentives, beneficiation and industrialisation requires forward-thinking, reimagining the mines of tomorrow that will not rely only on the extraction of raw minerals to make profits for their shareholders, but also generate sustainable socioeconomic value for all stakeholders throughout the value chain and beyond the life cycle of the mining projects.

#### **8.6.1.3    *Infrastructure development***

Mining infrastructure is mostly part of the larger-scale networks and facilities that support the public as a whole, including all economic activities. The ailing infrastructure assets, rising populations and demand for economic development are driving countries' desires to channel more funding into transport, power and other systems that catalyse economic growth. According to Bughin, Manyika and Woetzel (2016:3), the 2013 McKinsey Global Institute research found that the trajectory of spending leaves countries facing gaps in infrastructure development, and despite a recent rise in investment in economic

infrastructure, gaps remain. Government alone cannot meet the needs of social infrastructure and economic infrastructure, both of which are the drivers of as well as driven by mining activities. Although mining depletes non-renewable natural capital, the process of mining can with the proper and careful stewardship of revenues and prudent prioritisation of infrastructure development become the basis for developing other types of capital. This study offers numerous recommendations that mining organisations can prioritise in order to improve SV through infrastructure development.

#### **(a) Ensure collaborative infrastructure development through Public-Private Partnerships**

Mining organisations should recognise that infrastructure delivery models have evolved tremendously over the past decades from traditionally being funded largely by the government to partnerships with the private sector due to a decline in public funding while demand for re-construction of infrastructure is increasing. Public-Private Partnerships (PPPs) are a solution for closing infrastructure gaps during times of budgetary constraints on public funding, particularly in the emerging economies. In this regard, there are several aspects of PPPs for Infrastructure Development used worldwide depending on the jurisdiction's legal framework which organisations in the mining industry may consider (OECD 2016):

- Build-Operate-Transfer (BOT) PPP Model. This is a PPP type in which mining organisations would build installations, for example, power stations, water supply systems, roads, rail networks and operate them for the supply of output to state-owned entities (power, water or pay patronage for use of the road/rail) and transfer it to the public utility at the end of the contract.
- Build-Transfer-Operate (BTO) PPP model in which proprietorship is conveyed to the government after finishing the construction of a facility.
- Partner with host communities for Community-Driven Development (CDD).
- Concession PPP in which mining organisations as providers (as the concessionaires) can charge service fees.

PPPs are effective when business interests and needs of the host communities are aligned. For example, mining organisations can build their water reticulation plants that feed excess water to local mining communities.

**(b) Ensure collaborative infrastructure development through shared infrastructure initiatives**

Mining organisations could consider the shared infrastructure model for large scale infrastructure development projects in which mining organisations together with municipalities and/or competitors and alliance partners may invest for their mutual benefit and that of communities and enable local economic activities (economic public infrastructure and the social infrastructure). This kind of collaborative infrastructure development innovative would be most appropriate for building hospitals, colleges, universities, clinics, social housing and amenities which are much needed for building resilient communities that do not solely depend on mines for their livelihood.

**(c) Invest in sustainable community development projects**

Mining organisations should invest in regional planning and sustainable infrastructure development for the benefit of ecosystems around mines from the multiplier effect. Sustainability community development projects can be a catalyst for South Africa's broader socio-economic transformation if supported strategically. This implies that mining organisations should address the externalities of mining development in ways that are integrated with inclusive and sustainability outcomes, rather than being overly concerned about the need to secure mineworkers and CSR. Management can target people-focused initiatives that are scalable and tailored to meet each community's unique needs in a way that creates far-reaching and genuinely sustainable solutions by ensuring that such solutions cause natural involvement of communities.

**(d) Catalyse the development of the Special Economic Zones**

Mining organisations can catalyse socioeconomic development by investing in the concept of development corridors and local economic development in accordance with the Special Economic Zones Act of 2014 (Act 16 of 2014). An expansion project could

focus on building mine and manufacturing complexes that advance the aims of developing infrastructure, accelerating skills development and empowerment, and consolidating economic development in the regions of operations. Apart from attracting foreign direct investment and boosting employment, mining led Special Economic Zones can create natural opportunities for new industries such as mineral processing, renewable energy, transportation, storage, construction, housing (accommodation), chemicals, localisation and supplier development, pharmaceutical and food, agriculture and engineering and supplies.

### **8.6.2 Strategies linked to employment conditions**

Since *employment conditions* positively influence SV in the mining industry, it is important for mining organisations to improve their employment conditions. The economy has many people who are not equipped with the right skills or training opportunities to access limited employment opportunities or to have a clear view of the potential job market. Secondly, organisations are not considering alternative sources of labour, like people who have been unemployed for a long time, to meet their employment needs. In order to create SV through employment conditions, this study provides various recommendations.

#### **(a) Adopt a socially-focused employment strategy – SV Employment Plan**

In order to address community development gaps, mining organisations need to take the lead in developing an employment strategy that secures the future growth of their business by tapping into less conventional sources of labour. Management could develop a socially-focused employment strategy that identifies the growth needs, long-term expansion and innovation requirements of the organisation, establish a pool of potential employees from the local communities, partner within institutions of higher learning and research to align training requirements with future growth requirements. This approach makes local community recruiting more impactful by solving a socioeconomic (unemployment) problem in a way that provides organisations with the talent to innovate and expand the business.



### **(b) Integrate sustainability planning in training and development**

Training and skills development empowers employees with the expertise, skills and knowledge necessary to accomplish operationalisation and execution of the SV Strategy. SV and the 4IR induce diverse and fascinating opportunities and challenges. However, to unleash the full potential of the SV, organisations need to understand the full extent of the implication of the adoption of SV and new technologies, since these lead to the transformation of traditional jobs and linear thinking. Therefore, management should develop a Sustainability Integrated Skills Development Plan which will ensure growth and future performance of employees and transit existing employees to new job types (human interface with automation, digitisation and artificial intelligence).

### **(c) Strategically collaborate with employees and trade unions to nurture employee engagement and involvement**

Successful implementation of SV strategies is dependent on the commitment of the employees. As a result, organisations need to collaborate with the employees and their trade unions, considering that SV changes the long-established ways of working. Collaborations can also be considered to be a participative management practice to secure commitment and trust by giving employees an opportunity to influence decision-making. Management should recognise that strategically collaborating with trade unions and employees cultivates a genuine sense of motivation and loyalty and harnesses the energy and enthusiasm needed to drive productivity for the benefit of the organisation.

### **(d) Adopt the shared productive ownership structure**

Management should adopt an Employee Share Ownership Plans (ESOP) structure that addresses the requirements of all stakeholders. One valuable principle is the equity stake in the organisation which grants employees an opportunity for meaningful equity value participation. An organisation should create a sense of ownership amongst the stakeholders. Employees must participate and monitor the enforcement of the decisions. It is important to recognise that effective ESOPs should create an environment where both the organisation and employees are jointly interested in driving high performance. Therefore, the structure should not only be redistributive to comply with the Mining

Charter (increase this from 26% (2010) to 30 % (2018) of HDSA participation) requirements but broader to transform lives of all participants rather than a selected few individuals. The shared productive ownership model as an incentive mechanism reduces costs to organisations by aligning the interests of employees more closely with those of other stakeholders. This recommendation is endorsed by Cargill (2010) who argues that the sustainability of existing shareholdings given to mine employees and communities has become extremely challenging due to the high debt levels of empowerment partners, who are also limited from selling shares.

**(e) Collaborate with government, civil society and communities for the establishment of a centralised royalty system/agency**

Throughout the world, no type of mining tax creates as much confusion as royalty taxes. Mining royalties paid to people owning property being mined are granted in one of two forms, either directly into a development account or by transferring royalties into shares in a mining organisation. Mining communities in South Africa argue, according to a report by Modimoeng (2017) and the Corruption Watch Mining Royalties Report (2018), that the royalty system and BEE transactions aimed at benefiting communities are not effective due to mechanisms legally recognised as primary custodians of mines on behalf of local communities. Based on the results of this study, mining organisations should collaborate with government, civil society and communities to create a means by which impacted communities would participate directly in the benefits of mining while at the same time improving public transparency, for example, a centralised royalty disbursement authority.

**(f) Implement innovative performance management and reward systems**

Management should adopt innovative rewards and benefit strategies that embrace a coaching and development model which focuses on improving the performance and embracing a growth mindset. In addition to traditional salary increases and benefits, mining organisations can also stimulate SV through the introduction of safety incentive and production bonus programmes to reward employees for shifts concluded incident-free and/or meeting the production targets and achievement of other SV priorities. Career and growth opportunities of the employees must also be aligned with their performance

and future requirements of the organisations. Management should recognise that effective performance management and reward systems should have a psychological effect that leads to positive behavioural change of employees towards their jobs and health and safety which are a major concern within the South African mining industry and for the benefit of all stakeholders.

#### **(g) Instill a positive culture and working environment**

The commitment of the employees to the organisation improves when employees consider their working environment to be positively aligned with their values and belief systems. Management should cultivate and promote a strong organisational culture and employment conditions that encourage shared respect for diversity and inclusivity, as well as respect for nature and indigenous peoples. When provisions of work-life balance exist in a workplace, employees can become the ambassadors and stewards of their organisations on issues of diversity and sustainability performance. In addition, this can provide a sense of job security for employees while improving productivity and positively influencing social change in communities that depend on mining organisations for employment opportunities. In support of this recommendation, Discovery Group (2019) and National Institute of Wellness (2018) claim that instilling wellness culture, incentives and dynamic reward improves quality of life and employee productivity.

#### **(h) Implement sustainable prospecting and exploration projects**

Mining activities are centralised on humanity and the environment. This means that mining organisations should ensure that their activities care and respect for all people and embrace diversity in all its forms. Building thriving communities with better health, education and improved employment opportunities is one of the three pillars of sustainability approach and contribution towards the SDGs which can be achieved when mining organisation pursue sustainable mining projects. In support of this recommendation, the Rio Tinto Sustainability Report (2018) states that the sustainable prospecting and exploration require an innovative approach that begins with identification of socioeconomic development opportunities with the greatest potential in a region through spatial planning and analysis. While this offers a visualisation of what the future

can hold, which offers possibilities for a common vision compatible with the SDGs, it can be the catalyst for the development and execution of the SV strategy.

**(i) Develop the policy for innovative mine waste reduction and valorisation**

The wastewater and mineral tailings have been causing negative impacts on the ecological system and human lives, including threatening the safety and livelihood of the communities and employees as the primary stakeholders of the mines. Accordingly, the mining organisations need to re-think mine waste management, from a compliance-based approach by integrating issues of sustainability with creation of new resource and revenue. In other words, by adopting new technology for waste managements, mines will be able not only to improve safety of the employees and communities as well as the environment, but also create new value in the form of new resources (mineral) such as turning carbon into energy or turning waste into economically valuable activity (chemicals).

**8.7 RECOMMENDATIONS LINKED TO SHARED VALUE STRATEGIES FOR THE SOUTH AFRICAN MINING INDUSTRY**

The success and effectiveness of SV in an organisation depends on how management translates SV philosophy into organisational practices, policies and business models as well as strategies that maximise economic value for the organisation by addressing societal and environmental challenges that affect communities. According to the results of the EFA, while SV is a single intervening variable, SV has three approaches for implementation (which can also be established from the measuring instrument), namely redesigning the product/service and market, reimagining productivity within the value chain and enabling local cluster development. In line with the results of this study, management of mining organisations is required to develop strategies around these three SV approaches.

### **8.7.1 Redesign the products/services and markets**

In most other industries, creating SV by reconceiving products and markets means developing or adapting the end product to address new, unmet societal needs. Management in the mining industry should creatively and innovatively recognise that the industry can also reconceive intermediary products such as excess fossil and renewable energy, technology and water to benefit the underdeveloped communities and deliver business benefits. Therefore, management can implement one or a combination of the following recommendations to operationalise SV through redesigning the product or market:

- Drinking or irrigation water present mining organisations with SV creating opportunities, from developing product for the new market to use for internal operations and for the local farming community. The business benefit is reduced water treatment costs and Social License to Operate and/or income from the provision of water for agriculture and drinking purpose in a water-scarce region
- Venture into the supply of excess energy to the local communities (IPP/PPP). Mining organisations must invest in IPPs/PPP for energy generation and transmission opportunities; after all, the operations of mining organisations use massive amounts of energy. Collaborating with other rivals and government to develop solutions to local energy shortages can create cost savings, improve reliability and create new revenues for the organisation while providing local communities with access to energy benefits to the business and local communities
- Management must conceive new complementary products or services to ensure the sustainability of the mine. Mining organisations can enter a new market of technology devices such as sensors and GIS technologies and chemicals.
- Mineral beneficiation and industrial development is the next frontier for driving social change and sustainable economic growth.
- Mining organisations should out of community benevolence produce consumer and industrial goods for sale in global markets at much higher prices than what is paid for the traditional raw materials. For example, sale of technological devices.

### **8.7.2 Redefining productivity in value chain**

The value chains of mining industry extend from the point of extraction to the ultimate point of use of the product and cover every activity from extraction to processing and transport to refinement to value addition to marketing. As a result, SV discourse has strong implications for the way inclusivity issues in global value chains are addressed. SV creation involves stakeholders who may not be directly involved in the vertical value chain of the company in question, such as governments, NGOs and local communities. Management of mining organisations can consider specific practical strategies that create SV through the value chain:

- Implement policies that support increasing investment in infrastructure connectivity (for example, port capacity, accessible railways/roads, storage facilities and telecommunication facilities). This implies that management is required to adopt a comprehensive long-term vision and implementation strategy to build competitive and diversified economies shared value out of natural resources which begin with investment in social capital and infrastructure development.
- Collaborate with all stakeholders to eliminate value chain activities that harm the environment or contribute to global warming and pollution. Porter and Kramer (2011:12-14) argue that governments and NGOs must adapt themselves to thinking in SV terms in order to facilitate SV creation, while organisations should also adapt themselves to a collaborative way of working. Management should invest in co-creation and social innovation.
- Engage in inclusive business deals with local communities by integrating low-income suppliers into the value chain. Take a long-term approach and identify opportunities to align organisational interests and plans with national development objectives and the Mining Charter/BBBEE as well as the Local Procurement Accord. In addition, management where relevant, should in collaborations with government, international financial institutions and other development partners align their programming in areas that can support sustainable, competitive and

diversified economies. Porter (2014) argues that organisations ignoring MSME competitiveness lose significant business value.

- Support local suppliers and enterprise development initiatives to enhance quality and productivity that reduces the negative environmental impact of value chain activities. Through their upstream activities, mining organisations can address issues such as lack of local jobs and economic development opportunities for the local communities through changes to their value chains (increases employability and wage-earning potential of the local communities).
- Improve value chain governance systems underpinned by participation, equity, and accountability, which balances the influence and power relations amongst various stakeholders. Management should also develop mechanisms to foster open participatory processes, overcome distrust and strengthen collaboration to limit corruption that could arise from the exercise of gate-keeping functions and discretionary decision-making powers.

### **8.7.3 Enabling local cluster development**

In the mining industry, the development of an enabling local environment includes addressing issues outside of the organisation. In this regard, management should improve the enabling environment through:

- Invest in understanding conditions and advantage of their geographical location and increasing access to the concentrated organisations, suppliers and institutions that work within the mining industry. This will help the organisation to identify areas for pre-competitive collaboration with industry peers and stakeholders, including major contractors and suppliers, as well as the collective identification of skills requirements and solutions to common environmental challenges and legislative conditions.

- Engage in local collaboration with value creating suppliers, competitors, equipment manufacturers, and other upstream organisations to create opportunities that will bring international expertise/skills/technology to enhance innovation in the value chain. Local collaborations will accelerate the development of and benefits of specialised core competence and expertise and increase innovations (improving local workforce and capabilities).
- Cultivate and engage in cross-industry collaborations and alliances which involve government, NGOs, competitors, the broader community and other stakeholders with interest in building local clusters. SV at local cluster development level encompasses developing institutions and infrastructure that surround organisations as well as the logistical infrastructure such as roads, ports, water and electricity supply.
- Actively engage in broad-based regional economic and specialised core competence. SV recognises that to unlock the next wave of innovation and productivity growth in the global economy, organisations need to improve the local operating environment by supporting skills development and capacity building, knowledge sharing and support, as well as legitimatising business by investing in inclusive and sustainable economic development infrastructure and networks.
- Local mining organisations could implement local employment policies which aligns the particular needs and capacities of the South African mining industry with the national development agenda. Furthermore, mining organisations should also implement the local content policy and or strategies which go beyond traditional procurement of goods and services to creating a meaningful platform suited for attracting and localising the best international practices, expertise, skills and technology to enhance competitive advantage and sustainability.

The three approaches to SV with the recommended strategies discussed in this section can be considered mutually reinforcing, however, organisations can still create SV that will result in competitive advantage and improved sustainability performance by focusing on a specific selected approach based on their unique position (social issues, capabilities



and resources). However, what is common between SV approaches and strategies is that they focus on developing new capabilities, social needs and access points for innovation, as well as emerging markets or business approaches.

## **8.8 RECOMMENDATIONS REGARDING OUTCOMES OF SHARED VALUE IN THE SOUTH AFRICAN MINING INDUSTRY**

The study also established the outcomes of SV strategies in the South African mining industry. Accordingly, in this section, the study makes a set of recommendations to organisations in the South African mining industry regarding the outcomes of SV, based on the empirical results.

### **8.8.1 Strategies linked to competitive advantage**

The results of the study reveal that SV does significantly and positively influence the *competitive advantage* of the mining organisations. The competitiveness of the mining industry is largely affected by depleting minerals, reduced access to ore bodies due to deepening levels of mines, unreliable energy supply due to Eskom power cuts, ever-increasing input costs, unstable commodity prices as well as community protests. Although the industry has a comparative advantage, to create sustainable economic growth, mining organisations need to adopt SV strategies to attain a competitive advantage. Since SV significantly influences the competitive advantage of the mining organisations, their greater focus on SV strategies will result in an increased competitive advantage. Accordingly, to increase competitive advantage, mining organisations should thus increase their focus and effort on SV by implementing the following recommendations:

- Secure a flexible and reliable supply chain at all times. Management is required to develop procurement policies and market-driven collaborations with suppliers that create a win-win situation.

- Facilitate organisational learning, thus becoming more innovative in meeting customer demands. Mining organisations should be able to anticipate future utilisation demands, as well as the cumulative effects and impacts of developments to maximise positive outcomes. Moreover, the learning organisations should recognise new business prospects in order to have a significant beneficial effect, particularly by developing links with the broader economy to promote consolidation and deter industrial enclaves from forming.
- Reimagine the competitive strategies of the mining organisations to generate the benefits of a low-cost strategy without compromising on quality, the environment and the needs of the society. In other words, competitive strategies of the organisations must incorporate value chain inclusivity and collaborations to improve productivity, flatten the production cost curve and improve access to the input resources, while simultaneously solving societal challenges and environmental concerns.
- Adopt disruptive innovation and artificial intelligence technology that can improve mining and processing of high-quality minerals compared to rivals while flattening the cost curve. This approach will lead to economies of scale and increase cost-competitiveness across the industry.
- Redefine the socio-economic role of mines as a mechanism for the development of the communities in which they operate and promote alternative industries.
- Unlock high-potential mining assets which include untapped mineral reserves.
- Lead modernisation through integration of advanced data analytics, mining equipment technology, people and digital infrastructure. This will improve access to the quality and quantities of natural deposits and overall sustainability.
- Enhance capabilities for local disaster and emergency preparedness, intervention and recovery. In addition, mining organisations can adopt a systems approach to mine management (business continuity) that continuously provide market data and

environmental data and response via intelligent system analysis should be developed in order to build resilience and continuity in a time of crisis.

- Promote transparency and awareness about the adoption of SV. The effectiveness of any competitive strategy, business model, marketing strategy or policy depends on how effectively it is articulated to influence the association with brand, execution and measurement of the impact.
- Directly improving the community development through development enabling infrastructure.

The results of this study in relation to competitive advantage as an outcome of SV show that mining organisations could increase their competitive advantage by securing a flexible and reliable value/supply chain, exploiting the potential of innovative technologies and continuous improvements, implementing a low cost strategy to become the leading low-cost provider in the industry and becoming the employer of choice within the industry and across associated industries. In addition, mining organisations can also increase their focus on developing the best mining core competencies/expertise, producing high-quality minerals compared to rivals, improving the preparedness to respond to natural hazards and directly improving the standard of living of local communities through innovative collaborations with policymakers, communities, suppliers, NGOs and other strategic value chain participants in order to increase their competitive advantage.

### **8.8.2 Strategies linked to sustainability performance**

Sustainability performance is concerned with the performance of an organisation in all dimensions, economic growth, community development and protection of the environment (Schaltegger & Wagner 2006:2). Management should not view social and environmental conditions as separate from the organization. In reality, the sustainability performance is achieved when the performance of the organisation improves simultaneously while achieving social and environmental change. Several researchers concur that SV can be applied as a competitive and/or sustainability strategy and can improve organisational performance, solve social problems and environmental concerns.

Since the results of this study show that SV significantly influences the *sustainability performance* of mining organisations, their greater focus on SV strategies will result in increased sustainability and organisational performance. Therefore, to increase sustainability performance mining organisations should thus increase their focus and effort on SV by implementing the following recommendations:

- Strive to gain and maintain the Social Licence to Operate, which Prno and Scott (2012) define as the ongoing legitimacy or acceptance and approval of a mining development by local communities and other stakeholders that can influence the long-term profitability and survival of the mining organisations. Adopting SV as a sustainability strategy or business model will restore 'corporate' legitimacy resulting in communities perceiving the mining organisations as part of their solutions to societal, economic and environmental problems, and the SLO will become the prerequisite of the mine of the future considering the complexity of different environmental, economic and social issues that influence the industry.
- Management should align mining operations, policies and strategies to SDGs. The mining organisations have an unparalleled opportunity to substantially mobilise their resources for the advancement of the SDGs considering the nature of their activities, location, investment and stakeholders.
- Management is required to implement environmental considerations into the supply chain (green supply chain), including sustainable design of products, the procurement of green materials, the redesigning of mining and the manufacturing processes to be environmentally safe, and reverse logistics of the product after life cycle. Mines should, for example, use eco-friendly packaging material, transform mine/dump tailings into economically viable minerals (use advanced technologies and x-rays to collect precious metals and alternative minerals from residues historically known as waste), and turn closed mining projects into agribusiness or storage facilities (SDG6 - Clean Water and Sanitation, and SDG15 - Life on Land). This recommendation is supported by Deans, Ros-Tonen & Derkyi (2018).

- Promote inclusive and progressive local workforce and supplier participation by integrating key impact creating priorities to actionable employment and procurement plans. The strategy should increase the meaningful participation of women, youth and indigenous people. Unbundling contracts can be one of many inclusivity initiatives which create social change and bring economic opportunities (SDG1 - End Poverty, SDG5 - Gender Equality and SDG10 - Reduced Inequalities, SDG8 - Decent Work and Economic Growth).
- Management is required to know the entire cycle of natural resource developments to recognise SV and innovation opportunities along the value chain. In other words, management should also realise that value-creating opportunities may exist beyond initial reach, depending on the mineral, the maturity of the industry and the stage of the industrialisation of the economy. This will enable mines to help drive economic development and diversification through direct and indirect economic benefits and by spurring the construction of new infrastructure for transport, communications, water and energy (SDG9 - Infrastructure, Innovation and Industrialisation and SDG12 - Responsible Consumption and Production; SDG7 - Energy Access and Sustainability and SDG13 - Climate Action).
- Management should reduce cases and litigations regarding mining-related diseases (silicosis, TB and HIV) not only by participating in mineral conflict-free certification, but also implementing human rights impact assessments and complying with certification standards. This way, organisations will be able to clearly articulate the success factors for stakeholders' participating in their value chains (compensation, prices, delivery reliability, health and safety, quality) and conformance to international standards for environmental, labour and industry-specific requirements (SDG16 - Peace, Justice and Strong Institutions).
- Develop internal/local core competencies and expertise/competitive workforce through human capital development. The competitive, dedicated and loyal employees equipped with the skills needed to build successful organisations. Therefore, mining organisations should invest in the development and localisation

of core competencies and skills that match their immediate and future needs and retain critical skills. This way, rare skills and expertise sourced from outside the country or host communities will be retained (SDG8 - Decent Work and Economic Growth).

- Increasing productivity performance in the long run by aggressively lowering their operating-cost base. This requires the adoption of strategic management accounting to identify targeted cuts in areas of excess spending, while at the same time reducing external spending through smarter procurement and streamlining support functions or holding down capital-expansion cost overruns and minimising delays in starting new production.

The results of this study in relation to sustainability as an outcome of SV show that mining organisations can increase sustainability performance by focusing their efforts and resources towards increasing their revenues and productivity while securing the commitment and loyalty of their employees. In addition, organisations can enhance sustainability performance by maximising their positive effects on the environment and developing and protecting their social capital. Moreover, by adhering to human rights and promoting healthy living within communities affected by their operations, mining organisations can enhance sustainability performance.

## **8.9 SUMMARY OF RECOMMENDATIONS BASED ON THE EMPIRICAL RESULTS**

Figure 8.2 presents the summaries of the recommendations regarding SV antecedents to improve SV strategies, and recommendations linked to SV strategies and the outcomes of SV in the South African mining industry. Figure 8.2 shows how the recommendations of this study link to the items which loaded onto each factor as a result of the EFA.

**FIGURE 8.2: EMPIRICAL RECOMMENDATIONS OF THE STUDY**

ANTECEDENTS OF SHARED VALUE							
AUTOMATION AND INNOVATION							
REF	INCLUSIVE VALUE CHAIN INNOVATION	REF	AUTOMATION AND BUSINESS MODEL INNOVATION	REF	INFRASTRUCTURE DEVELOPMENT	REF	EMPLOYMENT CONDITIONS
EC1	Promote inclusive value chain development through stakeholder engagement	A13	Integrate technology and human resource modernisation plans	ID2	Ensure collaborative infrastructure development through Public-Private Partnerships:  -Build-Operate-Transfer (BOT)  -Build-Transfer-Operate (BTO)  -Community-Driven Development (CDD) Partnership.  -Concession PPP	ID4	Adopt a socially-focused employment strategy – SV Employment Plan
VC2	Integrate the Mining Charter and BEE transformation strategies with Supply Chain Management Policy	A12	Prioritise research and development			EC2	Integrate sustainability planning in training and development
VC4	Adopt an asset-based conceptual model for community capacity building programme - technical, business and financial services support	A12	Collaborate to influence curricula, learning and teaching to build a future-ready generation of employees			EC5	Strategically collaborate with employees and trade unions to nurture employee engagement and involvement
VC4	Innovate through collaborations for joint learning and continuous improvement	A15	Accelerate the establishment of a Mining Centre of Excellence (HUB)			RL5	Adopt the shared productive ownership structure
VC3	Adopt a smart multimodal transport solution and shared use transport infrastructure model	A11/ 4/5	Adopt a new digitally-enabled business model – 'Intelligent Digital Mines'			RL5	Collaborate with government, civil society and communities for the establishment of a centralised royalty system/agency
		E12/ E4/ 5	Pursue new business opportunities in energy, water, technology and waste management  -Independent Power Production (IPP), renewable energy and Water reclamation  -Alternative minerals  -Technological equipment	ID3	Ensure collaborative infrastructure development through shared infrastructure initiatives	EC3	Implement innovative performance management and reward systems
				ID1	Invest in sustainable community development projects	EC5	Instill a positive culture and working environment
				ID5	Catalyse the development of the Special Economic Zones	VC1 /EC 3/E C5	Implement sustainable prospecting and exploration projects
		A14	Diversify investments through mineral beneficiation and industrialisation			E15	Develop the policy for innovative mine waste reduction and valorisation

SHARED VALUE							
REF	RECONCEIVING PRODUCT/SERVICE AND MARKET	REF	REDEFINING PRODUCTIVITY IN VALUE CHAIN	REF	ENABLING LOCAL CLUSTER DEVELOPMENT	REF	HYBRID STRATEGY
SV1	New market for drinking/irrigation water	SV6	Policy on investment on infrastructure connectivity	SV11	Recognising conditions and advantages of the geographic location		
SV2	Venture into supply of energy (IPPs/PPPs)	SV8	Eliminate negative environmental activities across the value chain	SV12	Collaboration with suppliers, competitors and equipment manufacturers		
SV3	Complementary products such as GIS technological equipment and chemicals	SV7	Inclusive business deals for low income suppliers	SV13	Invest in cross-industry collaborations, including the NGOs and government	SV15	Combination of all or selected strategies based on the resources and nature of societal problem to be solved
SV4	Investing in industrialisation or mineral beneficiation	SV9	Local suppliers and enterprise development	SV14	Actively engage in broad-based regional economic and specialised core competence		
SV5	Developing community oriented (intermediate) products	SV10	Enhance value chain governance; participation, equity and accountability	SV15	Developing the local employment policy to localise expertise/skills/technology to enhance innovation		

OUTCOMES OF SHARED VALUE			
REF	COMPETITIVE ADVANTAGE	REF	SUSTAINABILITY PERFORMANCE
OP2	Secure flexible and reliable supply chain	SU4	Align organisational strategy and policies with SV, SDGs and SLO
OP4	Facilitate organisational learning and innovation	SU1	Adopt green supply chain
CA1	Adopt low-cost strategy	OP5	Inclusive and progressive local workforce and supplier participation
CA2	Promote SV strategies internal stakeholders and externally	OP1	Align natural resource development with innovation
CA2/5	Adopt disruptive innovative and artificial intelligence technology	SU3	Observe the human rights
CA3	Redefine the socio-economic role of the mine	OP3	Develop internal/local core competencies and expertise/competitive workforce through human capital development.
CA4	Unlock high-potential mining assets (new mineral discovery)	OP3	Increasing productivity performance in the long run by aggressively lowering their operating-cost base
SU2	Business continuity strategy for resilience against natural hazards		
SU5	Directly improve community development through development enabling infrastructure		

Source: Researcher's own construction

## **8.10 CONTRIBUTIONS OF THE STUDY**

The contribution of this study is embedded in filling a knowledge gap in the SV mining literature and ensuring that its results assist mining organisations and other related industries to create SV in order to ensure benefits for both mines and relevant stakeholders. Although there have been other studies within the mining industry, South Africa had a shortage of SV studies regarding mining or any other industry, considering that SV is a relatively 'new concept'. Nicholson (2017:41) confirmed this notion by emphasising the need for a paradigm shift from corporate philanthropy to the adoption of strategies that create benefits for organisations and communities (thus SV). These available studies combined with perceptions regarding SV within the mining industry of South Africa tested in this study provide a solid foundation for future studies.

The results of this study could inform mining organisations about policy formulation so as to assist with the implementation of SV creation programmes and strategies. The notable contribution to strategy and management practices is recognised by the insightful literature regarding SV as an innovative strategic planning and operational process, as an alternative to traditional business strategy and model development for organisations and government policymaking. Furthermore, the literature produced by this study is considered to be important for organisations, government, NGOs, higher learning and research institutions and related parties to understand how to adapt and enforce SV strategies.

The influence of automation and innovation and employment conditions on the successful operationalisation of SV must be recognised by government and mining organisations. This implies that inclusive value chain interventions, automation and business model innovation and infrastructure development as pillars of automation and innovation could influence SV strategies. The study defined the role players that contribute to the implementation of SV within the South African mining industry, and provided the regulatory and legislative impetus that, if integrated with SV, could result in the mining industry being able to generate a multiplier impact of social change and economic development.



Furthermore, this study provided useful and practical guidelines to mining organisations as to ensure the effective strategising of SV that could enhance their local and global competitiveness and long term sustainability performance. In particular, the empirical recommendations of the study (as summarised in Figure 8.2) are a major contribution to the field of SV research and practically in the mining context.

The study could assist government to develop a clear understanding of the relationships and interest between the mining industry, employees and local communities. This study will also help the government to identify areas of collaboration with the mining industry and other social partners, and for expanding the role that the government can play to initiate and grow these collaborative partnerships in order to achieve long-term sustainability. Hence, the study's results could also be utilised by the government as a guide to the formulation of policies and strategies relating to the mining industry, development of an industrialisation policy and possible trade agreements with other countries (e.g. multilateral and bilateral agreements with the United Kingdom and United States of America). In addition, the study makes an important contribution towards assisting role players in attracting possible investments in the mining industry, which could stimulate economic value and resolve developmental challenges. Similarly, the study adds value to the manufacturing industry, construction industry, agricultural industry and other secondary industries that experience a need for industrialisation as the next economic development frontier by explaining the additional benefits of downstream and upstream linkages within and beyond the mining industry. These benefits include new technology, access to the new economic structure that consolidates value creation, and employment opportunities.

Following the implementation of some of the study's recommendations, the South African mining industry may also gain new investors and social licences to operate as a result of legitimacy gained from inclusive value chain interventions, strategic innovations (renewable energy, irrigation and drinking water supply to the local communities), and recruiting from host communities. This could strengthen economic relations between industries, government, research institutions and BRICS countries, thus providing an opportunity to optimise the value of access to global markets.

The study used a sound and well-developed research design and methodology which have been justified and applied. This can be utilised by other similar studies to conduct empirical research in the field of SV creation. Accordingly, the hypothesised model and the measuring instrument used for this study can be adapted, improved and applied to include additional variables not specifically tested in this study. This hypothesised model could also be applied to other industries, as mining is a foundational industry to many other secondary industries such as the oil and gas industry, manufacturing industry and construction industry as well as other industries.

### **8.11 LIMITATIONS OF THE STUDY**

The study's shortcomings include aspects outside the control of the researcher. The following limitations of the study are acknowledged:

- The shortcomings include time constraints, scarce literature on SV and limited awareness about the subject of SV amongst the managers of the mining organisations. Not all respondents could respond timely due to the connectivity issues caused by COVID-19 and lockdown restrictions.
- The focus of this study was on the perceptions regarding SV within the South African mining industry. However, the population and the sample of the study were drawn from leading mining organisations affiliated with the Mineral Council of South Africa, which accounted for approximately 90% of the annual total production. It would have been of interest to include small mines to see if stages of adoption of SV vary depending on the maturity of the mine projects. However, as a drawback of the convenience sampling technique, only certain mining organisations have been selected for this analysis to counteract time and expense limitations, not the entire population. Accordingly, not all active mines in South Africa could be surveyed.
- The study was conducted using quantitative research methodology, utilising surveys that focussed on the perceptions of management in the mining industry. This means that the measuring instrument only contained closed-ended

statements, and that only perceptions were tested and not real-life experiences or conditions. If interviews with the Chief Executive Officers of the mining organisations and members of the local communities were included in the study, the findings of qualitative analysis could have further enriched the body of knowledge from a mixed method research perspective.

- The cross-sectional nature of the study precludes assessment of possible causality.
- Participation in this study was voluntary and employees more favourably inclined towards SV may have responded more readily than others, thus resulting in possible sample bias.

## **8.12 AREAS FOR FUTURE RESEARCH**

Notwithstanding the shortcomings found in this study, the results still make an important contribution to developing the SV field in South Africa. Moreover, numerous opportunities exist for future studies flowing from this research. The following future research areas were conceptualised upon the completion of the study:

- The model tested in this study can be used to test SV in other industries.
- The influence of government regulations and/or mineral resource governance on SV in the mining industry is one area that needs to be investigated.
- The practical measurements of the success of SV is a future research area.
- The emerging catalysts business models to create SV's applicability should be explored in the construction, manufacturing and financial services industries and other industries that make significant contribution to the GDP and social transformation.
- Investigation into the 'ideal mine of the future' which will be invisible, safer and without environmental footprint should be undertaken within the context of SV.
- Research into the adoption of SV by small mines at various stages of the maturity of the mining projects should be considered.

- Research could be undertaken into the impact of upstream value chain activities on the creation of SV within the mining industry of South Africa.

### 8.13 FINAL CONCLUSION

This study made a significant contribution to the discipline of SV within the mining industry of South Africa, as it confirmed the areas that could improve operationalisation of SV within the mining environment of South Africa. *Automation and innovation* (through three pillars, namely, innovation for value chain inclusivity, automation and business model innovation, infrastructure development) and *employment conditions* are the antecedents of SV. The study illustrated three approaches of SV: reconceiving the product/service and markets, reimagining value chain productivity and development of the enabling environment (local cluster). The study also revealed *competitive advantage* and *sustainability performance* as the outcomes of SV. Competitive advantage generates greater value for the organisation and its stakeholders because of certain strengths or conditions that make an organisation distinct from its rivals. The more sustainable the competitive advantage, the more difficult it is for competitors to neutralise the advantage. Sustainability performance on the other hand improves organisational performance while simultaneously ensuring community development and nature conservation.

SV, and more importantly SV strategies, have long existed in the periphery of the South African political and economic environment, the mining industry included. All over the world, SV has gained prominence since its emergence in 2011, as it gives practical ways to gain competitive advantage and sustainability. According to the results of this study, both the competitive advantage and sustainability performance increase as a result of increased organisational focus on creating SV by simultaneously advancing the economic and social conditions in the communities in which the organisations operate. Furthermore, SV revolutionises capitalism by integrating social issues and environmental concerns into the core business. This study enables understanding and eventual utilisation of SV strategies to enable government, organisations in the mining industry and other value chain participants to make informed and sustainable choices regarding the mining

activities and investments. Furthermore, the study affirms the notion that SV enables the development of mutually beneficial policies and practices that go beyond compliance with bare minimum regulatory requirements. This implies that SV can be adopted as a competitive and/or sustainability strategy.

Finally, as a pioneering SV study in South Africa, this study fills the gap in SV literature. South Africa, like the rest of the continent, has unique needs; SV could be regarded by organisations as a gateway to forward-thinking solutions to profitability and the challenges affecting communities, especially in the mining industry. The traditional business model and strategies have kept the mining industry trapped between government as the holder of mineral rights and the issuer of permits, and the communities generally benefiting little or nothing from hosting their mining operations. Unlike CSR, philanthropy and typical capitalism, SV is a revolutionary concept that can drive real change and catalyse the creation of financial and social value for all stakeholders in the mining industry and beyond.

*“Societal needs, not just conventional economic needs, define markets, and social harms can create internal costs for firms”* - Porter and Kramer (2011:5). By embracing SV, organisations will discover their unique position of broader influence for achieving greater good, multi-stakeholder collaboration, meaningful change at scale, post-colonial inclusivity, and the "visible hands" economic structure underpinned by ethics and legitimacy. Organisations have a suite of unique assets, financial resources, influence, and capacity to scale, thus enabling them to address social issues in a way that other stakeholders cannot do. SV is a catalyst for changing the world.

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## ANNEXURE A: COVER LETTER AND QUESTIONNAIRE



DEPARTMENT OF BUSINESS MANAGEMENT  
South Campus, University Way,  
Summerstrand, Port Elizabeth, South Africa  
Tel: +27 (0)41 504 2201

June 2020

Dear Respondent

### PERCEPTIONS REGARDING SHARED VALUE WITHIN THE SOUTH AFRICAN MINING INDUSTRY

Mr T Khubana is a student at Nelson Mandela University in Port Elizabeth, South Africa. He is studying towards a PhD (Business Management) in the Faculty of Business and Economic Sciences. He is conducting a research project regarding perceptions of shared value within the South African mining industry. Shared value (SV) is about policies and operating practices that enhance competitiveness of an organisation while simultaneously advancing the economic and social conditions in the communities in which it operates.

The purpose of this letter is to solicit your consent and collect relevant information on perceptions of shared value within the South African mining industry. All data sources will be treated as confidential and will be used for research purposes only. The collected data will be reported on by using statistics and no individual respondents will be identified in the research report. Accordingly, the researcher will adhere to the approved research protocol, including safeguarding the anonymity, privacy and confidentiality of respondents at all times. You may withdraw your participation in this study at any stage. Please feel free to contact us with regard to any queries you may have concerning this questionnaire. Upon completion of the study, we undertake to provide all interested parties with a summary of the results.

We do realise that all of us are experiencing unprecedented circumstances under the current Covid-19 pandemic in our respective workplaces or while working from home. We thus thank you for your time and effort in completing this questionnaire.

Kind regards

A handwritten signature in blue ink, appearing to read 'C Rootman'.

**Prof C Rootman**  
Research coordinator

A handwritten signature in blue ink, appearing to read 'E.E. Smith'.

**Prof EE Smith**  
Research coordinator

A handwritten signature in blue ink, appearing to read 'T. Khubana'.

**Mr Talifhani Khubana**  
Researcher

- 1 Declaration/statement of consent: I hereby understand the purpose of the study, I participate voluntarily, I understand that the study is anonymous as well as that all information is kept confidential, and I hereby consent to completing the questionnaire. Please mark your selection with a click in the appropriate box.

Yes		1
No		2

**SECTION A**  
**BIOGRAPHICAL AND DEMOGRAPHICAL INFORMATION**

Please mark your selection with a click in the appropriate box.

**2 Gender**

Male		1
Female		2
Not willing to say		3

**3 Age group**

18 – 19 years		1
20 – 29 years		2
30 – 39 years		3
40 – 49 years		4
50 – 59 years		5
60 + years		6

**4 Level of education**

No formal education		1
Senior certificate (Grade 12/Matric)		2
Higher certificate/Diploma/Bachelor's degree		3
Post graduate diploma/degree		4
Other, please specify:		5

**5 Population group**

Asian		1
Black		2
Coloured		3
Indian		4
White		5
Not willing to say		6

**6 Tenure (years of employment) with current organisation**

1 – 5 years		1
6 – 10 years		2
11 – 15 years		3
16 – 20 years		4
20 + years		5

**7 Position in organisation**

Owner/Director		1
Executive/Top management		2
Middle level management		3
Lower level management/Supervisor		4
Other, please specify:		5

8 Form of ownership of organisation

Private company – (Pty) Ltd.		1
Public company – Ltd.		2
Trust		3
Cooperative		4
Multinational corporation		5
Other, please specify:		6

9 Main activity of organisation

Base mineral		1
Coal		2
Diamond		3
Gold		4
Platinum		5
Industry: Contractor/Association		6
Other, please specify:		7

10 Number of employees in organisation

1 – 50 employees (small)		1
51 – 199 employees (medium)		2
200+ employees (large)		3

**SECTION B**  
**PERCEPTIONS REGARDING FACTORS IMPACTING SHARED VALUE**  
**WITHIN THE SOUTH AFRICAN MINING INDUSTRY**

	<b>MY ORGANISATION ...</b>	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Disagree somewhat</b>	<b>Neutral</b>	<b>Agree somewhat</b>	<b>Agree</b>	<b>Strongly agree</b>
11	Complies with the Carbon Tax Act to ensure environmental sustainability.	1	2	3	4	5	6	7
12	Creates new innovative solutions for operating (e.g. relying on own renewable energy generated from solar and wind farms located on the surface of a mine).	1	2	3	4	5	6	7
13	Develops mining dumps and rehabilitate closed sites for alternative use (e.g. agricultural purposes).	1	2	3	4	5	6	7
14	Provides employees with fair remuneration/benefits.	1	2	3	4	5	6	7
15	Employees and communities near mining sites own 26% of shares as prescribed by the Mining Charter.	1	2	3	4	5	6	7
16	Engages in creating new revenue streams (e.g. purify and supply of water to communities).	1	2	3	4	5	6	7
17	Engages in sustainable prospecting and exploring programmes to ensure the potential commercial viability of a mine.	1	2	3	4	5	6	7
18	Ensures that all Mining Charter requirements are obeyed and implemented to stimulate socio-economic growth within the industry.	1	2	3	4	5	6	7
19	Ensures that ecosystems around a mine benefit from the multiplier effect of mining operations (beneficiation).	1	2	3	4	5	6	7
20	Ensures the extraction of saleable products and disposal of residue to maximise profits.	1	2	3	4	5	6	7
21	Exceeds the minimum requirements of environmental legislation regarding climate change.	1	2	3	4	5	6	7
22	Increases the number of employees trained in new innovative mining technology over traditional mining methods.	1	2	3	4	5	6	7
23	Invests in capacity building programmes for underprivileged communities to create job opportunities.	1	2	3	4	5	6	7
24	Invests in collaborative initiatives and research and development for modernisation of infrastructure and equipment.	1	2	3	4	5	6	7
25	Invests in community development projects (e.g. healthcare and education facilities).	1	2	3	4	5	6	7
26	Invests in electricity supply facilities to ensure uninterrupted energy supply.	1	2	3	4	5	6	7
27	Invests in training and development of employees to upgrade skills.	1	2	3	4	5	6	7



28	Involves employees in key decision-making processes.	1	2	3	4	5	6	7
29	Makes use of remote and clean technology (e.g. digital mine technology, driverless locomotives, non-explosive rock-breaking and laser technology).	1	2	3	4	5	6	7
30	Procures 70% of products and 80% of services from BEE compliant local suppliers and contractors.	1	2	3	4	5	6	7
31	Procures more than 70% of products/services and equipment from local suppliers.	1	2	3	4	5	6	7
32	Provides employees with a sense of job security.	1	2	3	4	5	6	7
33	Supports and contributes to increased access to reliable roads/railway networks by means of an integrated transportation development plan.	1	2	3	4	5	6	7
34	Provides healthy and safe working conditions.	1	2	3	4	5	6	7
35	Recycle (purifies) water for internal use to reduce reliance on public water supply.	1	2	3	4	5	6	7
36	Regularly pays royalties to stakeholders (e.g. landowners and BEE shareholders) in the form of equity sharing to accelerate economic transformation.	1	2	3	4	5	6	7
37	Disposes of wastewater and mineral waste to protect environmental degradation.	1	2	3	4	5	6	7
38	Supports the construction of water purification facilities for mine and community use.	1	2	3	4	5	6	7
39	Uses renewable energy sources (e.g. solar, wind, biodiesel and hydropower).	1	2	3	4	5	6	7
40	Uses the most cost-effective movement/transportation of all materials and products.	1	2	3	4	5	6	7

**SECTION C**  
**PERCEPTIONS REGARDING SHARED VALUE WITHIN THE SOUTH AFRICAN MINING INDUSTRY**

41	Collaborates with all stakeholders to eliminate value chain activities that harm the environment (e.g. that contribute to global warming and pollution).	1	2	3	4	5	6	7
42	Conceives new complimentary products/services to ensure the sustainability of the mine.	1	2	3	4	5	6	7
43	Contributes to the community and this act of benevolence is included in the formulation of product/service development strategies.	1	2	3	4	5	6	7
44	Do not believe in operating in silos but become successful through collaborations/partnerships with local enterprises/society to build enabling infrastructure.	1	2	3	4	5	6	7
45	Engages in inclusive business deals with local communities by integrating low-income suppliers into the value chain.	1	2	3	4	5	6	7
46	Engages in local collaboration between organisations and allies to improve efficiency and flexibility in the supply chain.	1	2	3	4	5	6	7
47	Engages in local collaboration to create an opportunity to bring international expertise/skills/technology to enhance innovation in the value chain.	1	2	3	4	5	6	7
48	Generates profit by finding innovative ways of addressing needs of the community (e.g. education, healthcare, better housing and nutritional issues).	1	2	3	4	5	6	7
49	Has value chain governance systems underpinned by participation, equity, and accountability which balance the influence and power relations amongst various stakeholders.	1	2	3	4	5	6	7
50	Implements policies that support increasing investment in infrastructure connectivity (e.g. port capacity, accessible railways/roads, storage facilities and telecommunication facilities).	1	2	3	4	5	6	7
51	Is part of a geographic concentration of related organisations and suppliers that are interconnected to optimise the value chain.	1	2	3	4	5	6	7
52	Reconceives future markets as integral to product/service redesign processes (product/service innovation intertwined with processes of creating new markets).	1	2	3	4	5	6	7
53	Redesigns products/services that meet underserved needs of communities as a way of responding to social concerns.	1	2	3	4	5	6	7
54	Strengthens local collaboration to optimise benefits of specialised competence.	1	2	3	4	5	6	7
55	Supports local suppliers and enterprise development initiatives to enhance quality and productivity that reduces the negative environmental impact of value chain activities.	1	2	3	4	5	6	7

**SECTION D**  
**PERCEPTIONS REGARDING OUTCOMES OF SHARED VALUE**  
**WITHIN THE SOUTH AFRICAN MINING INDUSTRY**

56	Is determined to reduce all forms of pollution (e.g water and air pollution).	1	2	3	4	5	6	7
57	Directly improves the standard of living of local communities (e.g. enabling infrastructure such as schools, health care facilities, roads and water supply).	1	2	3	4	5	6	7
58	Is renowned for best mining core competencies/expertise.	1	2	3	4	5	6	7
59	Has a dedicated and loyal workforce with low staff turnover rates.	1	2	3	4	5	6	7
60	Has increased mine revenues over the past five years.	1	2	3	4	5	6	7
61	Improved input-output ratio's (productivity) over the last few years.	1	2	3	4	5	6	7
62	Is committed to reduce cases and litigations regarding mining-related diseases (e.g. silicosis, TB and HIV).	1	2	3	4	5	6	7
63	Adheres to all human rights of all stakeholders (e.g. safety, equality and protection of minorities).	1	2	3	4	5	6	7
64	Strives to improve preparedness to respond to natural hazards.	1	2	3	4	5	6	7
65	Is known as the employer of choice within the industry and across associated industries.	1	2	3	4	5	6	7
66	Is known for producing high-quality minerals compared to rivals.	1	2	3	4	5	6	7
67	Facilitates organisational learning, thus becoming more innovative in meeting customer demands.	1	2	3	4	5	6	7
68	Leads modernisation of mining through technological innovation of equipment and infrastructure.	1	2	3	4	5	6	7
69	Secures a flexible and reliable supply chain at all times.	1	2	3	4	5	6	7
70	Is known as a cost-effective low-cost provider in the industry.	1	2	3	4	5	6	7

**THANK YOU FOR YOUR PARTICIPATION!**

Only should you wish to receive a summary of this study's result, kindly supply your email address:

\_\_\_\_\_

Your email address will be kept in a password-protected file and not in the same file as the captured data. It will not be possible to link any response to any individual respondent or email address. Your email address and responses will be kept confidential.

## ANNEXURE B: ETHICS APPROVAL



PO Box 77000, Nelson Mandela University, Port Elizabeth, 6001, South Africa [mandela.ac.za](mailto:mandela.ac.za)

Chairperson: Faculty Research Ethics Committee (Human)  
Tel: +27 (0)41 504 2906

Ref: [H20-BES-BMA-033 / Approval]

19 May 2020

Prof C Rootman  
Department: Business Management

Dear Prof Rootman,

**TITLE OF STUDY: PERCEPTIONS REGARDING SHARED VALUE WITHIN THE SOUTH AFRICAN MINING INDUSTRY (PHD)**

PRP: Prof C Rootman  
PI: Mr T Khubana

Your above-entitled application served at the *Faculty Ethics Committee of the Faculty of Business and Economic Science*, (8 May 2020) for approval. The study is classified as a negligible/low risk study. The ethics clearance reference number is **H20-BES-BMA-033** and approval is subject to the following conditions:

1. The immediate completion and return of the attached acknowledgement to [Lindie@mandela.ac.za](mailto:Lindie@mandela.ac.za), the date of receipt of such returned acknowledgement determining the final date of approval for the study where after data collection may commence.
2. Approval for data collection is for 1 calendar year from date of receipt of above mentioned acknowledgement.
3. The submission of an annual progress report by the PRP on the data collection activities of the study (form RECH-004 to be made available shortly on Research Ethics Committee (Human) portal) by 15 December this year for studies approved/extended in the period October of the previous year up to and including September of this year, or 15 December next year for studies approved/extended after September this year.
4. In the event of a requirement to extend the period of data collection (i.e. for a period in excess of 1 calendar year from date of approval), completion of an extension request is required (form RECH-005 to be made available shortly on Research Ethics Committee (Human) portal)
5. In the event of any changes made to the study (excluding extension of the study), completion of an amendments form is required (form RECH-006 to be made available shortly on Research Ethics Committee (Human) portal).
6. Immediate submission (and possible discontinuation of the study in the case of serious events) of the relevant report to RECH (form RECH-007 to be made available shortly on Research Ethics Committee (Human) portal) in the event of any unanticipated problems, serious incidents or adverse events observed during the course of the study.
7. Immediate submission of a Study Termination Report to RECH (form RECH-008 to be made available shortly on Research Ethics Committee (Human) portal) upon unexpected closure/termination of study.
8. Immediate submission of a Study Exception Report of RECH (form RECH-009 to be made available shortly on Research Ethics Committee (Human) portal) in the event of any study deviations, violations and/or exceptions.
9. Acknowledgement that the study could be subjected to passive and/or active monitoring without prior notice at the discretion of Research Ethics Committee (Human).

Please quote the ethics clearance reference number in all correspondence and enquiries related to the study. For speedy processing of email queries (to be directed to [Lindie@mandela.ac.za](mailto:Lindie@mandela.ac.za)), it is recommended that the ethics clearance reference number together with an indication of the query appear in the subject line of the email.

We wish you well with the study.

Yours sincerely

  
**Prof S Mago**

Cc: Department of Research Capacity Development  
Faculty Research Co-ordinator: Lindie van Rensburg

## ANNEXURE C: LANGUAGE EDITING LETTER



1<sup>st</sup> December 2020

**Talifhani Khubana**

Faculty of Business and Economic Sciences  
Nelson Mandela University  
Student No: 216927978  
Email: [s216927978@mandela.ac.za](mailto:s216927978@mandela.ac.za)

To Whom it May Concern,

This is to certify that I have proofread and edited Talifhani Khubana's PhD thesis in submission for the degree Doctor of Philosophy, Business Management, titled 'Perceptions regarding shared value within the South African mining industry'.

Please feel free to contact me with any queries.

Regards

Kate Mey

## ANNEXURE D: TURNITIN SIMILARITY REPORT

### PERCEPTIONS REGARDING SHARED VALUE WITHIN THE SOUTH AFRICAN MINING INDUSTRY

#### ORIGINALITY REPORT

**15%**

SIMILARITY INDEX

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## ANNEXURE E: MULTIPLE COMPARISONS FOR SHARED VALUE

Experience						
(I) Tenure (years of employment) with current organisation	(J) Tenure (years of employment) with current organisation	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1 - 5 years	6 - 10 years	0.46344	0.17589	0.066	-0.019	0.9459
	11 - 15 years	0.0833	0.21808	0.995	-0.5148	0.6814
	16 - 20 years	.98280*	0.33596	0.03	0.0614	1.9042
	20 + years	-0.01194	0.32853	1	-0.913	0.8891
6 - 10 years	1 - 5 years	-0.46344	0.17589	0.066	0.9459	0.019
	11 - 15 years	-0.38014	0.22464	0.44	0.9962	0.236
	16 - 20 years	0.51936	0.34026	0.546	0.4139	1.4526
	20 + years	-0.47538	0.33292	0.61	1.3885	0.4377
11 - 15 years	1 - 5 years	-0.0833	0.21808	0.995	0.6814	0.5148
	6 - 10 years	0.38014	0.22464	0.44	-0.236	0.9962
	16 - 20 years	0.8995	0.36386	0.099	0.0985	1.8975
	20 + years	-0.09524	0.357	0.999	1.0744	0.8839
16 - 20 years	1 - 5 years	-.98280*	0.33596	0.03	1.9042	0.0614
	6 - 10 years	-0.51936	0.34026	0.546	1.4526	0.4139
	11 - 15 years	-0.8995	0.36386	0.099	1.8975	0.0985
	20 + years	-0.99474	0.43905	0.159	2.1989	0.2094
20 + years	1 - 5 years	0.01194	0.32853	1	0.8891	0.913
	6 - 10 years	0.47538	0.33292	0.61	0.4377	1.3885
	11 - 15 years	0.09524	0.357	0.999	0.8839	1.0744
	16 - 20 years	0.99474	0.43905	0.159	0.2094	2.1989



Occupational Level						
(I) Position in the organisation	(J) Position in organisation	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Owner/Director	Executive/Top management	1.27399*	0.40406	0.009	0.2307	2.3172
	Middle-level management	0.74921	0.38147	0.204	-0.2357	1.7341
	Lower level management/Supervisor	0.81229	0.39313	0.166	-0.2027	1.8273
Executive/Top management	Owner/Director	-1.27399*	0.40406	0.009	-2.3172	-0.2307
	Middle-level management	-.52479*	0.20032	0.045	-1.042	-0.0076
	Lower level management/Supervisor	-0.4617	0.22171	0.161	-1.0341	-0.1107
Middle level management	Owner/Director	-0.74921	0.38147	0.204	-1.7341	-0.2357
	Executive/Top management	.52479*	0.20032	0.045	0.0076	1.042
	Lower level management/Supervisor	0.06308	0.17724	0.985	-0.3946	0.5207
Lower level management/Supervisor	Owner/Director	-0.81229	0.39313	0.166	-1.8273	-0.2027
	Executive/Top management	0.4617	0.22171	0.161	-0.1107	1.0341
	Middle level management	-0.06308	0.17724	0.985	-0.5207	0.3946

Organisational activity						
(I) Main activity of organisation	(J) Main activity of organisation	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Base mineral	Coal	-0.26529	0.23786	0.875	-0.9471	0.4165
	Diamond	0.76058	0.27	0.057	0.0133	1.5345
	Gold	-0.07601	0.25574	1	-0.809	0.657
	Platinum	0.11241	0.24519	0.997	-0.5904	0.8152
	Industry: Contractor/Association	0.3381	0.25574	0.773	-0.3949	1.0711

Coal	Base mineral	0.26529	0.2378 6	0.875	- 0.4165	0.947 1
	Diamond	1.02586*	0.2652	0.002	0.2657	1.786
	Gold	0.18928	0.2506 6	0.975	- 0.5292	0.907 8
	Platinum	0.3777	0.2398 9	0.616	- 0.3099	1.065 3
	Industry: Contractor/Association	0.60338	0.2506 6	0.157	- 0.1151	1.321 9
Diamond	Base mineral	-0.76058	0.27	0.057	- 1.5345	0.013 3
	Coal	-1.02586*	0.2652	0.002	-1.786	- 0.265 7
	Gold	-.83658*	0.2813 5	0.037	-1.643	- 0.030 1
	Platinum	-0.64816	0.2717 9	0.165	- 1.4272	0.130 9
	Industry: Contractor/Association	-0.42248	0.2813 5	0.663	- 1.2289	0.384
Gold	Base mineral	0.07601	0.2557 4	1	-0.657	0.809
	Coal	-0.18928	0.2506 6	0.975	- 0.9078	0.529 2
	Diamond	.83658*	0.2813 5	0.037	0.0301	1.643
	Platinum	0.18842	0.2576 3	0.978	-0.55	0.926 9
	Industry: Contractor/Association	0.4141	0.2676 9	0.634	- 0.3532	1.181 4
Platinum	Base mineral	-0.11241	0.2451 9	0.997	- 0.8152	0.590 4
	Coal	-0.3777	0.2398 9	0.616	- 1.0653	0.309 9
	Diamond	0.64816	0.2717 9	0.165	- 0.1309	1.427 2
	Gold	-0.18842	0.2576 3	0.978	- 0.9269	0.55
	Industry: Contractor/Association	0.22568	0.2576 3	0.952	- 0.5128	0.964 1
Industry: Contractor/Association	Base mineral	-0.3381	0.2557 4	0.773	- 1.0711	0.394 9
	Coal	-0.60338	0.2506 6	0.157	- 1.3219	0.115 1
	Diamond	0.42248	0.2813 5	0.663	-0.384	1.228 9
	Gold	-0.4141	0.2676 9	0.634	- 1.1814	0.353 2
	Platinum	-0.22568	0.2576 3	0.952	- 0.9641	0.512 8

Size of the organisation						
(I) Number of employees in organisation	(J) Number of employees in organisation	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1 - 50 employees	51 - 199 employees	1.64896*	0.4323	0	0.6313	2.6666
	200+ employees	.83937*	0.30819	0.019	0.1138	1.5649
51 - 199 employees	1 - 50 employees	-1.64896*	0.4323	0	-	-
	200+ employees	-.80959*	0.323	0.034	-1.57	0.0492
200+ employees	1 - 50 employees	-.83937*	0.30819	0.019	-	-
	51 - 199 employees	.80959*	0.323	0.034	0.0492	1.57

Source: Researcher's own construction