

**COMBINING COMPLEXITY LEADERSHIP WITH OPERATIONAL
SYSTEMS AND STRUCTURES FOR ADAPTABILITY IN SOUTH
AFRICAN PRIVATE HOSPITALS**

by

KAREN NEL

Student no: 1975101

Karen@karennel.co.za

Cell: 083 600 9725

**A research report submitted to the
Faculty of Commerce, Law and Management,
University of the Witwatersrand,
in partial fulfilment of the requirements
for the degree of
Doctor in Philosophy
in the field of Leadership**

JOHANNESBURG

2022

**"Leadership is inspiring people to do things they never
thought they could!"**

(Steve Jobs, 1955 – 2011).

**"Changing the heartbeat of healthcare,
one beat at a time!"**

(Karen Nel, 2021).

ABSTRACT

The global healthcare landscape is complex. The South African Government and various other researchers have highlighted the unequal nature of the healthcare system in South Africa. The system is unsustainable and urgently needs substantial transformation in its current form. As set out by the South African Government, introducing universal healthcare coverage for the whole population is a solution. This will, however, significantly impact and change all role-players relatively quickly, especially for private hospitals. The purpose of this study was to critically examine whether private hospitals in South Africa were positioned for adaptability, considering complexity leadership (with concepts: entrepreneurial leadership, operational leadership and enabling leadership) and operational systems and structures (with concepts: agile, lean and leagile), as an approach to deal with the potential changes.

A mixed methods study with an explanatory sequential design was utilised where the quantitative results and sample informed the population and questions of the qualitative study. Additionally, the quantitative results' drivers were identified in the qualitative study, namely causal factors, leadership and operational consequences, and aggravating factors.

This study confirmed that the leadership displayed in private hospitals and the operational systems and structures implemented in private hospitals were not aligned with complexity leadership and operational systems and structures as defined in the conceptual model of this study. A unique finding was that operational systems and structures in private hospitals had a significantly higher impact on the hospitals' daily management than the leadership displayed in these hospitals. This was especially evident between managers and non-managers and between clinical and non-clinical employees, with non-clinical employees viewing the impact of the operational systems and structures implemented in hospitals as significantly more impactful than the leadership displayed in these hospitals. Furthermore, it was identified that operational leadership and lean systems and structures were the preferred approaches in private hospitals and negatively impacted the display of entrepreneurial leadership and agile systems and structures in these hospitals. Moreover, it was found that exploitative leadership, which is the leadership approach when dealing with old certainties, labelled as operational leadership in the current complexity leadership framework, should be relabelled as administrative-operational leadership in South African private hospitals, as a result of the hierarchical, autocratic culture.

Assessing the impact of the COVID-19 pandemic on the leadership displayed and the operational systems and structures that were implemented in these hospitals, it was identified that employees can either experience disruption in a positive light through an adaptive

response supported flexibility, or be traumatised by it when management implemented an order response with increased controls. It was conclusively confirmed that private hospitals in South Africa do not regularly display complexity leadership nor implement operational systems and structures as defined in this study's conceptual model.

Four recommendations were made that can assist the private hospital industry in becoming more adaptable. The first recommendation is for the industry to implement CL and OSS as defined by the study's conceptual model. This implementation will naturally develop into an adaptive space. The second recommendation is to overcome the disconnect between industry players, head offices and hospitals, and to increase collaboration. Although the adaptive space will impact this recommendation positively, it has to be driven and supported by senior leadership. The third recommendation is to develop a formal industry framework for adaptability in private hospitals. The fourth recommendation is for the implementation of integrated and applied development programmes for leaders and staff at all levels. The programmes will assist everyone to better understand the relationship between CL, OSS, business acumen, and business success.

This study's recommendations will position the industry for adaptability.

Keywords

Healthcare; private hospitals; adaptive space; adaptability; complexity leadership; entrepreneurial leadership; operational leadership; enabling leadership; administrative leadership; operational systems and structures; agile; lean; leagile; collaboration.

DECLARATION

I, **KAREN NEL**, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Doctor in Philosophy in the field of leadership at the University of the Witwatersrand, Johannesburg. It has not previously been submitted for any degree or examination at this or any other university.

Name: **Karen Nel**

Signature:

A handwritten signature in black ink, appearing to read 'Karen Nel', written in a cursive style.

Signed at **Randburg** on the **17th** day of **January 2022**.

DEDICATION

To my kids,

Cormari, Leton and Sulanie

– you are my everything!

You inspired me to always be more,

and to achieve the impossible!

ACKNOWLEDGEMENT

- To my kids, Cormari, Leton and Sulanie, thank you for being my inspiration. Thanks for giving up so much to allow me to complete this journey! Thanks for always believing in me!. Most of all, thanks for the endless cups of Rooibos tea and hugs. You guys are awesome and the reason for everything I do!!
- Dr Christiaan Mostert, my friend and business partner, thank you for being so much more than just a friend. Thanks for all the challenging discussions, for all the questions, and for helping me to find the answers. Thanks for the hours spent on fixing my '*kombuis-Engels*'. Thanks for all the figures we drew together and for turning them into PowerPoints. Thanks for motivating me to continue when I wanted to give up and for keeping me calm when I wanted to scream. I do not have the right words – please read between the lines! Thanks again for everything you did to help me in getting this study finished!
- Adri, my sister, thanks for displaying your love in my purple blanket, my purple gloves and purple fluffy socks – it kept me warm in all the cold winter mornings and late nights. Thanks for all the driving home discussions and for always lending your ear. Thanks especially for the journey of the past five years.
- Madeleen, my sister, thanks for always lifting me up in your prayers and supporting me in that way. That made a real difference.
- Santie Niemann, thanks for being a study buddy more than 30 years ago and still lending an ear if I needed some wisdom and ideas. I appreciate your friendship so much.
- Dr Esther Jansen van Vuuren, thanks for joining our special circle and for keeping my courage high. I am glad I got to know you.
- Dr Chris Botha, thanks for being so committed to research. Thanks for all the hours of wisdom you gave to a total stranger and for managing my survey in such an efficient manner.
- Dr Marthi Pohl, thanks for making the world of quantitative analysis understandable and exciting, for all the hours of explanation and patience, and for all that I learnt from you. What a journey!
- Dr Charmaine Williamson, thanks for the wisdom and guidance in our conversations. You are most appreciated.

- Prof Logan, thanks for coming into my study life at a late stage – and for being a reliable inspiration. Thanks for assisting and guiding, even if it was not your responsibility to do so. I appreciate you!
- Dr Yvonne Combrinck and Dr Alastair Faulkner, thanks for the support you gave a complete stranger. Thanks for making my journey less lonely and for caring, and just because you are special people.
- Prof Anthony Minnaar, WOW!! I was in awe at the energy and input you provided to get my thesis ready for submission. I am so blessed that you did my copy editing.
- Prof Mzukisi Qobo, thanks for being my supervisor.
- Lastly, I have so much gratitude for the Lord that blessed me and kept me healthy during this time of my studies, for Divine Appointments, and so many blessings. I have so much gratitude, and may I be given enough opportunity to pay forward and have the chance to return what I have received?

TABLE OF CONTENTS

ABSTRACT.....	II
DECLARATION.....	IV
DEDICATION.....	V
ACKNOWLEDGEMENT	VI
TABLE OF CONTENTS	VIII
LIST OF TABLES.....	XIII
LIST OF FIGURES.....	XV
LIST OF ACRONYMS.....	XVII
DEFINITION OF TERMS	XVIII
CHAPTER 1: INTRODUCTION	1
1.1 PURPOSE OF THE STUDY	4
1.2 CONTEXT TO THE STUDY.....	4
1.2.1 THE GLOBAL HEALTHCARE LANDSCAPE	5
1.2.2 THE SOUTH AFRICAN HEALTHCARE LANDSCAPE	5
1.3 RESEARCH PROBLEM	6
1.4 RESEARCH QUESTIONS	7
1.5 THE SIGNIFICANCE OF THE STUDY	8
1.6 DELIMITATIONS OF THE STUDY	10
1.7 ASSUMPTIONS	11
1.8 ORGANISATION OF THE STUDY	11
1.9 CONCLUSION	12
CHAPTER 2: LITERATURE REVIEW	14
2.1 THEORETICAL FRAMEWORK	14
2.1.1 AUTOPOIESIS THEORY	15
2.1.2 COMPLEXITY THEORY	16
2.1.3 CHAOS THEORY	17
2.1.4 CYNEFIN FRAMEWORK.....	18
2.1.5 SEDDON'S SYSTEMS THINKING THEORY	19
2.2 LEADERSHIP	20
2.2.1 LEADERSHIP IN COMPLEX ORGANISATIONS	20
2.2.2 LEADERSHIP STYLES RELATED TO THIS STUDY.....	21
2.2.3 APPROACHES WITHIN THE FIELD OF COMPLEXITY LEADERSHIP THEORY	22
2.2.4 COMPLEXITY LEADERSHIP	24
2.2.5 COMMUNICATION IN LEADING COMPLEX ORGANISATIONS	37
2.2.6 LEADERSHIP IN HEALTHCARE.....	38
2.2.7 THE CONCEPTUAL MODEL FOR COMPLEXITY LEADERSHIP IN THIS STUDY	40
2.3 OPERATIONAL SYSTEMS AND STRUCTURES.....	42
2.3.1 THE THREE CONCEPTS OF OPERATIONAL SYSTEMS AND STRUCTURES	42
2.3.2 THE UNDERPINNING PRINCIPLES OF OPERATIONAL SYSTEMS AND STRUCTURES	50
2.3.3 OPERATIONAL SYSTEMS AND STRUCTURES IN HEALTHCARE	56
2.3.4 CRITICISM OF AGILE, LEAN AND LEAGILE.....	58

2.3.5 THE CONCEPTUAL MODEL FOR OPERATIONAL SYSTEMS AND STRUCTURES IN THIS STUDY	59
2.4 OVERALL CONCEPTUAL MODEL FOR THE STUDY	61
2.5 CREATING THE ADAPTIVE SPACE	63
2.6 CONCLUSION	66
CHAPTER 3: GLOBAL HEALTHCARE	69
3.1 INTRODUCTION	69
3.2 WHAT IS GLOBAL HEALTHCARE?	69
3.3 EMERGING TRENDS IN GLOBAL HEALTHCARE	70
3.3.1 INCREASE IN LIFE EXPECTANCY AND AGEING	70
3.3.2 INCREASE IN NON-COMMUNICABLE DISEASES	71
3.3.3 PANDEMICS	71
3.3.4 SHORTAGE OF HEALTHCARE WORKERS GLOBALLY	74
3.3.5 INCREASING HEALTHCARE COSTS	75
3.3.6 TECHNOLOGICAL INNOVATIONS	76
3.3.7 PAYMENT MODELS AND STRUCTURES	78
3.4 EMERGING TRENDS IN AFRICAN HEALTHCARE	79
3.4.1 SERVICE DELIVERY	79
3.4.2 HEALTHCARE WORKFORCE	80
3.4.3 INFORMATION SYSTEMS IN HEALTHCARE	80
3.4.4 TECHNOLOGY AND MEDICINE	81
3.4.5 HEALTH FINANCING	82
3.4.6 GOVERNANCE AND LEADERSHIP	83
3.5 CONCLUSION	84
CHAPTER 4: HEALTHCARE IN SOUTH AFRICA – AN INDUSTRY IN CRISIS	86
4.1 INTRODUCTION	86
4.2 THE SOUTH AFRICAN HEALTHCARE LANDSCAPE	86
4.3 THE IMPACT OF SOUTH AFRICAN HISTORY ON HEALTHCARE	87
4.4 SOCIO-ECONOMIC FACTORS IMPACTING HEALTHCARE	88
4.5 THE SOUTH AFRICAN PUBLIC/PRIVATE HOSPITAL BALANCE	88
4.6 LEGISLATION AND INQUIRIES	89
4.6.1 NATIONAL HEALTH INSURANCE BILL	89
4.6.2 MEDICAL SCHEMES AMENDMENT BILL (MSA)	92
4.6.3 HEALTH MARKET INQUIRY (HMI)	93
4.7 THE MEDICAL SCHEMES LANDSCAPE	96
4.8 INCREASED LIFE EXPECTANCY AND AGEING	97
4.9 THE INCREASE IN NON-COMMUNICABLE DISEASES	98
4.10 PANDEMICS	98
4.11 STRUCTURE OF THE SOUTH AFRICAN PRIVATE HOSPITAL INDUSTRY	100
4.12 HEALTHCARE PRACTITIONERS IN PRIVATE HOSPITALS	105
4.13 LEADERSHIP IN SOUTH AFRICAN HOSPITALS	106
4.14 CONCLUSION	108
CHAPTER 5: RESEARCH METHODOLOGY	110
5.1 RESEARCH PARADIGM	110

5.2 RESEARCH APPROACH	111
5.3 RESEARCH DESIGN	112
5.4 QUANTITATIVE STUDY	114
5.4.1 POPULATION AND SAMPLE.....	114
5.4.2 THE RESEARCH INSTRUMENT	118
5.4.3 PILOT STUDY.....	120
5.4.4 THE PROCEDURE FOR DATA COLLECTION AND DATA STATISTICS	121
5.4.5 RELIABILITY CONSIDERATIONS.....	124
5.4.6 VALIDITY	126
5.5 QUALITATIVE RESEARCH APPROACH	127
5.5.1 POPULATION AND SAMPLING STRATEGY	127
5.5.2 DATA COLLECTION INSTRUMENTS.....	128
5.5.3 PILOT STUDY.....	130
5.5.4 DATA ANALYSIS	131
5.5.5 TRUSTWORTHINESS.....	135
5.6 DEMOGRAPHIC PROFILE OF PARTICIPANTS.....	136
5.6.1 QUANTITATIVE STUDY: DEMOGRAPHIC PROFILE.....	136
5.6.2 QUALITATIVE STUDY: DEMOGRAPHIC PROFILE.....	142
5.7 TRIANGULATION	143
5.8 GENERAL PRINCIPLES	144
5.9 METHODOLOGY FOR INTEGRATION OF THE RESULTS.....	145
5.10 CONCLUSION	146
CHAPTER 6: RESULTS AND FINDINGS.....	149
6.1 INTRODUCTION	149
6.2 QUANTITATIVE STUDY RESULTS.....	149
6.2.1 DEMOGRAPHIC PROFILE OF PARTICIPANTS	150
6.2.2 PREPARATION OF QUANTITATIVE DATA.....	151
6.2.3 PRINCIPAL COMPONENT ANALYSIS.....	152
6.2.4 DESCRIPTIVE ANALYSIS	159
6.2.5 PEARSON'S CORRELATION	163
6.2.6 STRUCTURAL EQUATION MODELLING	169
6.2.7 DISCUSSION OF THE LINKEDIN RESULTS AND PROCESS.....	190
6.2.8 SUMMARY OF QUANTITATIVE RESULTS	192
6.3 QUALITATIVE STUDY FINDINGS	193
6.3.1 DEMOGRAPHIC PROFILE OF PARTICIPANTS AND RELATED MATTERS	193
6.3.2 THEMES AND SUB-THEMES.....	195
6.3.3 DISCUSSION OF RQ5.....	196
6.3.4 DISCUSSION OF RQ6.....	213
6.3.5 DISCUSSION OF RQ7.....	221
6.3.6 SUMMARY OF THE QUALITATIVE RESULTS.....	227
6.4 INTEGRATION OF RESULTS	228
6.4.1 DISCUSSION OF RQ8.....	228
6.4.2 DISCUSSION OF RQ9.....	229
6.5 TRIANGULATION ACHIEVED	230

6.6 CONCLUSION	231
CHAPTER 7: DISCUSSION AND CONCLUSION	234
7.1 INTRODUCTION	234
7.2 RESEARCH QUESTIONS	234
7.2.1 CONCLUSIONS REGARDING RQ1.....	234
7.2.2 CONCLUSIONS REGARDING RQ2.....	235
7.2.3 CONCLUSIONS REGARDING RQ3.....	236
7.2.4 CONCLUSIONS REGARDING RQ4.....	237
7.2.5 CONCLUSIONS REGARDING RQ5.....	238
7.2.6 CONCLUSIONS REGARDING RQ6.....	242
7.2.7 CONCLUSIONS REGARDING RQ7.....	244
7.2.8 CONCLUSIONS REGARDING RQ8.....	247
7.2.9 CONCLUSIONS REGARDING RQ9.....	249
7.2.10 LINKING THE STUDY RESEARCH QUESTIONS TO THE QUESTIONNAIRE QUESTIONS	254
7.3 RESEARCH NOTE: CONTRIBUTION THAT DOES NOT FORM PART OF THE RESEARCH QUESTIONS	255
7.3.1 CONCEPTUAL FRAMEWORK OF THIS STUDY	255
7.3.2 LINKEDIN SAMPLING	256
7.4 LIMITATIONS OF THE RESEARCH	256
7.4.1 METHODOLOGICAL LIMITATIONS	256
7.4.2 THE RESEARCHER	257
7.5 OVERALL HIGH-LEVEL STUDY RECOMMENDATIONS	258
7.6 SUGGESTIONS FOR FUTURE RESEARCH.....	259
7.7 FINAL CONCLUSION	260
REFERENCES.....	263
APPENDICES.....	304
APPENDIX A: ETHICS CLEARANCE CERTIFICATE.....	304
APPENDIX B: INITIAL LETTER TO THE CEO.....	305
APPENDIX C: EXPLANATION OF THE STUDY TO EXCO.....	307
APPENDIX D: DIRECT SAMPLE STAFF MEMO	311
APPENDIX E: DIRECT SAMPLE REQUEST TO SHARE INFO	312
APPENDIX F: LINKEDIN SAMPLE CONNECTION REQUEST.....	313
APPENDIX G: LINKEDIN MESSAGE WHEN CONNECTION REQUEST WAS ACCEPTED.....	314
APPENDIX I: QUANTITATIVE PARTICIPANT INFORMATION DOCUMENT.....	315
APPENDIX J: QUANTITATIVE RESEARCH QUESTIONNAIRE	317
APPENDIX K: COMPLEXITY LEADERSHIP QUESTIONNAIRE SCHEDULE WITH CONSTRUCTS, ELEMENTS AND SUB-ELEMENTS.....	322
APPENDIX L: OPERATIONAL SYSTEMS AND STRUCTURES QUESTIONNAIRE SCHEDULE WITH CONSTRUCTS, ELEMENTS AND SUB-ELEMENTS.....	324
APPENDIX M: QUALITATIVE PARTICIPANT INVITATION EMAIL.....	326
APPENDIX N: QUALITATIVE PARTICIPANT INFORMATION DOCUMENT.....	327
APPENDIX O: ADDITIONAL INFORMATION BEFORE INTERVIEW	329

APPENDIX P: QUALITATIVE INTERVIEW GUIDELINE	330
APPENDIX Q: PERMISSION LETTER: ADVANCED HEALTH	333
APPENDIX R: PERMISSION LETTER: BUSAMED	334
APPENDIX S: PERMISSION LETTER: CURE DAY HOSPITALS.....	335
APPENDIX T: PERMISSION LETTER: LENMED GROUP	336
APPENDIX U: LANGUAGE EDITING CONFIRMATION LETTER.....	337
APPENDIX V: TURNITIN REPORT FIRST PAGE.....	338

LIST OF TABLES

TABLE 2.1:	AGILE WHEEL REFERENCE MODEL SUB-SECTIONS DISCUSSION	45
TABLE 4.1:	PERCENTAGE OF POPULATION GROUPS ON PRIVATE HEALTHCARE	97
TABLE 4.2:	PRIVATE HOSPITALS CONSIDERED FOR THIS STUDY: OCTOBER 2019	101
TABLE 4.3:	BREAKDOWN OF THE NATIONAL HOSPITAL NETWORK GROUP: OCTOBER 2019	103
TABLE 5.1:	BED DISTRIBUTION PER GROUP	115
TABLE 5.2:	QUALIFYING AND DISQUALIFYING CRITERIA FOR INCLUSION IN THE SAMPLE	116
TABLE 5.3:	QUANTITATIVE SURVEY STATISTICS	123
TABLE 5.4:	QUALITATIVE SAMPLE DISTRIBUTION	128
TABLE 6.1:	QUANTITATIVE SURVEY STATISTICS	151
TABLE 6.2:	PRINCIPAL COMPONENT ANALYSIS OF THE HDL	153
TABLE 6.3:	PRINCIPAL COMPONENT ANALYSIS OF THE IMPLEMENTATION OF HOSS	156
TABLE 6.4:	DESCRIPTIVE STATISTICS FOR THE HDL	160
TABLE 6.5:	DESCRIPTIVE STATISTICS FOR THE IMPLEMENTATION OF HOSS	161
TABLE 6.6:	PEARSON'S CORRELATION VALUES FOR THE COMPONENTS OF HDL	165
TABLE 6.7:	PEARSON'S CORRELATION VALUES FOR THE COMPONENTS OF OSS	167
TABLE 6.8:	GOODNESS-OF-FIT INDICES FOR HDL AND HOSS	172
TABLE 6.9:	STANDARDISED REGRESSION WEIGHTS MEASURING THE RELATIONSHIP BETWEEN THE PRINCIPLES OF CL AND HDL	173
TABLE 6.10:	STANDARDISED REGRESSION WEIGHTS MEASURING THE RELATIONSHIP BETWEEN THE PRINCIPLES OF OSS AND HOSS	175
TABLE 6.11:	STANDARDISED REGRESSION WEIGHTS MEASURING THE REFLECTIVE RELATIONSHIP BETWEEN HDL AND HOSS	176
TABLE 6.12:	GOODNESS-OF-FIT STATISTICS FOR THE RELATIONSHIP BETWEEN HDL AND HOSS OF MANAGERS AND NON-MANAGERS	178
TABLE 6.13:	STANDARDISED REGRESSION WEIGHTS TOWARDS THE HDL AND HOSS FOR MANAGERS AND NON-MANAGERS	179
TABLE 6.14:	GOODNESS-OF-FIT STATISTICS FOR MEASURING THE DIFFERENCE IN THE RELATIONSHIP BETWEEN CLINICAL AND NON-CLINICAL EMPLOYEES TOWARDS HDL AND HOSS	181
TABLE 6.15:	STANDARDISED REGRESSION WEIGHTS MEASURING THE DIFFERENCE IN THE RELATIONSHIP OF CLINICAL AND NON-CLINICAL EMPLOYEES TOWARDS HDL AND HOSS	183
TABLE 6.16:	GOODNESS-OF-FIT STATISTICS FOR THE RELATIONSHIP BETWEEN ENTREPRENEURIAL HDL AND AGILE HOSS	186
TABLE 6.17:	STANDARDISED REGRESSION WEIGHTS FOR THE RELATIONSHIP BETWEEN ENTREPRENEURIAL HDL AND AGILE HOSS	187
TABLE 6.18:	GOODNESS-OF-FIT STATISTICS FOR THE RELATIONSHIP BETWEEN OPERATIONAL HDL AND LEAN HOSS	188
TABLE 6.19:	STANDARDISED REGRESSION WEIGHTS FOR THE RELATIONSHIP BETWEEN OPERATIONAL HDL AND LEAN HOSS	189
TABLE 6.20:	SAMPLE DETAILS PER PARTICIPANT	194
TABLE 6.21:	APPOINTED ROLES OF PARTICIPANTS	194
TABLE 6.22:	DISCONNECT BETWEEN HEAD OFFICE AND HOSPITAL	212

TABLE 7.1:	LINKING THE STUDY RESEARCH QUESTIONS TO THE QUESTIONNAIRE QUESTIONS	
		254

LIST OF FIGURES

FIGURE 2.1: THEORETICAL FRAMEWORK.....	14
FIGURE 2.2: AUTOPOIESIS THEORY FOR ORGANISATIONS.....	15
FIGURE 2.3: THE CYNEFIN FRAMEWORK.....	18
FIGURE 2.4: COMPLEXITY LEADERSHIP (CL) FRAMEWORK.....	26
FIGURE 2.5: THEORETICALFRAMEWORK OF CL.....	27
FIGURE 2.6: CL CONCEPTUAL MODEL OF THE STUDY.....	41
FIGURE 2.7: CONSTRUCTS, ELEMENTS AND SUB-ELEMENTS OF THE CONCEPTUAL MODEL.....	42
FIGURE 2.8: THE AGILE WHEEL REFERENCE MODEL.....	44
FIGURE 2.9: GLOBAL SUPPLY CHAIN CHARACTERISTICS.....	48
FIGURE 2.10: MAIN ATTRIBUTES OF AGILE, LEAN AND LEAGILE.....	49
FIGURE 2.11: CONCEPTUAL MODEL OF THE OSS IN THIS STUDY.....	60
FIGURE 2.12: CONSTRUCTS, ELEMENTS AND SUB-ELEMENTS OF THE CONCEPTUAL MODEL.....	61
FIGURE 2.13: HIGH-LEVEL OVERALL CONCEPTUAL FRAMEWORK OF THE STUDY.....	62
FIGURE 2.14: RELATIONSHIP BETWEEN CL AND OSS AT THE LEVEL OF CONSTRUCTS, CONCEPTS, ELEMENTS AND SUB-ELEMENTS.....	63
FIGURE 3.1 SOME OF THE DEADLIEST PANDEMICS.....	72
FIGURE 5.1: STUDY DESIGN AND METHODOLOGY.....	113
FIGURE 5.2 QUALITATIVE ANALYSIS PROCESS.....	133
FIGURE 5.3: DISTRIBUTION OF MANAGERS AND NON-MANAGERS IN THE NATIONAL HOSPITAL NETWORK GROUPS.....	137
FIGURE 5.4: NUMBER OF PARTICIPANTS PER PROVINCE.....	138
FIGURE 5.5: MANAGERS AND NON-MANAGERS PER JOB CATEGORY.....	139
FIGURE 5.6: SAMPLE DISTRIBUTION PER AGE GROUP.....	140
FIGURE 5.7: YEARS IN THE SAME GROUP.....	140
FIGURE 5.8: YEARS IN THE SAME POSITION.....	141
FIGURE 5.9: DATE BANDS WHEN SURVEYS WERE COMPLETED.....	141
FIGURE 5.10: YEARS IN THE SAME GROUP.....	142
FIGURE 5.11: YEARS IN THE SAME POSITION.....	143
FIGURE 6.1: INTERPRETATION OF CORRELATION STRENGTH.....	164
FIGURE 6.2: OVERALL CONCEPTUAL FRAMEWORK.....	170
FIGURE 6.3: STRUCTURAL EQUATION MODELLING TO EVALUATE THE HDL AND HOSS.....	171
FIGURE 6.4: RELATIONSHIP BETWEEN ENTREPRENEURIAL HDL AND AGILE HOSS.....	186
FIGURE 6.5: RELATIONSHIP BETWEEN OPERATIONAL HDL AND LEAN HOSS.....	188
FIGURE 6.6: RELATIONSHIP STRENGTH ACROSS ALL SAMPLE GROUPS FOR HDL AND HOSS.....	192
FIGURE 6.7: THEMES AND SUB-THEMES RELATING TO Q5.....	196
FIGURE 6.8: THEME 1: CAUSAL FACTORS.....	197
FIGURE 6.9: THEME 2: LEADERSHIP AND OPERATIONAL CONSEQUENCES.....	201
FIGURE 6.10: THEME 3: DRIVERS AGGRAVATING THE SITUATION.....	210
FIGURE 6.11: THEMES AND SUB-THEMES RELATING TO RQ6.....	213
FIGURE 6.12: THEME 1: PROCESS CHANGES.....	214

FIGURE 6.13: THEME 2: PEOPLE CHANGES.....	216
FIGURE 6.14: THEME 3: LEADERSHIP CHANGES.....	218
FIGURE 6.15: THEMES AND SUB-THEMES RELATING TO RQ7.....	222
FIGURE 6.16: THEME 1: POSITIVE EXPERIENCE.....	223
FIGURE 6.17: THEME 2: NEGATIVE EXPERIENCE.....	225
FIGURE 6.18: INTEGRATED STUDY RESULTS.....	229
FIGURE 7.1: CONCLUSIONS OF RQ5.....	240
FIGURE 7.2: POSITIVE AND NEGATIVE COVID-19 EXPERIENCE.....	246
FIGURE 7.3: CURRENT HDL AND HOSS AS EXPERIENCED BY PARTICIPANTS.....	248
FIGURE 7.4: INTEGRATED STUDY RESULTS AND HIGH-LEVEL RECOMMENDATIONS.....	250
FIGURE 7.5: COVID-19 EXPERIENCE IN SUPPORT OF THE ADAPTIVE SPACE.....	253

LIST OF ACRONYMS

AI:	Artificial intelligence
ANOVA:	Univariate Analysis of Variance
CL:	Complexity Leadership
CMS:	Council for Medical Schemes
COVID-19:	Corona Virus Disease 2019
CPI:	Consumer Price Index
EXCO:	Executive Committee
GDP:	Gross Domestic Product
HDL:	Hospital Displayed Leadership
HIV:	Human Immunodeficiency Virus
HMI:	Health Market Inquiry
HOSS:	Hospital Operational Systems and Structures
JMH:	Joint Medical Holdings
JSE:	Johannesburg Stock Exchange
KMO:	Kaiser-Meyer-Olkin
MSA:	Medical Scheme Amendment
NCD:	Non-communicable diseases
NHI:	National Health Insurance
NHN:	National Hospital Network
OSS:	Operational Systems and Structures
P4P:	Pay-for-performance
PPE:	Personal Protective Equipment
PTSD:	Post-Traumatic Stress Disorder
QDAS:	Qualitative Data Analysis Software
SDG:	Sustainable Development Goals
SEM:	Structural Equation Modelling
TB:	Tuberculosis
UHC:	Universal Healthcare Coverage
UN:	United Nations
USA:	United States of America
USD:	United States Dollar
VBC:	Value Based Care
VUCA:	Volatile Uncertain Complex Ambiguity
WHO:	World Health Organization

DEFINITION OF TERMS

- **Adaptive space.** The adaptive space is an emotional, relational and sometimes physical space where people can freely exchange, explore and exchange ideas (Arena, 2018). The adaptive space is applicable to both complexity leadership and operational systems and structures.
- **Agility.** This is a system where organisations detect changes early; produce an optimal business response; create new opportunities; and a sustainable competitive advantage (Felipe, Roldán, & Leal-Rodríguez, 2017).
- **Complexity Leadership (CL).** This is a framework to enable the adaptability of organisations and people, viewing leaders not as managers to implement top-down directives but rather as collaborators, who enhance the system's overall fitness and adaptability (Uhl-Bien, Meyer, & Smith, 2020).
- **COVID-19.** A severe respiratory syndrome caused by the coronavirus 2 (SARS-CoV-2), resulting in viral pneumonia, severe illness and death in humans (Ng, De Deyn, Loke, & Chan, 2020).
- **Enabling Leadership.** This leadership enables organisational adaptability by creating and protecting the adaptive space to enhance and sustain adaptability through creating processes and structures and engaging conflict to trigger and increase emergence (Uhl-Bien & Arena, 2018).
- **Entrepreneurial Leadership.** This is informal leadership that aims to create new skills, products, processes or knowledge that will maintain the organisation's viability (i.e., exploration), with the primary focus being to innovate (Uhl-Bien & Arena, 2018).
- **Exploitation** is to focus on old certainties (March, 1991).
- **Exploration** is the finding of new possibilities (March, 1991).
- **Hospital Displayed Leadership (HDL).** This is the leadership that is daily displayed in a hospital.
- **Hospital Operational Systems and Structures (HOSS).** These are the systems and structures that are daily implemented in a hospital.

- **Leader.** A leader can let a group of people co-work to achieve an objective with a strong affective and operational implication. A leader creates trust and mutual respect in an environment with open communication (Lucia, 2018)
- **Leagile.** This is the integrative system where lean and agile meet, with lean being the forecasted and predictable part of the process and agile being that which respond to the real and unpredictable part of the process (Naim & Gosling, 2011).
- **Lean.** This is a system that focuses on the end customer defining the value; mapping the value stream; creating value flows; responding to the customer's needs; and seeking perfection (Tolf, 2017).
- **Manager.** A manager is a person that has employees directly reporting to him/her. The manager makes management-related decisions and influences the behaviour and actions of others. A manager, therefore, has the right and ability to have power over others (Lucia, 2018).
- **Operational Leadership.** This is leadership that focuses on formal structures, systems and processes to produce results through execution, efficiency and refinement (i.e., exploitation) with the main focus on producing results (Uhl-Bien & Arena, 2018).
- **Operational Systems and Structures (OSS).** This is the group name that was adopted for this study, presenting the systems of agile, lean and leagile.
- **Transformational Leadership.** This is a form of leadership that questions the status quo, demonstrates enthusiasm and often focuses on transforming entrepreneurial solutions and desires of a team into the purpose of the organisation (Schulze & Pinkow, 2020).
- **Transactional Leadership.** This leadership style defines the tasks and goals and sets rewards, and uses these to manage and correct, in a traditional manner, follower behaviour (Schulze & Pinkow, 2020).
- **VUCA.** This is an acronym for the terms: volatility, uncertainty, complexity and ambiguity. The definitions of each term in the acronym are as follows:
 - **Volatility:** the speed, volume, magnitude and dynamics of change;
 - **Uncertainty:** unpredictability around challenges and events;
 - **Complexity:** confusing effect of issues and the resultant chaos; and
 - **Ambiguity:** the absence of clarity or meaning of conditions (Horney et al., 2010, as cited by Turner, 2018).

CHAPTER 1: INTRODUCTION

I have always wondered why there is often a disconnect between leadership and business outcomes. An inspiring leader will positively impact his/her team members and peers but will not always achieve the required business outcomes. Alternatively, executives who achieve great results will often rule with an iron fist and employees and peers will fear them. Is it possible to simultaneously be an inspiring leader and achieve business success? What is the key? These were the critical questions explored in this thesis.

The competitive business context is dynamic with disruption and rapid change resulting in a Volatile, Uncertain, Complex and Ambiguous (VUCA) environment (Baran & Woznyj, 2020; Du & Chen, 2018). Leaders have the challenge and responsibility to enable employees and the organisation to successfully engage the changing demands made on them (Uhl-Bien & Arena, 2018) from the VUCA world. Organisations must identify, develop and position talent to achieve sustainable results (Groves, 2018). Institutions should, therefore, focus on process improvement for improved performance and operational excellence (Uhl-Bien & Arena, 2018).

The healthcare industry is large, complex, fragmented and diverse (Belrhiti, Giralt, & Marchal, 2018; Faulkner & Nicholson, 2020). Hospitals face increased costs, perceived inefficiencies, technological shifts, and limited financial and human resources, calling for a change in the current leadership approach to achieve effective outcomes (Lentenbrink, 2017). With this increased complexity in the healthcare industry, traditional linear models are no longer useful to achieve the desired business outcomes (Horvat & Filipovic, 2018).

Gibson and Birkinshaw (2004) argued that sustainable organisation performance is only possible in an environment of exploration (developing new routines) and exploitation (improvement of current routines) of opportunities. Ebrahimi, Moosavi, and Chirani (2016) concluded that there is a positive relationship between transformational leadership and explorative innovation. Transformational leaders question the status quo, demonstrate enthusiasm and often focus on transforming entrepreneurial solutions and desires of the team into the purpose of the organisation (Schulze & Pinkow, 2020). Furthermore, Ebrahimi et al. (2016) also stated that a positive relationship exists between transactional leadership and exploitative innovation. Transactional leaders define tasks and goals, set rewards, and use this to manage and correct follower behaviour in a traditional way (Schulze & Pinkow, 2020). Both transformational and transactional leadership impact differently on organisational performance and adaptability (Ebrahimi et al., 2016).

In exploring the different types of leadership that could impact organisations, I discovered complexity leadership (Uhl-Bien & Arena, 2018) that is closely aligned with my leadership

worldview of being able to apply an operational focus and innovative focus in how I lead a team. Additionally, when I explored the concepts of agile (Felipe et al., 2017) and lean (Adebanjo, Laosirihongthong, & Samaranayake, 2016), did I realise the synergies between operational leadership and lean, entrepreneurial leadership and agile, and the impact the combination and implementation of these frameworks could make in inspiring leaders achieving business success that impacts the bottom line. My personal discovery of leagile (Naim & Gosling, 2011) and realising the synergies with enabling leadership which forms part of the complexity leadership framework, made me excited about this study and the impact it could have on healthcare in South Africa, keeping in mind that I am an ICU qualified registered nurse. The result of this personal empowering journey led to this study. In the next two sections will the constructs of Complexity Leadership (CL) and Operational Systems and Structures (OSS) (agile, lean, leagile) be explored.

Complexity Leadership (CL) is a framework to enable organisations' and people's adaptability, viewing leaders not as managers to implement top-down directives but as collaborators who enhance the system's overall fitness and adaptability (Uhl-Bien et al., 2020). This framework consists of three types of leadership, namely: entrepreneurial leadership (informal leadership aiming to create innovative solutions); operational leadership (formal leadership with the aim to produce); and enabling leadership (leadership that enables adaptability by creating the adaptive space) (Uhl-Bien & Arena, 2018). International studies on CL in healthcare are limited (Belrhiti et al., 2018; Lentenbrink, 2017; Porter-O'Grady, 2020; Uhl-Bien et al., 2020). However, no South African studies on this topic could be found.

Operational Systems and Structures (OSS) are the terminologies adopted in this study and refer, as a group term, for agile, lean and leagile. Agile is a system where organisations detect changes early; produce an optimal business response; and create new opportunities with a sustainable competitive advantage (Felipe et al., 2017). Lean is a system that focuses on the end customer defining the value, mapping the value stream, creating value flows, responding to the customer's needs, and seeking perfection (Tolf, 2017). Leagile is the integrative system where lean and agile meet, with lean being the forecasted and predictable part of the process and agile being the unplanned and unpredictable part of the process (Tolf, 2017).

Leadership and operations are two very important aspects of an organisation. An organisation cannot function or even exist if both leadership and operations are not present (Uhl-Bien & Arena, 2018).

Using Toulmin's structure for argumentation (Karbach, 1987), the initial argument of the study was that there is a relationship between the individual constructs of CL (Uhl-Bien & Arena, 2018) and OSS (Tolf, 2017). This assumption was made because close synergies were

identified by the researcher between the following concepts within the constructs of CL and OSS:

- operational leadership and lean,
- entrepreneurial leadership and agile, and
- enabling leadership and leagile

The expectation was, therefore, that some form of relationship exists between CL and OSS.

A secondary argument was that the implementation of CL and OSS in private hospitals in South Africa would lead to inspiring leadership. This argument was based on the assumption that the initial argument of the relationship between CL and OSS was true. The premise for this argument was that private hospitals in South Africa don't display CL and OSS as explained in the previous paragraphs. Although some of healthcare's major players have moved forward, many do not have the necessary talent, operations, and technology in place to fully realise value from integrated ecosystems (Singhal, Kayyali, Levin, & Greenberg, 2020). This assumption would be untrue if there was no relationship between CL and OSS. However, if the relationship was positive, then implementation of CL and OSS would result in inspirational leadership that impacts the bottom line.

There have been several studies on agile, lean and leagile systems in healthcare (Akmal, Greatbanks, & Foote, 2020; Mishra, Samuel, & Sharma, 2018; Tolf, 2017; Wikner, Yang, Yang, & Williams, 2017; Williams, 2017); however, no studies could be found where CL and OSS were combined in a single study. My personal experience as ICU trained registered nurse and shift leader at several ICU's in Johannesburg, South Africa, confirmed that the combined principles of CL and OSS were not applied in private hospitals. The scarcity of such information is regrettable since understanding their impact could provide guidance to hospital leadership in identifying the required leadership and approach to OSS needed to prepare hospitals for change (De Raedemaecker, Handscomb, Jautelat, Rodriguez, & Wienke, 2020).

Is there a relationship between the type of leadership that is displayed and the operational systems and structures that are implemented in organisations? This study explored the relationship between Hospital Displayed Leadership (HDL) and Hospital Operational Systems and Structures (HOSS). It measured how the HDL and HOSS compared with CL and OSS. Furthermore, this study established whether clinical and non-clinical employees had differing views on how they experienced HDL and H. The study also inquired if managers and non-managers had different views regarding HDL and the implementation of HOSS. Lastly, this study attempted to clarify the drivers contributing to the relationship between the HDL and

HOSS. Furthermore, the study sought to understand the impact of these drivers and to suggest possible solutions for industry change.

On 11 March 2020, the World Health Organization (WHO) had declared COVID-19 a global pandemic (Cucinotta & Vanelli, 2020). COVID-19 is a severe respiratory syndrome caused by coronavirus 2 (SARS-CoV-2), resulting in viral pneumonia, severe illness and death in humans (Ng et al., 2020). As a result of the COVID-19 pandemic, the fieldwork for this study was performed in 2020 in its midst. South Africa was the country on the African continent that was the hardest hit by the COVID-19 pandemic (Worldometers.info, 2021). Because of the impact of the COVID-19 pandemic on hospitals in South Africa, the pandemic became an extraneous variable to this study, impacting the hospitals that agreed to participate in the direct sample, as well as impacting the number of participants that accessed LinkedIn and agreed to participate, as hospitals staff worked a lot of overtime at the time. The impact of COVID-19 on the HDL and HOSS was therefore also measured.

1.1 PURPOSE OF THE STUDY

The purpose of this study was to critically examine whether private hospitals in South Africa are positioned for adaptability considering CL and OSS (agile, lean and leagile). Therefore, the objective of this research was to investigate the relationship between the HDL and HOSS, identify whether it is aligned to the framework of CL and OSS, understand why the results occurred, and recommend what could be done to enhance the alignment of HDL and HOSS with CL and OSS for private hospitals adaptability. An additional objective was to take cognisance of the impact that the COVID-19 pandemic had on HDL and HOSS.

1.2 CONTEXT TO THE STUDY

Healthcare is one of the sectors for which the acronym VUCA is very apt (Turner, 2018). Hospitals often face increasing regulatory demands, decreased reimbursement, and raised expectations for efficiency (Stargell & Heatherly, 2018). Additionally, patients' needs are becoming more complex, with higher expectations within the context of the rapid increase in technological solutions (Rogers, 2017). The ultimate goal of healthcare leaders is to strengthen the provision of quality healthcare daily; reduce harm; and improve patients' safety (Hartviksen, Aspors, & Uhrenfeldt, 2019).

This study was conducted in private hospitals in South Africa, in all provinces and amongst all levels of skilled and highly skilled employees. The global and African healthcare context impacts healthcare in South Africa. In chapters 3 and 4, the global and South African healthcare landscape will be explored in greater detail by focusing on the factors that

contribute to the complexity of the industry in South Africa. In the following section, a brief introductory overview is given of both.

1.2.1 The global healthcare landscape

The global healthcare landscape is complex. A number of factors make global healthcare challenging, namely: increases in the world population; as well as ageing, increased incidence of chronic diseases, the impact of poverty, and significant advances in innovative but expensive technologies (Deloitte, 2019). In addition, by 31 March 2021, more than 150 million people worldwide had contracted the COVID-19 virus, with over three million that have succumbed to the virus (Worldometers.info, 2021). This added considerably to the challenges being experienced by the global healthcare industry.

The World Health Organization (2019c) launched in 2010 an initiative for the implementation of Universal Health Coverage (UHC) to provide preventative, curative, promotive, rehabilitative and palliative healthcare services worldwide. The United Nations (2015) Sustainable Development Goals (SDGs), which aim by 2030 to rid the world of poverty, hunger and the effects of climate change, state, as Goal No. 3, that all are entitled to good health and well-being (United Nations, 2020b). Therefore, global healthcare is a complex field with high expectations from global interest groups to create a healthier global population. (Chapter 3 has a comprehensive discussion of the challenges facing global healthcare.)

1.2.2 The South African healthcare landscape

As a subset of global healthcare, the South African healthcare landscape is also a complex industry with numerous challenges and is currently undergoing considerable change. Some of the factors influencing the South African healthcare landscape and that will be addressed in this study are:

- The significant inequality between the public and private healthcare systems (Groenewald, 2017),
- The socio-economic factors impacting healthcare (Burger & Christian, 2018),
- The legacy of apartheid (the historical segregation of non-white citizens) (History.com, 2010),
- Planned legislative changes which will disrupt the reimbursement and referral models of private hospitals, private practitioners and private insurance (Blecher et al., 2019; Child, 2020; Malan, 2019; Solanki, Cornell, Besada, Morar, & Wilkinson, 2020),
- The increasing life expectancy and ageing of the South African population (Solanki, Kelly, Cornell, Daviaud, & Geffen, 2019),

- Increase in non-communicable diseases (Rheeder, Morris-Paxton, Ewing, & Woods, 2017), and
- Pandemics (United Nations, 2020a; Worldometers.info, 2021)
- The lack of competition (Competition Commission of South Africa, 2019)
- Pressure from international groups and government to change funding models (Blecher et al., 2019; Nkonki, Bhengu, Ramokgopa, & Fonn, 2019)
- The current hospital structure with the government's pressure to stop unhealthy financial incentives (Competition Commission of South Africa, 2019)
- Insufficient number of well-qualified healthcare practitioners (Competition Commission of South Africa, 2019; Mlambo & Adetiba, 2017)
- Leadership approach of private hospitals in South Africa and its impact on developing a specific management and leadership culture in hospitals (Combrinck, 2018; Naicker, 2018).

All these factors mentioned have been extensively analysed and discussed in greater detail in chapters three and four.

1.3 RESEARCH PROBLEM

The research problem was defined as: Are private hospitals in South Africa positioned for adaptability, from leadership and operational systems and structures perspective, to respond to significant exogenous pressure, both in a proactive or reactive way?

Two major research projects (Brauns, 2016; Maphumulo & Bhengu, 2019) have highlighted a critical healthcare issue in South Africa: The current South African healthcare system is unsustainable in its current form and is in urgent need of substantial transformation (Groenewald, 2017). The South African Government and various other researchers have highlighted the disparities and unequalness of the healthcare system (Brauns, 2016; Maphumulo & Bhengu, 2019; Presidential Health Summit, 2018), while the Competition Commission of South Africa has highlighted the exclusive, expensive and uncompetitive nature of the private healthcare sector (Competition Commission of South Africa, 2019; Nkonki et al., 2019; Solanki et al., 2020). Currently, the healthcare system still only works for a small portion of the South African population, whilst, from a healthcare point of view, most of the population is vastly underserved (Burger & Christian, 2018).

As set out by the South African Government (Presidential Health Summit, 2018) and the Competition Commission of South Africa (2019), the solution to this situation is to radically change the South African healthcare system to that of a National Healthcare Insurance (NHI) System, with universal access to quality affordable healthcare (Parliament, 2020). The South

African Government has already committed itself to the implementation of an NHI system and has taken legislative steps to pursue the NHI goals. The problem, stemming from the NHI initiative, is to what extent is the private healthcare sector, and specifically private hospitals, ready to adapt to the substantial changes that they will soon face? Additionally to the NHI, does the industry have several disruptive challenges that will need an extensive change in leadership and operational systems (Section 1.2.2), as well as the additional challenge that the COVID-19 pandemic placed on the industry (Timeslive, 2020; Worldometers.info, 2021).

Are private hospitals leaders and systems and structures positioned to deal with the looming disruption? Is there a relationship between the type of leadership that is displayed in the private hospitals and the processes that are followed with the implementation of operational systems and structures in the hospitals? Do private hospitals in South Africa have the right type of leadership approach and approach to the implementation of operational systems and structures that are needed to successfully lead hospitals during the disruption that is expected? What type of leadership and implementation processes would be ideal to lead private hospitals during this time of disruption?

1.4 RESEARCH QUESTIONS

One of the approaches to integrate a quantitative and qualitative study in a mixed-methods approach is to have explicit mixed-methods research questions that integrate the results from the quantitative and qualitative questions. The research questions in this study follow the same approach.

Following the theoretical literature review and the study's presented conceptual framework, the main research questions have been established to guide the study design, data collection, and data analysis. Some of the research questions will be answered during the quantitative phase, some during the qualitative phase with specific integrative research questions in the integration phase:

- RQ1 What is the relationship between the HDL and the principles of CL, and the relationship between the HOSS and OSS principles, as defined in this study, in private hospitals in South Africa?
- RQ2 What is the difference between the impact of HDL on HOSS and the impact of HOSS on HDL in private hospitals in South Africa?
- RQ3 Is there a difference in the relationship between managers and non-managers towards HDL and HOSS in private hospitals in South Africa?

RQ4 Is there a difference in the relationship between clinical and non-clinical employees towards HDL and HOSS in private hospitals in South Africa?

Additionally, did the conceptualisation of the interaction between CL and OSS, comparing it to HDL and HOSS, require a qualitative inquiry in understanding the following research questions. Part of these answers was also related to the quantitative questions:

RQ5 Understanding what the drivers are that contributed to the quantitative results?

RQ6 What are the recommendations by employees (managers and non-managers) for possible HDL and HOSS changes in private hospitals in South Africa?

RQ7 What is the participants' experience of the impact the COVID-19 pandemic had on HDL and HOSS in private hospitals in South Africa?

The third phase of the study integrated the quantitative and qualitative results and answered the following question:

RQ8 Are CL and OSS, as defined in this study, displayed in the private hospitals in South Africa?

RQ9 What recommendations can be offered to the private hospital industry in South Africa to increase adaptability as a reaction to the increased disruption.

The abovementioned research questions guided the researcher in this study through the research methodology, data collection and analysis. They provided detailed descriptions of CL and OSS's complex interaction, which was the study's aim.

1.5 THE SIGNIFICANCE OF THE STUDY

This study's significance has considered the incremental and revelatory originality, the practical and scientific utility, and the possible impact on future trends in the field of management science (Corley & Gioia, 2011).

Belrhiti et al. (2018) reported that only a few empirical studies on CL in healthcare exist. Almost all were done in the Northern Hemisphere (mostly the United States and the United Kingdom) at the micro-, meso- and macro-level. Nzinga, McGivern, and English (2018) agreed, stating that minimal leadership studies in healthcare have been done in countries with low- and middle-income levels. Several recent academic leadership studies were identified in public hospitals in South Africa (Doherty, Gilson, & Shung-King, 2018; Kelly, Mrengqwa, & Geffen, 2019; Mathole et al., 2018; Mhlanga & Garidzirai, 2020; Shung-King et al., 2018). However,

in private hospitals in South Africa, only a limited number of leadership studies could be identified (Combrinck, 2018; Maphumulo & Bhengu, 2019; Mbebw, 2019; Naicker, 2018). In addition, in private hospitals in South Africa, no studies exploring CL and OSS (agile, lean and leagile) could be found. Furthermore, no international studies could be found that have explored the relationship between the complex concepts of HDL and HOSS. Therefore, this study is unique in this regard and will contribute to the rapidly evolving body of knowledge regarding CL and OSS in private hospitals and whether the displayed HDL and HOSS's are aligned with CL and OSS principles.

This study will have great value not only to policymakers in private hospitals and public hospitals, as leadership has been identified as the critical challenge experienced by healthcare in low- and middle-income countries (Doherty et al., 2018). Furthermore, is it imperative for organisations in complex industries experiencing disruption to implement adaptability for sustainable change, which is a challenge for the leadership. The results of this study will, therefore, be very significant for policymakers in such complex industries as a guideline of the leadership changes needed to facilitate change (Schulze & Pinkow, 2020).

The World Economic Forum's (WEF) 2019 Global Competitiveness report (Schwab, 2019) identified healthcare as one of the 12 pillars representing the complex drivers for productivity and a competitive ecosystem. This report argues that global trends, such as competitiveness; technology-based solutions; agility; and a future-readiness approach, are essential to enable organisations and countries to compete internationally (Schwab, 2019). Therefore, this study has made a significant contribution in assisting private hospital groups in developing countries to understand the HDL and HOSS and the alignment with CL and OSS.

The urgency for change in the South African healthcare sector is evident in the World Economic Forum's 2019 competitiveness report (Schwab, 2019) that ranked the overall global competitiveness of South Africa as 67th out of 140 economies, five places lower than in 2017. On healthcare, South Africa was ranked a poor 127th, three positions lower than in 2017 (Schwab, 2019). This report should be seen in the context of the vast inequality that exists in South Africa in general but in particular in the healthcare sector. This is furthermore exacerbated by the inequality between public healthcare and private healthcare. Inequality is also highlighted in the World Economic Forum's 2019 Global Competitiveness Report (Schwab, 2019), which identified South Africa as the most unequal country in the world. The WHO identified the health workforce, and leadership and governance within health systems, as two of the six pillars, to achieve healthcare change in the world (World Health Organization, 2007). Poor healthcare leadership is mentioned as a specific weakness of the South African healthcare system, impacting the strategic and operational execution of health services,

despite sufficient resources (Doherty et al., 2018). The healthcare industry requires the highest leadership and stewardship level to improve what the current healthcare system offers the population (Presidential Health Summit, 2018). Therefore, it is relevant that a study of this nature was conducted in South Africa, where leadership for healthcare change is essential.

A large part of this study's data collection occurred during the peak of the COVID-19 pandemic in South Africa and the world. COVID-19 has been categorised as the most destructive infectious illness globally over the past 100 years (Barach et al., 2020), which disrupted health services partially or wholly in several countries (Brunier & Harris, 2020) and exposed whether organisations can survive in the VUCA world. This study has identified what leadership skills will result in a higher implementation of OSS, which is inevitable for dealing with disruptive events.

This study will aim to provide new conceptual models and new leadership guidelines for the transitioning process of applying CL in private healthcare to implement agile, lean and leagile OSS. This study's outcome could provide insight to organisations in developing countries on adapting to the changing market environment and for healthcare organisations to become increasingly agile, lean and leagile in dealing with healthcare challenges.

1.6 DELIMITATIONS OF THE STUDY

This study focused on the three larger private hospital groups in South Africa and the NHN group of hospitals. This study sought to engage all these hospitals at both the head office and hospital level, engaging with employees performing clinical and non-clinical functions. This study did not compare the different hospital groups with one another but rather focused, at an aggregate level, on the data from all the hospital groups. This study was only undertaken in the selected groups of private hospitals in South Africa. The differences between the public and private sectors in South Africa and differences between the private hospitals in South Africa and other countries are not evaluated in this study.

This study did not perform an in-depth analysis of the principles and application of CL or OSS but rather focused on the correlations between these two high-level constructs. Furthermore, did this study focus on the central tenets of CL and did not include or exclude any related additional schools of thought within Complex Leadership Theory.

Although this study explored some of the historical background influences that have contributed to the current differences between public and private healthcare in South Africa, current political thinking, other than stated government policy, was not considered. Furthermore, the researcher deliberately did not explore the unionised nature of healthcare

employees, nor the impact of gender differences on healthcare leadership and racial considerations impacting on private hospitals in South Africa. The topics of unions, gender and race, would have added additional complexity to a study that was already very complex. These issues are all major research areas in their own right. To have included them in this study would have further unnecessarily complicated an already complex study.

1.7 ASSUMPTIONS

This study's assumption was that the participants who completed the self-assessment survey were honest and truthful in the answers provided.

At the start of the study, assumptions were made about the conditions under which the field research would be undertaken. At that stage, COVID-19 was an unanticipated complication to its completion. However, the new context of the presence of COVID-19 enriched the overall insights gained by the study.

As mentioned in the introduction, the initial argument of the study was that there is a relationship between the individual constructs of CL (Uhl-Bien & Arena, 2018) and OSS (Tolf, 2017). A secondary assumption was that the implementation of CL and OSS in private hospitals in South Africa would lead to inspiring leadership. This argument was based on the assumption that the initial argument of the relationship between CL and OSS was true. This assumption would be untrue if there was no relationship between CL and OSS. However, if the relationship was positive, then implementation of CL and OSS would result in inspirational leadership that impacts the bottom line.

1.8 ORGANISATION OF THE STUDY

The study will be organised in the following chapters.

Chapter 1 in the introductory chapter explains the purpose and context of the study, followed by the research problem, research questions and a discussion on the significance of the study. Chapter 2 is the literature review that is a comprehensive discussion of CL in general and healthcare leadership specifically, followed with a section on the discussion of OSS in general, with a focus on agile, lean and leagile, followed by a discussion on OSS in healthcare specifically. Chapter 3 explores global and emerging trends, while Chapter 4 traces South African healthcare.

Chapter 5 details and discusses the research methodologies used and applied in this study, including an exposition of the theoretical framework as applied in the research. The results of the quantitative and qualitative phases and the integrated results were reported in Chapter 6.

This study concluded with Chapter 7, in which the study results and conclusions of the study were discussed.

1.9 CONCLUSION

The current healthcare landscape has been described as a VUCA landscape that is complex, fragmented and diverse. Increased complexity on multiple levels, namely: under-funding, cost pressures, limited human resources, pandemics, poverty, and other complexities, has resulted in the traditional business and leadership models becoming increasingly ineffective. The South African healthcare industry is even more complex due to historical inequalities prevalent in South African society, namely: poverty; pandemics (e.g., COVID-19); diseases such as HIV and TB that are highly prevalent in South Africa; NCDs; and the increased life expectancy of the population that puts pressure on the system due to a bigger percentage of the population being of older age. Legislative complexity and policy uncertainty have also increased, especially since the introduction of the NHI legislation, MSA Bill and the HMI report.

Chapter 1 questioned whether private hospitals in South Africa are positioned for adaptability, considering CL and OSS. The legacy of the South African political system, such as apartheid and the subsequent inequalities in healthcare, as well as the inability of the South Africa government to significantly reduce inequality in healthcare over the past 30 years, have contributed to the current situation. The research problem in this study stems from the nature and level of adaptability that the private healthcare sector will require when considering the challenges and the urgent need for change in the wider healthcare sector.

Sustainable organisational performance in complex organisations can only occur by applying exploration and exploitation in organisations through the display of transformational and transactional leadership. Leadership impacts business performance. As a leadership framework, CL combines entrepreneurial leadership, operational leadership and enabling leadership as a suggested leadership solution for organisations functioning in complex environments. The researcher made the terms: operational systems and structures (OSS), as the suggested group term for agile, lean and leagile operational systems and structures. This study explored the relationship between CL and OSS displayed in hospitals and whether they aligned with CL and OSS's frameworks as outlined in this study. This study also determined whether managers and non-managers and clinical and non-clinical employees had different views on the relationship between CL and OSS. Furthermore, this study identified the drivers contributing to CL and OSS's relationship, sought to understand why the contribution occurred, and attempted to identify what could be done to change the relationship.

Because the data collection for this study occurred during the peak of the first wave of the COVID-19 pandemic, the impact of the pandemic on HDL and HOSS was identified.

This study is significant since the number of leadership studies that have been undertaken in private hospitals in South Africa is limited. Furthermore, no studies could be found in South Africa that has explored CL or OSS (agile, lean and leagile) in healthcare, and no international studies could be found that have explored the relationship in healthcare between CL and OSS. This study will assist private hospitals in developing countries to understand the relationship between HDL and HOSS and the alignment with CL and OSS. In South Africa, where healthcare change needs to urgently happen, as identified by the WHO and the South African government, a study of this nature is very relevant. The COVID-19 pandemic further highlighted the urgent changes that are required and the need to expand the body of knowledge around leadership and OSS in healthcare, especially in South Africa.

The literature review that follows in the next section will expand the theoretical models that have been applied in this study, followed by a discussion on leadership in complex organisations and some leadership styles that applied to this study. This will be followed by a comprehensive discussion on all the elements and sub-elements of the construct of CL, criticism of CL, communication in leadership, and healthcare leadership. Next will follow a comprehensive discussion of the concepts of agile, lean and leagile, and the underpinning principles that forms OSS. OSS in healthcare will be discussed, as well as criticism of the OSS. In addition, also presented in the next chapter are the conceptual models of CL, OSS, and the overall study conceptual model. This chapter concludes with a discussion on creating the adaptive space in organisations.

CHAPTER 2: LITERATURE REVIEW

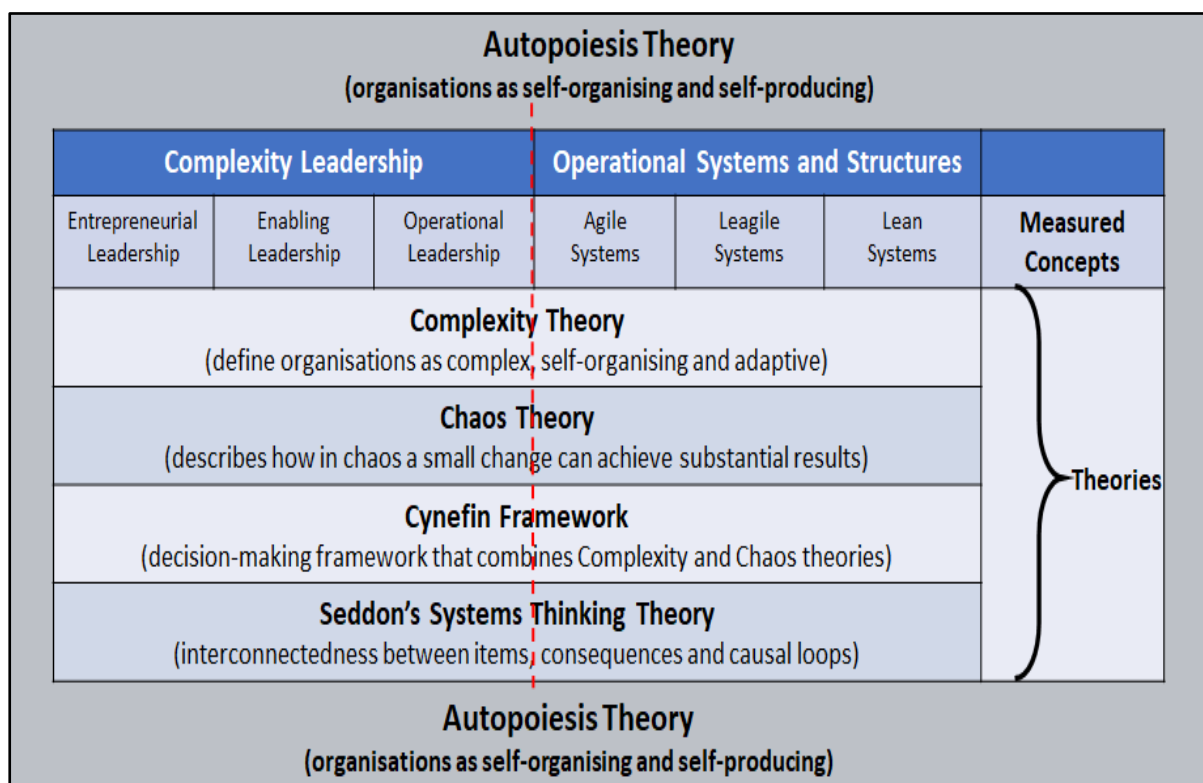
The literature review's function is to display an understanding of the topic, share the previous research from literature, and create a dialogue on the critical issues relating to it (Hart, 2018). This literature review consists of four sections, namely: i) a discussion on the theories that apply to this study; ii) a section exploring leadership in complex organisations; iii) operational systems and structures, and iv) the overall conceptual model of the study. This chapter will be concluded with a section on creating the adaptive space in organisations.

2.1 THEORETICAL FRAMEWORK

The theoretical framework guides the researcher in choosing the research approach and analytical procedures and by linking different theories to the constructs' foundational knowledge (Adom, Hussein, & Agyem, 2018). Bacharach (1989), as cited by Matthews, Power, Touboulis, and Marques (2016), defined theory as the relationship amongst concepts within the boundaries of set assumptions and specific constraints.

This study entails integrating theories from three different schools of thought within the encompassing Autopoiesis Theory framework: the school of biologics/life sciences, social sciences and economics, combined to form the theoretical framework for this study, as displayed in Figure 2.1.

Figure 2.1: Theoretical framework

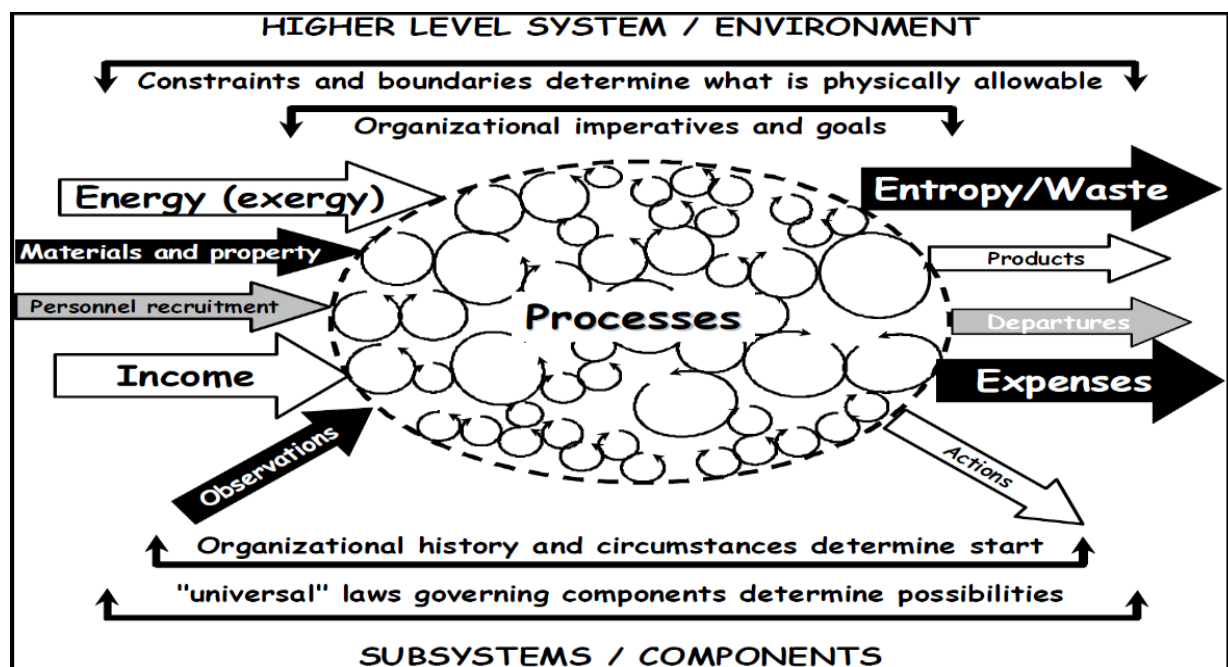


Complexity leadership (CL) and operational systems and structures (OSS) are generally complex systems. Combining these two topics into a single study requires a pragmatic approach in which a variety of theories will be integrated to synthesise a new whole. The approach was to individually rely on the key foundational theories of each while simultaneously integrating several theories, such as Complexity Theory and Chaos Theory. This approach has limited the number of required theories to five, displayed in Figure 2.1.

2.1.1 Autopoiesis Theory

This study's overarching theory is the Theory of Autopoiesis (Varela, Maturana, & Uribe, 1974), initially developed as a theory in biology, which made a distinction between non-living and living systems. This theory suggests organisations are similar to human body cells affected by the environment, develop relationships, interact with one another and organise themselves as more complex structures (Żytniewski, 2018). An autopoietic organisation is a unit with a network of components that recursively participates in the network from where it was produced and creates the network of components within the space where it exists (Varela et al., 1974). Autopoietic systems are, therefore, self-producing and self-organising by how they structure the elements and processes. Furthermore, they exist in a specific environment and create a relationship with the environment in which they exist (Czarniawska, 2017). Figure 2.2 depicts the main concepts of an organisation as an autopoietic entity.

Figure 2.2: Autopoiesis Theory for organisations



(Source: Nousala, Hall, and Hadgraft (2011).)

Figure 2.2 displays an input of material, energy and personnel into the organisation with an output of waste, product and expenses. Organisational imperatives and goals; physical constraints and boundaries; organisational history and universal laws; govern the component influence of an organisation's external environment (Nousala & Hall, 2008).

Varela et al. (1974) identified six criteria a system must display for it to be an autopoietic system.

1. Identifiable boundaries: self-identifiable boundaries define the entity.
2. Components: the entity is formed by components that can be described.
3. Mechanistic: do the properties of some components satisfy relationships that determine interactions and transformation of the specific components.
4. Neighbourhood relations: do the components that form the boundaries of the entity have preferential neighbourhood interactions and relationships between themselves.
5. Self-producing: are components of the entity produced through the transformation of components that were previously produced or by transforming with components that newly entered the entity.
6. Autonomous: the entity produces new components through interacting with other components.

Only if all six situations described above occur in a system is it autopoietic (Varela et al., 1974). Complex organisations meet the above-mentioned criteria. Hospitals are regarded as complex organisations (Khan et al., 2018) and, therefore, can be regarded as autopoietic entities. An organisation, which exists as a social construct and displays the above characteristics, is an autopoietic system (Żytniewski, 2018). Leadership and operations are integral to the maintenance of the Autopoiesis in an organisation and in maintaining the principles of self-producing and self-organising within the relationship with the external environment (Czarniawska, 2017). Accordingly, Autopoiesis is the foundational theory for this study.

2.1.2 Complexity Theory

Complexity Theory is an overarching term for various concepts with similar shared assumptions (Kallemeyn, Hall, & Gates, 2020). Complexity Theory developed in the 20th century with three distinct waves that rolled into General Systems Theory, Chaos Theory and Adaptive Systems Theory (Simon, 1969, as cited by Rosenhead, Franco, Grint, & Friedland,

2019). The Complexity Theory field focuses on specific systems' behaviour over time (Rosenhead et al., 2019). It defines a living organism as complex, self-organising, and adaptive to want to turn every situation to its advantage (Waldrop, 1992). Therefore, this theory defines organisations as complex systems that are self-organised, non-linear and display emergence and behaviour that is both predictable and non-predictable (Rosenhead et al., 2019). Organisations are resilient and robust, with a diversity of agents that interact with each other and impact one another with new spontaneous behaviour, which changes the system as a whole (Barasa, Molyneux, English, & Cleary, 2017).

Complexity Theory is the interdisciplinary intersection between social science, natural science and mathematics (Downey, 2016) with behaviour and organisational structure that are products of surprise and non-linearity (Marion & Uhl-Bien, 2001). Within Complexity Theory, the original elements can never be decomposed to their original parts and therefore, a constant emergence, which is the process where individuals influence the perceptions of others (Acton, Foti, Lord, & Gladfelter, 2019), is the unexpected result (Uhl-Bien & Arena, 2017). The most common approach within organisations to deal with complexity is to implement order and hierarchical solutions. The ideal approach to deal with complexity is to beat complexity with complexity (Uhl-Bien & Arena, 2017). Complexity theory does not have a specific focus on the impact that small changes can have on the final result within a challenge.

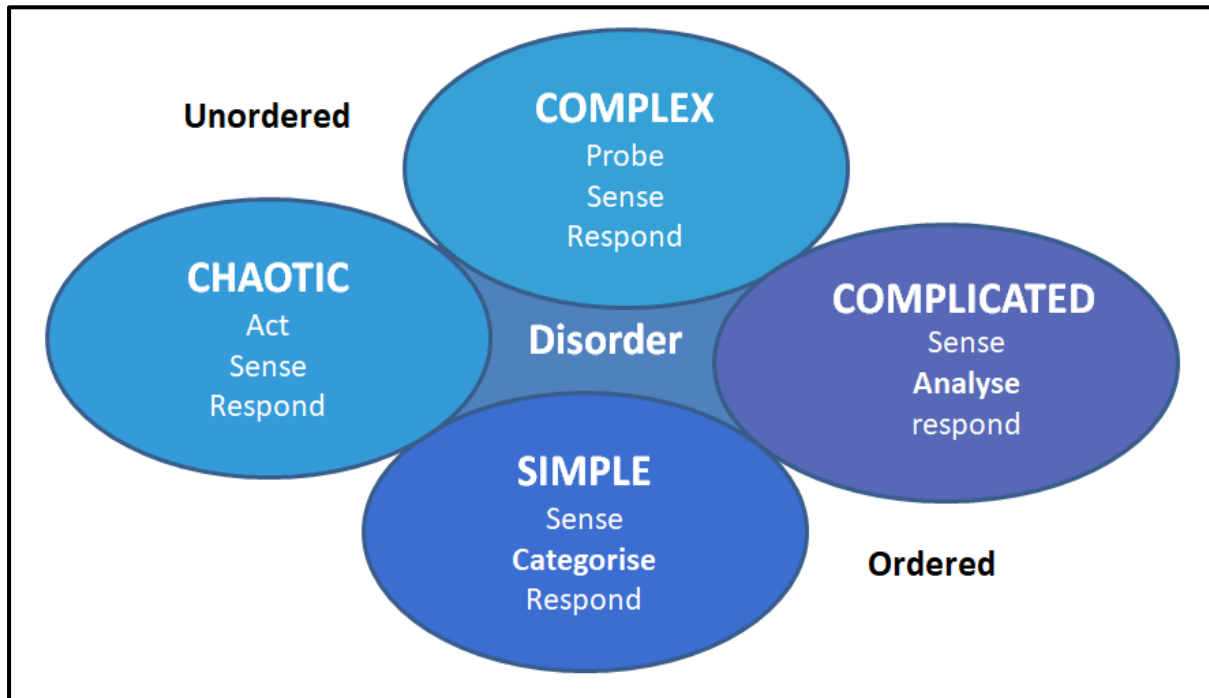
2.1.3 Chaos Theory

Poincaré (1905) was one of the first authors to recognise Chaos Theory, which originated from mathematics. The theory was officially named by Lorenz (1972), who stated that a balance must be achieved between too much and too little control at the edge of chaos. Chaos Theory claims that when a small change occurs within a complex system, it could have a disproportionate result (Lorenz, 1972), meaning that within complex organisations, impactful results can be achieved by small changes (Obolensky, 2016). Chaos Theory is a theory relating to complex systems. Although they contain regularities, these systems defy predictions since Chaos Theory applies to non-linear dynamic systems with both positive and negative feedback loops (Rosenhead et al., 2019). This principle, where a small change at the starting point can give a vast difference in the result, is called the 'butterfly effect' (Obolensky, 2016; Tourish, 2019). This effect has a strong effect on organisations and in the creating and implementing of change in complex organisations

2.1.4 Cynefin Framework

The Cynefin conceptual framework was developed from Complexity Theory and Chaos Theory for 'time and place', guiding leaders on decision-making in complex situations (Kempermann, 2017, p. 2). This model compares complexity to other states and advises that the degree of cause and effect will determine the predictability, which then impacts which approach to follow (Obolensky, 2016). Figure 2.3 below displays the Cynefin framework:

Figure 2.3: The Cynefin framework



(Source: Snowden and Boone (2007).)

The four situations displayed in Figure 2.3 can be defined as follows:

- Simple: Cause and effect are known, resulting in high predictability.
- Complicated: Cause and effect are known, but no clear linkages exist, and, therefore, analysis is needed to find the solution.
- Complex: A combination of cause and effect occurs with several interconnected agents creating an unpredictable network.
- Chaotic: Cause and effect cannot clearly be distinguished; however, this seldom occurs (Obolensky, 2016).

The correct decision-making approach for a specific situation is an important part of leadership and of the implementation of change during disruption. As displayed in Figure 2.3, simple and complicated situations are based on an ordered universe with a clear relationship between cause-and-effect and a solution based on facts. The complex and chaotic relationship has no clear relationship between cause and effect, and the answer is an emerging pattern within an unordered universe. When disorder occurs, multiple solutions could apply, resulting in conflict between leaders. The best solution during disruption is to break the situation's details into the other four contexts and then use those rules (Snowden & Boone, 2007).

2.1.5 Seddon's Systems Thinking Theory

A system is a set of items/actions that purposefully work together, as part of an interconnected network or mechanism, to form a complex whole (Faulkner & Nicholson, 2020), for example, CL and OSS. The Systems Thinking Theory of Seddon (2002) regards interconnectedness to be more important than the individual parts. Furthermore, where there is interconnectedness, there are several consequences (Seddon & Caulkin, 2007). A services organisation is a system that brings intangible things together with a large variety according to the demand of the customer (Seddon, 2002).

An essential aspect of this theory is feedback, whether it is positive feedback (self-reinforcing) or negative feedback (self-correcting) (Seddon & Caulkin, 2007). These feedback loops are vital for learning and solving problems that are part of systems thinking (Williams, 2017). In reviewing a system, the system's context and the actors within the system must be reviewed (Faulkner & Nicholson, 2020). In services organisations, there are two types of demand, namely: Value demand (the service that is provided); and failure demand (the service that is not provided) (Seddon & Brand, 2008). Therefore, the boundaries of the system must be clearly defined (Williams, 2017). This theory supports studying the demand from the client's perspective so as to understand the request and find the best, most efficient and effective way to service the market (Seddon & Brand, 2008).

For this study, all five mentioned theories were combined as the foundation for the development of the theoretical model of this study. The Autopoiesis Theory forms the foundation of this study, with Complexity Theory and Chaos Theory specifically explaining complexity and chaos. The Cynefin framework explains decision-making in complicated and complex situations, whilst Seddon's Systems Thinking focuses on the interconnectedness of networks with a specific focus on service organisations. These theories will now be expanded on in the literature review sections that follow.

2.2 LEADERSHIP

The following section will explain the principles for leading complex organisations, discuss leadership styles applicable to this study, and discuss some paradigms within Complexity Leadership Theory. A deep-dive discussion will follow of CL and the criticism of CL, understanding communication in leadership, and a discussion on leadership in healthcare. Explaining the conceptual model for the leadership framework that applies to this study will conclude the leadership section.

2.2.1 Leadership in complex organisations

Turner (2018, p. 3) defines leadership as: "the act of engaging others to come together in the quest for a common objective, wherever the objective resides in the organisations' structure and whoever takes responsibility for delivering it through people". Hazy, Goldstein, and Lichtenstein (2007) view leadership as the interactions between agents leading to changed ways of interaction, with effective leadership occurring if the changes increase the system's fitness. Healthcare is a complex system due to multiple interdependencies, the constant oscillation between chaos and stability, and numerous interactions that increase uncertainty (Khan et al., 2018).

Organisations are complex systems of ever-changing networks of relationships (Hogue & Lord, 2007, as cited by Tourish, 2019), where a traditional approach with a linear focus on order and control often worsens things (Uhl-Bien & Arena, 2017). This lead to increased hierarchical structures where employees either do not have the time to focus on innovation or view innovation as pointless within the bureaucratic structures (Uhl-Bien et al., 2020). Because employees often were not exposed to anything else, they never learnt to be adaptive. They can only function within the strict ambit of hierarchies and centralised decisions (Uhl-Bien, 2020b).

Rapidly changing markets demand a new generation of leaders with different skills and competencies (Groves, 2018). Emerging leadership will develop when the agents (technology, people, information, resources) within a networked system can develop within the organisation's current complexity (Acton et al., 2019). The organisation needs to have a polyarchic system, which is a fusion of anarchy (chaos) and oligarchic (autocracy) (Obolensky, 2016), aiming for adaptability, flexibility and the empowering of the people and the organisation (Uhl-Bien & Arena, 2018).

Creating organisational change for adaptability is primarily a leadership challenge to achieve adaptability and long-term survival (Schulze & Pinkow, 2020). The hospital focus on continuity and operational capabilities must shift to discontinuity and adaptive capabilities (Tolf, Nyström,

Tishelman, Brommels, & Hansson, 2015). Role-based leadership, which is based on an individuals' role, must become action-based leadership that is distributed between all agents in a group (Khan et al., 2018). The adaptability in complex organisations is paradoxical, needing sound analysis and quick decision, decentralised and centralised decision-making, bureaucracy and innovation (Janssen & van der Voort, 2020).

2.2.2 Leadership styles related to this study

Several leadership styles exist that can be positive, inspirational and heroic, or negative, destructive and non-heroic (Campbell, 2020). For this study, only absent (*laissez-faire*), transformational and transactional leadership styles will be discussed (Bass & Riggio, 2006).

Absent leadership is the avoidance of leadership and is regarded as the most ineffective of all leadership styles (Bass & Riggio, 2006). This leadership style includes neglecting workplace problems, lack of communication, not modelling appropriate workplace behaviour, avoiding decisions, lack of reward or punishment, not stepping in during conflict, absence of feedback, abdicating responsibility, and does not encourage personal and professional growth (Campbell, 2020). Absent leadership results in role ambiguity; role overload; and role conflict, which all negatively impact employees' overall well-being (Barling & Frone, 2017).

Absent leadership is a destructive style that leads to low employee engagement, low motivation, poor performance, role conflict, higher levels of burnout, poor employee mental health, and corporate bullying since no reward or punishment is given or meted out (Campbell, 2020). This leadership is the main reason why co-worker conflict develops into bullying (Ågotnes, Einarsen, Hetland, & Skogstad, 2018). Some people interpret absent leadership not as passive (avoidant) leadership but as a leadership style of actively delegating authority towards the follower (Wong & Giessner, 2018).

Transformational leadership is a moral type approach that raises ethical aspirations and human action, transforming the follower and leader (Adserias, Charleston, & Jackson, 2017). Transformational leadership inspires and engages the team members to achieve more than what they believe they could achieve by being a role model, sharing the vision, setting high standards, and supporting the individual's development (Deichmann & Stam, 2015).

Transformational leadership is regarded as a better leadership style, focusing on the followers' motivation and development, since followers need an inspirational leader who can challenge and empower them (Bass & Riggio, 2006). Transformational leadership is based on idealised influence, intellectual stimulation, inspirational motivation and individual consideration (Witges & Scanlan, 2014). Transformational leaders are sensitive to followers' needs, grow and align the follower, leader, team and organisation (Bass & Riggio, 2006). Transformational

leadership inspires the team past their self-interest to a vision aligned with the organisation's mission and vision (Witges & Scanlan, 2014). Transformational leadership increases the self-worth of the follower and engages the follower with involvement and true commitment, supporting followers to develop into leaders (Bass & Riggio, 2006).

Transactional leadership is based on a relationship between followers and leaders founded on the exchange of valued things, which could be political, psychological or economic, built on the principles of honesty and trust within a culture of order (Adserias et al., 2017). Transactional leadership is a leadership style where the leader clearly defines the expectations relating to the exchange relationship between the leader and team member with clear reward and punishment depending on the followers' performance (Deichmann & Stam, 2015). Transactional leadership is often experienced as a 'cold' (i.e. unemotional/unconnected) leadership, focusing on operational tasks, leading through social exchange and reward with financial benefits for productivity (Bass & Riggio, 2006; Witges & Scanlan, 2014). The transactional leader will reward or discipline the follower according to their performance (Bass & Riggio, 2006). In transactional leadership, good performance rewards are financial rewards (Bass & Riggio, 2006).

There is a positive relationship between transactional leadership, transformational leadership, and job satisfaction. However, absent leadership can result in decreased job satisfaction (DeLay & Clark, 2020). The most effective leader blends transformational and transactional leadership (Witges & Scanlan, 2014) since both leadership styles are important (Deichmann & Stam, 2015).

2.2.3 Approaches within the field of Complexity Leadership Theory

Complexity Theory that is applied in the field of leadership resulted in Complexity Leadership Theory (Rosenhead et al., 2019). Within Complexity Leadership Theory, a variety of approaches have been developed, and the most important paradigms will be discussed.

Complex adaptive leadership derives the name from complex (it functions in the context of complexity) and adaptive (the leader and followers must adapt to variable, unpredictable situations), with the most significant premise being the polyarchic approach (many leading many), rather than an oligarchic approach (one leading many) (Apenko & Chernobaeva, 2016; Obolensky, 2016). Complex adaptive leadership has strong ties with Taoism. Therefore, it supports the saying: "The best leader is the leader whom the people hardly know exists, but when the task is completed, the people are happy, saying: 'we did it ourselves' " (Obolensky, 2016, p. 6).

The leadership approach discussed above has a strong relationship to the Yin/Yang philosophy, with Yin being the female, soft, enabling and non-deterministic part of leadership. Yang is the male, rigid, controlling and deterministic part of leadership. This is aligned with the dualistic approach of chaos and order, complexity and simplicity (Obolensky, 2016). Complex adaptive leadership aims to develop teams of like-minded followers that can operate in an environment of high uncertainty with a strong influence of a variety of environmental factors (Apenko & Chernobaeva, 2016). The leader must evaluate the type of system (simple, complex, complicated and chaos) (Figure 2.3) and choose the appropriate strategy (Apenko & Chernobaeva, 2016). Leaders must learn to follow the people they lead, and followers must learn to lead the people they usually follow to create complex adaptive organisations with self-organisation, less hierarchy, less bureaucracy, enhanced employee engagement and lower costs (Obolensky, 2016). This definition of organisations is aligned with Complexity Theory (Rosenhead et al., 2019).

Complex Systems Leadership Theory suggests that leadership is an emergent event within complex systems and can be displayed during any organisational interaction (Hazy et al., 2007). Within Complex Systems Leadership Theory, three distinct functional demands of leadership have been identified. Convergent leadership keeps the current activities running smooth and converge to a specific point of output through repeated activities from the participants, promoting efficiencies and continually correcting non-constructive fluctuations. Generative leadership, on the other hand, creates new ideas and solutions that lead to constructive fluctuations from the original plan, reinforcing new information within and outside the current system with the constant promise of change. Unifying leadership changes the system boundaries within the organisation and searches for a new order while providing purpose to the system members (Hazy, 2012; Hazy et al., 2007). Within Complex Systems Leadership Theory, there is a close connection between the ethics within the business and the individual's ethics that makes the judgment (Hazy, 2012).

Shared leadership is an interactive, dynamic process of influence amongst team members to lead each other, resulting in increased effectiveness and achieving the team and organisational goals (Hoegl & Muethel, 2016; Johansson, Bedggood, Farquharson, & Perenyi, 2018). Shared leadership is an internal, informal and bottom-up approach, where the impact of the team as a whole is considered (D'Innocenzo, Mathieu, & Kukenberger, 2016; Johansson et al., 2018). The team leader and team members all actively interrelate, pool resources, expertise and information, and overall consider the whole team's success (Hoegl & Muethel, 2016; Johansson et al., 2018). Shared leadership is not static and achieves positive results since the leadership roles can be filled by different team members (D'Innocenzo et al., 2016). Because different team members can take on the leadership role, increased commitments

and improved implementation of programmes occur (Johansson et al., 2018), with varying leadership responsibilities amongst the team (D’Innocenzo et al., 2016). Shared leadership can only happen if the project leader allows and promotes it (Hoegl & Muethel, 2016).

Complexity leadership (CL) is the underpinning leadership approach of the study and will be discussed in the remainder of the first half of this chapter.

2.2.4 Complexity Leadership

CL is a framework for organisational leadership that enables adaptability of organisations and people, viewing leaders not as managers to implement top-down directives but as collaborators across the organisation to enhance the system’s overall fitness and adaptability (Hazy & Uhl-Bien, 2014; Uhl-Bien et al., 2020). CL enhances innovation and performance and occurs within the interaction amongst leaders and team members (Arena & Uhl-Bien, 2016).

2.2.4.1 Organisations as complex adaptive systems

In CL, organisations are regarded as complex adaptive systems (CAS). CAS are adaptive, dynamic, non-linear systems that are random and chaotic with no specific point of equilibrium (Porter-O’Grady, 2020). CAS is made up of different agents (people and processes), with different needs and views, at different levels (that changes all the time) with different expectations and levels of specialisation (Tsai, Sanford, Black, Boggs, & Urman, 2017). Many organisations are structured as complex systems for efficiency and control, not as CAS for adaptability (Uhl-Bien & Arena, 2018). CAS originated from complexity science, with Complexity Theory as a foundation, and is a basic unit of analysis where the system has transformative feedback loops that ensure continuous improvement (Gregory, Barroca, Sharp, Deshpande, & Taylor, 2016).

An organisation as CAS has clear people, processes and policies, flexible communication and information technology systems, and a flexible, inclusive, transparent strategy (Obolensky, 2016). The main attributes of CAS are self-organisation and emergence, aligned with the Autopoiesis Theory, non-linear behaviour that is not predictable, and systems that are resilient, robust and function on the edge of chaos (Barasa et al., 2017). The constant tension between the formal autocratic structures pushing for control and the informal entrepreneurial structures pushing for innovation results in the development of the adaptive space where emergence occurs and a new order is created (Uhl-Bien & Arena, 2017).

Emergence refers to complex patterns and systems that arise from the multiplicity of simple interactions, as supported by Chaos Theory (Hazy et al., 2007; Obolensky, 2016), and provides bureaucratic organisations with alternative adaptability that does not exist (Uhl-Bien

& Arena, 2017). Complex organisations, therefore, have the adaptive function (exploitation) and the administrative function (exploration) as the two main activities (Hazy & Uhl-Bien, 2014). CL has been described by Uhl-Bien, Marion, and McKelvey (2007) as having three leadership approaches, namely:

i) Adaptive

This style of leadership is an interactive, emergent dynamic that results in adaptive outcomes following collaboration and conflicting ideas of different groups of individuals (exploration) (Uhl-Bien et al., 2007).

ii) Administrative

This form of leadership is where a top-down formal managerial role exists in bureaucratic organisations based on position and authority with the primary function to structure tasks, build vision, plan, engage resources and manage a crisis (exploitation) (Uhl-Bien et al., 2007).

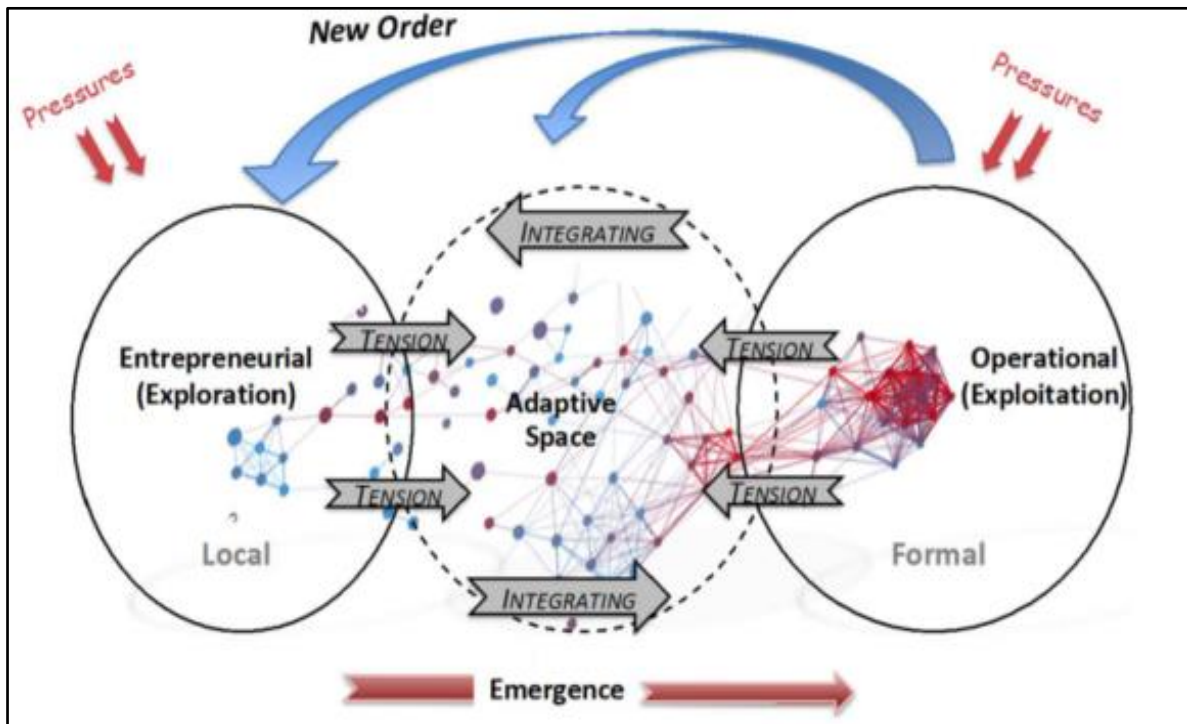
iii) Enabling

This type of leadership enables the adaptive space to create enabling conditions to catalyse emergence and often manages the dynamics between administrative leadership and adaptive leadership (Uhl-Bien et al., 2007).

These three leadership styles provided the original framework for CL.

The interdependencies shared amongst individuals, systems, and sub-systems form an essential part of CAS with a dynamic network of interactions and interconnections, as supported by Seddon's Systems Thinking Theory, and which is displayed in Figure 2.4 (Lentenbrink, 2017; Uhl-Bien & Arena, 2017).

Figure 2.4: Complexity Leadership (CL) framework

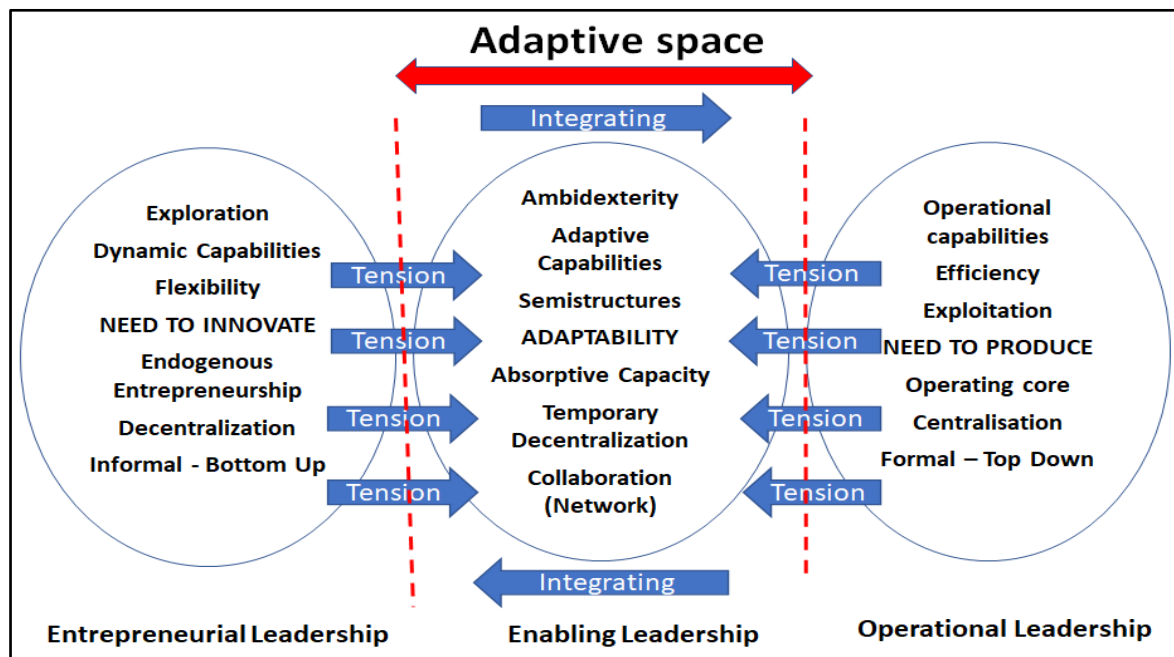


(Source: Uhl-Bien and Arena (2018).)

Figure 2.4 displays the connectedness and interdependencies and the safe adaptive space that manages the conflict and dynamics between the operational and entrepreneurial systems (Uhl-Bien & Arena, 2018). The CL framework evolved, and the definitions of CL changed. The concept of adaptive leadership was redefined as entrepreneurial leadership, and administrative leadership was redefined as operational leadership. Enabling leadership remained but were refined to describe better this role's function (Uhl-Bien & Arena, 2018).

The revised theoretical framework for CL is displayed in Figure 2.5.

Figure 2.5: Theoretical framework of CL



(Source: Adapted from Uhl-Bien and Arena (2018)).

The three leadership approaches that combined to form CL, as displayed in Figure 2.5 are:

- **Entrepreneurial Leadership:** an informal leadership, aligned with transformational leadership, that aims to create new skills, products, processes or knowledge that will maintain the organisation's viability (i.e., exploration) with the main focus to innovate (Schulze & Pinkow, 2020; Uhl-Bien & Arena, 2018)
- **Operational Leadership:** a formal leadership, aligned with transactional leadership, focused on formal structures, systems and processes to produce results through execution, efficiency and refinement (i.e., exploitation) with the main focus to produce (Schulze & Pinkow, 2020; Uhl-Bien & Arena, 2018).
- **Enabling Leadership:** enables organisational adaptability by creating and protecting the adaptive space to enhance and sustain adaptability through creating processes and structures, engaging conflict, and increasing emergence (Uhl-Bien & Arena, 2018). The adaptive space is a safe space for collaboration and integration between the entrepreneurial and operational leadership, focusing on creating and promoting adaptability (Belrhiti et al., 2018; Uhl-Bien & Arena, 2018).

As displayed in Figure 2.5, all three leadership approaches need to be present and in perfect balance/coordination to ensure the improvement of an organisation's current processes and develop new innovative strategies to react to internal and external uncertainties (Uhl-Bien,

2016). Constant tension occurs between entrepreneurial leadership and operational leadership, integrating new ideas into the operational processes through the adaptive space (Uhl-Bien & Arena, 2018). Complex organisations that deal with the complexity through order and control (as supported by the Cynefin framework) eliminate the tension between the emergence of new patterns and the currently established patterns, preventing the forming of the adaptive space and developing innovative initiatives (Uhl-Bien, 2020b)). If the operational leadership is stronger than the entrepreneurial- and enabling leadership, it is regarded as management and not CL (Uhl-Bien, 2020b). A manager is a person with the authority to execute effective action (give instructions). A leader influences the team to naturally follow him/her without being told to do so (Glinkowska, 2017). A true leader always leads by example (Ngara, 2014). The centre of CL is in the interaction and not the person, with the result that within CL, the principle of the leader as the hero does not exist (Hazy et al., 2007). Any person in the organisation can be a leader, even if they are not appointed in a management position (Uhl-Bien, 2020b). The principle of a leader applies to the African principle of Ubuntu (I am because we are), where a leader must express the collective will of the people (Ngara, 2014).

The adaptive space, also called the holding environment, is the connection point between the entrepreneurial and operational system, where the dynamic tension between these two systems are embraced, and entrepreneurial ideas are shared and fostered for implementation and integration into the formal processes (Arena & Uhl-Bien, 2016; Northouse, 2016). The adaptive space is an emotional, relational and sometimes physical space where people can freely exchange and explore ideas (Arena, 2018). Adaptive space occurs when the human capital, the people with experiences, talent and capabilities, develop social capital, which is the interactions and relationships within the organisation (Arena, 2018). The leader must be humble enough to take risks in opening the adaptive space to allow team members to experiment, sometimes creating controlled tension that may make people feel uncomfortable (Uhl-Bien & Arena, 2017).

The foundational principles of CL will now be discussed.

2.2.4.2 Exploration, exploitation and ambidexterity

In the seminal article on ambidexterity, March (1991) identified two opposing processes of organisational learning, the exploitation of old certainties and the exploration of new possibilities. This paradox in organisations is constant, extensive and at all levels, and only organisations that learn to benefit and thrive with the paradoxes will survive (Schad, Lewis, Raisch, & Smith, 2016). These paradoxes are called organisational ambidexterity, which is the ability of an organisation to cope at the same time with two situations that are contradictory, for example, exploration and exploitation as two heterogenous situations (Du & Chen, 2018).

Ambidexterity is visible in the constant conflict between the entrepreneurial system and the organisational system and the enabling leadership that must guide this conflict for the team and organisations (Uhl-Bien & Arena, 2018). Obolensky (2016) supports this ambidexterity with Yin/Yang principles where Yin leadership is the soft, supportive, enabling type of leadership and Yang leadership is the competitive, rigid, controlling type of leadership. An ambidextrous organisational strategy is an emergent picture of continually adjusting to enable efficiency (exploitation) and innovation (exploration) with leaders that manage tension and conflict to generate new insights (Uhl-Bien & Arena, 2018).

Integration and linking occur when organisations can bring exploration and exploitation together, most often by the middle managers, through processes of collaboration, brokering and integration to prevent internal silos (Uhl-Bien & Arena, 2018). As explained by Teece, Peteraf, and Leih (2016), integration is an essential task of an entrepreneurial manager. Reintegration occurs when the explorative unit disintegrates after the project's deliveries were achieved (Uhl-Bien & Arena, 2018). Ambidexterity and organisational adaptability are not achieved in the absence of operational leadership but in prioritising innovation and finding a balance between entrepreneurial leadership and operational leadership in the adaptive space of enabling leadership (Schulze & Pinkow, 2020).

2.2.4.3 *Endogenous entrepreneurship, operating core and absorptive capacity*

Change and disruption in an industry can create activation triggers that can present an exogenous shock (disruptive technology, competitor innovation or regulatory change), resulting in a reactive approach (Uhl-Bien & Arena, 2018). Endogenous entrepreneurship (new ideas for products and services) is a proactive approach in response to exogenous shock (Uhl-Bien & Arena, 2018). Endogenous entrepreneurship often drives the interactions between dynamic and operational capabilities, leading to adaptive capacity in the organisation, even without exogenous shock (Newey & Zahra, 2009).

For organisational adaptability, it is essential to focus on improving the core operating processes of the organisation (exploitation) and reintegration of new dynamic processes into the standard operating processes (exploration). This implementation of entrepreneurial ideas into the operational system happens through the adaptive space (Uhl-Bien & Arena, 2017). Organisations that only focus on the core operational processes without empowering change through the adaptive space will experience a challenge to achieve organisational adaptability (Uhl-Bien & Arena, 2018).

Absorptive capacity is defined by Cohen & Levinthal (1990) as the capacity to assess external information, understand it and use it in changing the products and services of the organisation

(de Paula Guedes, Ziviani, de Paiva, Ferreira, & de Mendonça Herzog, 2017). Absorptive capacity in an organisation is the organisation's main knowledge-based ability to create learning between the entrepreneurial and operational approaches (Newey & Zahra, 2009). A constant tension exists between improving current processes (exploitation) that form the operational core and developing new solutions (exploration) through endogenous entrepreneurship. The decoupling point of these processes is the dynamic process of absorptive capacity.

2.2.4.4 Decentralisation (organic), centralisation (mechanistic) and temporary decentralisation

Decentralised decision-making is distributed decision-making down the hierarchy with the employees closest to the point of action, making the decision (Balu, 2018). Decentralised decision-making promotes ambidexterity with a more flexible approach to opportunities and quicker responses. Therefore, leaders should instead focus on decentralised decisions and processes than centralised (Uhl-Bien & Arena, 2018). Job satisfaction of team members improves with decentralised structures since it results in more empowered team members (Hartviksen et al., 2019). Leaders in complex organisations know that being patient, willing to let go of their command-and-control approach and always probing will result in the emergence of a new structure for the leader and the team (Tsai et al., 2017), which promotes organisational agility (IQBusiness, 2017).

Centralisation increases the control and coordination within an organisation (Uhl-Bien & Arena, 2018) and occurs when the most senior manager makes all the decisions with lower-end employees merely following the instructions (Balu, 2018). All organisations have a hierarchical structure that inhibits the organisation's ability to self-organise and naturally value stability and efficiency over adaptability (Uhl-Bien & Arena, 2017). This is aligned with Complexity Theory (Waldrop, 1992). Hierarchical structures and silos prevent information flow in organisations, hindering adaptability (Uhl-Bien & Arena, 2017). In a well-functioning organisation, centralised decision-making and hierarchy could prevent a complexity catastrophe when the amount and diversity of actions needed are too complex for the agents to deal with (Hazy et al., 2007).

For an organisation to achieve adaptability, leadership needs to simultaneously engage organic decentralised structures to achieve exploration and engage mechanistic centralised structures to achieve exploitation with the dynamic decoupling point called temporary decentralisation (Uhl-Bien & Arena, 2018). Temporary decentralisation is achieved by sequencing change to achieve temporary decentralisation, for example, technology firms that will have periods of exploitation and periods of exploration (Siggelkow & Levinthal, 2003, as

cited by O'Reilly III & Tushman, 2013). Organisations, such as Ford and Hewlett-Packard, also applied this principle to have planned sequences of exploration, followed by exploitation (O'Reilly III & Tushman, 2013). During exogenous shock or endogenous entrepreneurship, organisations should have a dynamic pulsating process moving from temporary decentralisation to centralisation. In contrast, new research is ignited during decentralisation and then implemented in the operational processes through centralisation, with constant tension for resources between these two approaches (Uhl-Bien & Arena, 2018).

2.2.4.5 *Dynamic capabilities, operational capabilities and adaptive capabilities*

Dynamic capabilities is an organisation's ability to build, integrate, structure and reconfigure external and internal competencies to meet the need of a rapidly dynamic environment to create several sustained competitive capabilities at the same time (exploration) (Teece, Pisano, & Shuen, 1997). Operational capabilities are the ability of an organisation to use resources effective and efficient (exploitation) (Uhl-Bien & Arena, 2018) by using inter-related operational routines in solving problems and executing operational strategy (Benitez, Castillo, Llorens, & Braojos, 2018b). The ever-changing relationship between dynamic capabilities (exploration) and operating capabilities (exploitation) will lead to adaptability (Teece et al., 2016). Learning will be captured at the level of the dynamic capabilities (with entrepreneurial leadership) and reconfigured through operational capabilities (with operational leadership), creating a competitive advantage (Teece et al., 2016). Learning as a critical factor in dynamic capabilities are enhanced through the constant effective practices of networking and collaboration within the organisation (Uhl-Bien & Arena, 2018). Institutionalising the learning that came from the dynamic capabilities into operational capabilities and operational processes is key to the organisation's adaptive capacity (Newey & Zahra, 2009).

The decoupling point between dynamic capabilities and operational capabilities is called adaptive capabilities, which is the key to organisations' adaptive capacity (Newey & Zahra, 2009). Adaptive capabilities are within the adaptive space where the tension between dynamic capabilities and operational capabilities exists (Uhl-Bien & Arena, 2018).

2.2.4.6 *Informal bottom-up, formal top-down and semi-structures*

Exploitation occurs with the formal top-down flow of information in an organisation, where routines and behaviours are institutionalised to refine current competencies, and exploration occurs with the informal, bottom-up flow of information with the result of discontinuing old processes and committing to new actions in the organisation (Uhl-Bien & Arena, 2018). An informal, bottom-up approach identifies centres of knowledge within the organisation and encourages them to communicate, interact and engage in problem-solving activities (Belrhiti

et al., 2018). Leadership emergence within organisations is a bottom-up process with emerging new solutions through the adaptive space (Acton et al., 2019). Informal, bottom-up leaders tend to suggest new ideas, challenge current thinking and spread information (Marion, Christiansen, Klar, Schreiber, & Erdener, 2016). Emergent leadership is often noticed in organisations that have more informal leadership structures where leaders emerge without any formal leadership appointment, with greater team cohesion in teams with more informal leaders (Hoch & Dulebohn, 2017)

Formal top-down leadership is achieved as part of operational leadership (Uhl-Bien & Arena, 2018), and these formal structures drive order, efficiency and control (Uhl-Bien & Arena, 2017). Often formalised top-down procedures and structures will benefit an organisation and achieve short-term success; however, these structures will prevent an organisation from attaining long-term agility with change and innovation (Felipe et al., 2017). Formally appointed leaders will often underestimate the ability of team members to self-organise and then monopolise the decision-making authority and allow insufficient autonomy to team members (Hoch & Dulebohn, 2017)

Top-down and bottom-up structures will have constant tension where semi structures are formed that enable adaptability by eliminating bureaucracy, increasing communication and ensuring the transition between past and future projects (Uhl-Bien & Arena, 2018). This integration occurs through enabling leadership in the adaptive space (Lusiani & Langley, 2019). When silos and hierarchical decision-making block the flow of information in organisations, the organisation's ability to become adaptive becomes limited (Uhl-Bien & Arena, 2017).

2.2.4.7 Flexibility and efficiencies

Flexibility and efficiency are two contrasting concepts. Flexibility in organisations refers to the potentiality of a given organisation, at any time, to respond to competitive pressures and market signals (Gross, 2020). Efficiencies refer to the ratio between output gained and the required resources to achieve the output (Sickles & Zelenyuk, 2019). An innovation-orientated culture would be flexible with adaptability and creativity, which will guide the organisation through uncertainty and ambiguity. In contrast, an efficiency culture will be more hierarchical with a bureaucratic, by-the-book, top-down, rule-driven approach (Felipe et al., 2017).

Building efficiencies in an organisation is part of an exploitative process (Oehmichen, Heyden, Georgakakis, & Volberda, 2017). The focus is then to implement order and control with a set of precise rules, instructions, norms and procedures within the current operational environment, aligned with a culture of hierarchy (Felipe et al., 2017). In difficult times, in most

hierarchical organisations, leaders often drive efficiencies with a focus on order, stability, and rationality, resulting in a low internal adaptability focus. In contrast, competitors would focus on endogenous entrepreneurship (Uhl-Bien & Arena, 2017).

2.2.4.8 Trust and transparency

Trust is a mental and psychological state where confidence exists regarding a person's integrity and capability to act (Le & Lei, 2018). Organisations that hold trust as a high-value experience 11 times greater innovation than organisations with low trust because, in a high trust environment, risk-taking and vulnerability are accepted (LRN, 2016). Transformational leadership has trust as a central feature in the leader-follower relationship, an essential condition for followers to perform beyond expectations (Le & Lei, 2018). An increase in moral character and high trust impacts behaviour, which results in performance 3.9 times greater than an individual's performance that only relies on behaviour without a focus on core values (LRN, 2016). Teams with open communication also have high trust amongst the team members (Le & Lei, 2018).

Because of the world's connectedness and the availability of information in real-time, organisations' full transparency is expected, also called "the naked organisation" (Abbatiello et al., 2018, p. 4). Relational transparency is displaying one's true self to others openly and sharing information about one's thoughts and emotions, where appropriate (Banks, McCauley, Gardner, & Guler, 2016). Internal and external transparency and engagement are vital for any organisational transformation, and trust is created through transparency (Chatfield, Longenecker, Fink, & Gold, 2017). Enabling leaders can apply transparency in the adaptive space to force a system to change (Uhl-Bien & Arena, 2018). The level of trust impacts risk-taking and learning and positively affects the group (Uhl-Bien & Arena, 2017). Should an organisation attempt to achieve a balance between exploration and exploitation, a framework of discipline, stretch and trust is needed (O'Reilly III & Tushman, 2013)

When the flow of information in an organisation is obstructed by hierarchical decision-making and silos, it prevents the organisation from becoming adaptable and employees trusting leaders (Uhl-Bien & Arena, 2017). Therefore, employees will accordingly: keep quiet; not share important information; become rude; hinder information feedback; reduce employee satisfaction; and limit job involvement (Wu, Peng, & Estay, 2018). Organisations, where there are strong hierarchical differences will result in negative relationships and people tending to avoid conflict by keeping quiet (Green, Oeppen, Smith, & Brennan, 2017). Employees must always be encouraged to voice their concerns and clearly understand that their view has value (Green et al., 2017). Historically healthcare is a male-dominated environment with high levels of expertise, but also a steep hierarchy with resistance to change, potentially impacting patient

safety and healthcare outcomes (Green et al., 2017). A lack of trust exists in an environment where there is a fear of poor performance (Obolensky, 2016).

Behavioural change by leaders with improved leadership styles and following inclusive communication will strengthen relationships, recognition strategies and build trust (Coetzer, 2019). The values of trust, honesty and self-respect must be prioritised with a no-blame approach that celebrates the contribution of individuals who speak up and where every mistake and failure a learning opportunity for all (Chatfield et al., 2017), if a high trusting transparent culture is to be created. In CL, the concept of trust and transparency underpins all three leadership approaches.

2.2.4.9 Collaboration in Complexity Leadership

Collaboration is the process of working together (Reeves, Pelone, Harrison, Goldman, & Zwarenstein, 2017). Leaders must display a high level of collaboration during the adaptive process to improve information sharing and network internally, within different teams at different levels, and externally with external stakeholders (Uhl-Bien & Arena, 2018). Networking aims to solve problems, work on projects, and break down resistance to change (Uhl-Bien & Arena, 2018). Team members must display high levels of collaboration, responsibility and accountability (PMSolutions, 2018). Many organisations are changing to a flexible open office space layout to enable co-operation and increase energy and interaction flow for people to collaborate and create (Uhl-Bien & Arena, 2017).

Leadership is often linked to a role and, therefore, appears to be assigned to senior and executive management. However, the complexity of the current work environment and the need for collaboration result in the need for leadership traits that will increase within lower-level managerial and professional roles (Coetzer, 2019). Organisations are increasingly replacing hierarchies with a network of collaborative cross-functional small teams from the C-level, all through the organisation, where functional leaders collaborate on specific projects (Abbatiello et al., 2018). Hierarchical, bureaucratic organisations are often strongly ruled bound, inflexible, with specialisation cascading to the bottom level where minimal skills exist and top-down-bottom-up knowledge sharing non-existent (Teece et al., 2016).

Organisations must develop independent, strong self-organising units that are multi-divisional with decentralised decision-making for easy implementation, increased responsiveness, high levels of collaboration and the absence of hierarchy (Teece et al., 2016). These views align with the Autopoiesis Theory (Varela et al., 1974). Subordinates must challenge the structures they follow, and superiors need to listen for subordinates to lead (Obolensky, 2016). Effective networking generates cross-communication across boundaries, and this flow of information is

an enabler of effectiveness and resilience in CAS (Lentenbrink, 2017). Daily stand-up meetings is an effective way to start with collaboration (Stray, Moe, & Sjoberg, 2018).

Networking as a concept underpins all three leadership types within CL, and it was applied accordingly.

2.2.4.10 Continuous improvement (innovation) in Complexity Leadership

Innovation focuses on the development of new products and services with the aim of improving efficiencies and competitive advantage (Golden III & Shriner, 2019). In high trust organisations, employees are 32 times more likely to take a risk, 11 times more likely to have innovation displayed and six times more likely to perform better (LRN, 2016). Transformational leadership improves employees' creative process resulting in higher levels of innovation (Mahmood, Uddin, & Fan, 2019).

On the other hand, bureaucratic, top-down, centralised decision-making and the fear of losing control stifle innovation (Schulze & Pinkow, 2020). The entrepreneurial leader will create the future when they sense and act on the market, while the enabling leader will implement innovation through the adaptive space into the operational areas (Teece et al., 2016; Uhl-Bien & Arena, 2018). The dynamic, fast-paced business environment needs leaders to engage employees aiming for creativity, that can only be achieved if the right type of leader strengthens the self-efficacy of the employee, is a role model, and displays that integrating complexity will assist in understanding and dealing with the paradoxes in business (Shao, Nijstad, & Täuber, 2019). Learning is the centre of identifying variance, and where each error or mistake is regarded as a learning opportunity to enhance the cycle of innovation for the organisation and its employees (Chatfield et al., 2017).

In this study, continuous improvement and innovation are concepts that underpin all three leadership approaches in CL, and it was applied in the research in this way.

2.2.4.11 Criticism of Complexity Leadership

A wide variety of criticism for CL could be found in the literature. The first criticism of CL is that it does not have one uniting underpinning theory. Within Complex Leadership Theory, there are different approaches that each have their focus and view, resulting in a confusing general picture of the essential concepts of CL (Rosenhead et al., 2019). CL is a reasonably new approach with limited empirical research (Northouse, 2016) and no overarching theory that all supporters conform to (Tourish, 2019). Within natural science, where the theory originates, the theory is not yet established enough to function as a theory in the leadership field (Rosenhead et al., 2019).

Secondly, CL is criticised as a new way to present and legitimise old theories of unbalanced power relations in organisations (Tourish, 2019). Clarity around the relationship of different agents within CL Theory is needed (Tourish, 2019). CL is described as leaders encouraging experimentation, establishing consistent routines, creating lines of responsibility, and recognising accountability while promoting a learning culture (Uhl-Bien, 2013, as cited in Tourish, 2019). All of these are similar to traditional leadership attributes (Tourish, 2019).

In addition, there is a need to define and clarify concepts within CL. Will (2016) states that CL does not indicate what measures of tension, interaction and interdependence are required to achieve CL. Northouse (2016) agrees that some concepts need further refinement since they are too broad and abstract, and the principles hint at a moral dimension that was not clarified. Within the definition of CL, some scholars define the act of leadership, and other scholars define the output of leadership as the definition for this complex phenomenon (Rosenhead et al., 2019). Schad et al. (2016) challenge the principle of excessive collaboration that leads to an increase in seeking consensus resulting in complacency, versus the traditional focus of control that could result in suppressed stewardship levels, causing division and short-sightedness.

Furthermore, CL is criticised that, although it is rooted in the principle of Complexity Theory, it rejects some of the critical denominators of the theory; for example, the leader that is responsible for compiling strategy and preventing deviation (oligarchy) must be led by many (polyarchy) which is a foundational principle of Complexity Theory, but not always applied in CL (Obolensky, 2016; Rosenhead et al., 2019). Although CL is regarded as a polyarchic leadership approach, it still attributes too much responsibility to an individual leader's contributions, with a focus on the skills, power, and cognitive ability of an individual, contrary to its foundational principles (Tourish, 2019).

Lastly, CL is criticised as a leadership approach only for Western cultures. Fowler, Gajewska-De Mattos, and Chapman (2018) explained that the standard principles of adaptive leadership could not apply in cultures with high power distance and lower autonomy of lower and middle management, as in certain East Asian cultures. The CL model must be adapted to different cultures to accommodate lower and middle managers' lower autonomy, dynamic communication filtering bottom-up, with top management displaying authoritarian adaptive decision-making (Fowler et al., 2018).

It is evident that within the field of CL Theory, several concepts are not clear. Differences of opinion exist; however, the number of scholars that agree that Complexity Theory is one of the more preferred leadership theories for the business environment we function in is more

than the number of scholars that criticise the approach (Khan et al., 2018; Porter-O'Grady, 2020; Uhl-Bien, 2020a).

2.2.5 Communication in leading complex organisations

Within leading complex organisations and CL, communication is a central theme. In CL, most communication happens in the adaptive space, where communication is increased to achieve reintegration (Uhl-Bien & Arena, 2018). A close relationship exists between transparent communication, transformational leadership and organisational trust, leading to employees openness for change (Yue, Men, & Ferguson, 2019). In a complex situation, democratic, interactive, and multidimensional discussions will generate new ideas and develop strategies (Snowden & Boone, 2007). Open communication and positive feedback are valued as essential leadership attributes resulting in team members feeling supported (Combrinck, 2018). Communication, collaboration, integrity and a clear vision are some of the most critical skills leaders must have (Chatfield et al., 2017). Complexity leaders focus on interconnectedness, building relationships, open communication, and non-linear processes, resulting in positive outcomes, for example, innovation, team performance, collaborative learning and organisational change (Belrhiti et al., 2018). In CL, communication is often storytelling that can be broad and inclusive, aiming to provide the audience with a lived-in experience (Hartviksen et al., 2019). An organisation as CAS has people, processes and policies that are clear, flexible communication and information technology systems, and a flexible, inclusive and transparent strategy (Obolensky, 2016).

Poor communication of strategy could undermine team cooperation and lead to unproductive conflict (O'Reilly III & Tushman, 2011). A manager's poor communication ability negatively impacts the team's interconnectedness and performance (Giudici & Filimonau, 2019). Poor communication between senior and mid-level leaders, and mid-level leaders and teams, had resulted in professionally dominated, individualised leadership approaches that often left the followers with lethargy and paralysis (Nzinga et al., 2018). Interconnectedness can be generated in alternative ways, for example, communication apps, idea-generating platforms, speaker series, and formal team meetings. However, strong leadership is needed to create opportunities to network and connect (Arena, Cross, Sims, & Uhl-Bien, 2017). A manager should recognise and acknowledge every team member's performance within the team as a whole for optimal team performance (Giudici & Filimonau, 2019).

Company size has a contradicting impact on leadership and, therefore, on the communication displayed in the company (Marx, 2017). Bass (1960) argued that task-orientated leadership increases with company size, whereas Wofford (1971) stated company size result in an increase in participatory leadership. These views are contradicting. Recently Marx (2017)

indicated that leaders engage their followers less as the company size increases and engage more in directive hierarchical leadership with formal policies and procedures. However, the leadership of larger companies was not found to be more or less effective than the leadership of smaller organisations (Marx, 2017).

From all the above, it is evident that communication and interaction with the team members are crucial to the team's successful functioning and the organisation.

2.2.6 Leadership in healthcare

Poor Leadership has been identified as one of the most important factors in low- and middle-income countries, and initiatives to improve leadership in these countries has been under-researched (Doherty et al., 2018). Most healthcare organisations have enough managers, the person with the authority to execute effective action and give instructions (Glinkowska, 2017). Still, they do not have enough inspiring leaders that influence the team to naturally follow him/her without being told to do so (Glinkowska, 2017). It is often assumed a person appointed at a management level is a leader, which is not accurate (Uhl-Bien, 2020b). Healthcare leadership is often traditional autocratic leadership striving to reduce uncertainty and eliminate chaos, whereas complexity leaders will absorb the uncertainty and strive on the chaos (Khan et al., 2018).

Suppose the clinical leader has a top-down, linear, power structure leadership approach. In that case, it will harm this fundamental relationship between the leader and the team (Henriksen, 2016). This will result in a toxic workplace with low collaboration and communication, fear, forced formal power, disrespect and internal competition, leading to short-term success but long-term cost to the people and the organisation (Weberg & Fuller, 2019). Furthermore, when destructive leadership occurs, employees become silent due to role ambiguity, role overload and role conflict, and in a complex environment, the effect is even more damaging (Wu et al., 2018).

Incivility and bullying are often evidenced in healthcare and made acceptable with terms such as: 'toughening up' or 'getting a thick skin' (Edmonson, Bolick, & Lee, 2017, p. 40). This result in destructive and harmful behaviours across all levels, between all professions, between professionals and patients, and are often endorsed or done by the nurse leader or the CEO (Edmonson et al., 2017; Jones, Polancich, Steaban, Feistritz, & Poe, 2017). Absent leadership is one of the main reasons co-worker conflict develops into bullying (Ågotnes et al., 2018), displayed as verbal assault, non-verbal innuendos, failure to respect privacy, undermining, and sabotage (Sanner-Stiehr & Ward-Smith, 2017).

Since medicine and surgery are often male-dominated, attracting strong personalities with high levels of expertise, an imbalance of power develops with some colleagues having too much control resulting in a steep hierarchical/authority gradient, with juniors not having the authority to confront errors by seniors (Green et al., 2017). This is closely related to employees who are bullied, together with an absent team leader who lacks self-confidence and leadership qualities (Green et al., 2017). Authority gradient is stronger with male leaders than female leaders (Pattni et al., 2017; Weller & Long, 2019) starting with tolerating a lack of professionalism, poor communication and rudeness in the team (Green et al., 2017). In healthcare organisations where nurses are regarded as subservient to clinicians and professional dominance allowed, a steep hierarchical gradient exists, resulting in a hostile working relationship, conflict avoidance, and low distributed leadership levels (Green et al., 2017; Nzinga et al., 2018).

Nzinga et al. (2018) illustrated that little display of inter-professional collaboration, teamwork across professions and specialities, as well as diffusion of experience and knowledge could be found in hospitals. Often the role of the nurse leader is romanticised, and when someone is appointed in a leadership position within the clinical team, they are sometimes disillusioned with the experience since they then hold more responsibility than authority (Combrinck, 2018).

Although healthcare billboards advocate quality patient care as the primary focus, private hospital leadership is bombarded with the business and financial side of running the hospital as a profit-making entity (Jones et al., 2017). The clinical leader often struggles with the financial focus of the role and finds it challenging to communicate in high-level financial/business terms and take her/his full seat at the executive table, resulting in non-clinical executives deciding on clinical matters (Jones et al., 2017). Healthcare leaders with clinical training are expected to do business and leadership (Uhl-Bien et al., 2020), whereas their only focus is really the patient (Combrinck, 2018).

A “no blame” culture is essential in changing a steep hierarchical gradient (Green et al., 2017) by training clinical employees in the communication principles used by pilots in the cockpit, using ‘sterile cockpit’ principles (no chit-chatting during critical actions) and junior pilots allowed to highlight warnings with specific non-threatening words (Hardie et al., 2020). Changing the authority gradients starts with awareness, training the specific teams, and ensuring that the corporate culture is a “just” culture where admitting to mistakes will not result in punishment and ridicule (Weller & Long, 2019). A culture of respect must be sustained among all clinical team members, with the nurse and hospital leaders upholding the principles of correct and wrongful conduct (Edmonson et al., 2017).

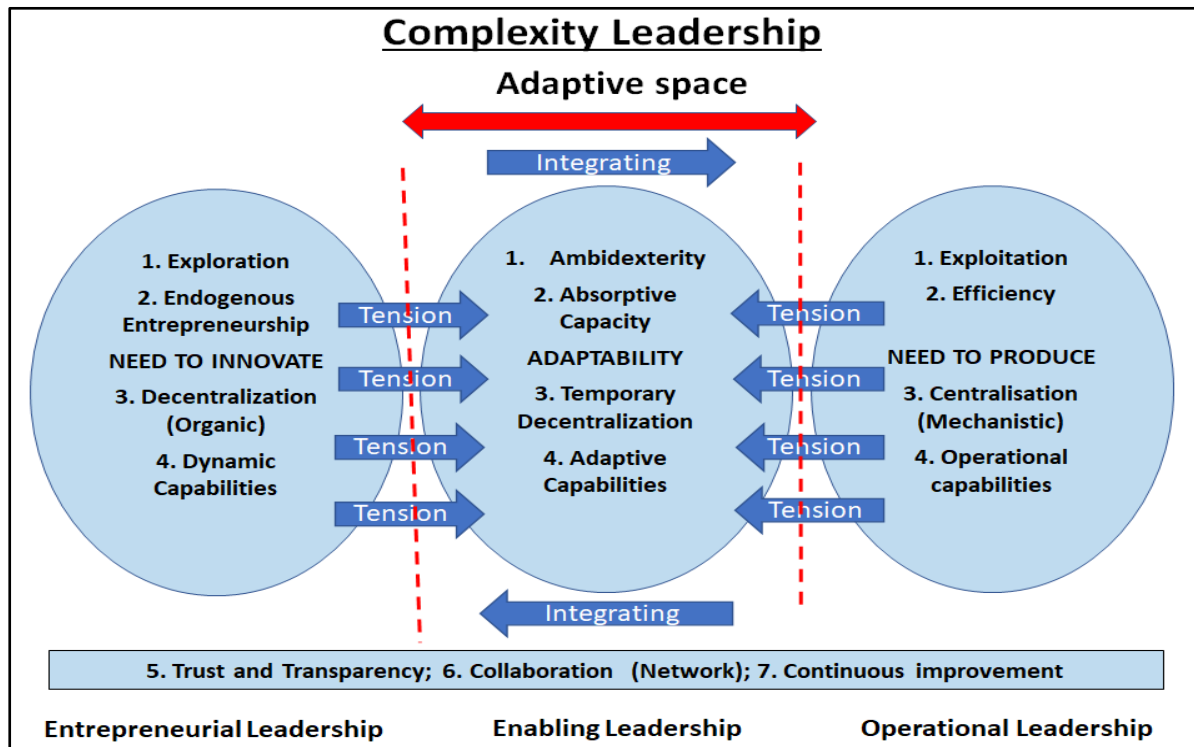
Motivating the team and individuals is an essential leadership task, specifically with non-financial rewards (Al Rahbi, Khalid, & Khan, 2017). Implementing new initiatives in healthcare are enabled by the organisational structure, a flexible motivated workforce, co-operation between the management team and the employees, training, and the value given to the voice of the staff, suggestions from management and employees (Dixit, Routroy, & Dubey, 2019). Shared and transformational leadership positively impacts employees' motivation, while authoritarian leadership harms team motivation (Al Rahbi et al., 2017). Green et al. (2017) asserted that teams that understand each other and work well together have a lesser risk for patient safety. New managers who have received leadership training need to be actively supported back in the workplace for the new managers to display the learned skills (Doherty et al., 2018). Healthcare organisations that managed to implement CL successfully maintain their hierarchical structures but allow a culture that acknowledges the importance of external pressure and how it is dealt with, informal networks and the effect of human behaviour on the organisation (Weberg & Fuller, 2019).

Nurse managers that implement CL must enable an adaptive, learning approach (replacing the authoritative approach), align the control of resources, tasks, conflict and strategies with this approach, and enable an environment that will promote adaptability, innovation and the flow of knowledge in the team (Henriksen, 2016). Implementing CL starts with the small things, the words the leader uses, the information shared, how it is shared, the frequency and structure of meetings, one-on-one discussions, and micro-interactions, which all set the foundation for change (Weberg & Fuller, 2019). The right profile of a leader that is a visionary, achiever, communicator, expert, critical thinker, and mentor (Henriksen, 2016) must change the toxicity by letting the team members know their contribution is valuable and important (Weberg & Fuller, 2019). The positive aspects of leadership must be added, and the negative aspects must be dealt with to prevent destructive leadership (Wu et al., 2018). The new healthcare leadership must display a high prevalence for the 3 Cs: communication, coordination and collaboration (Grindel, 2016; Saravo, Netzel, & Kiesewetter, 2017), together with the competencies of emotional intelligence, mentoring and coaching, conflict resolution, leading the team, and managing change (Grindel, 2016).

2.2.7 The conceptual model for Complexity Leadership in this study

Following the analysis of all factors that impact the display of CL in private hospitals, the conceptual model for the CL as it is applied in this study is displayed in Figure 2.6:

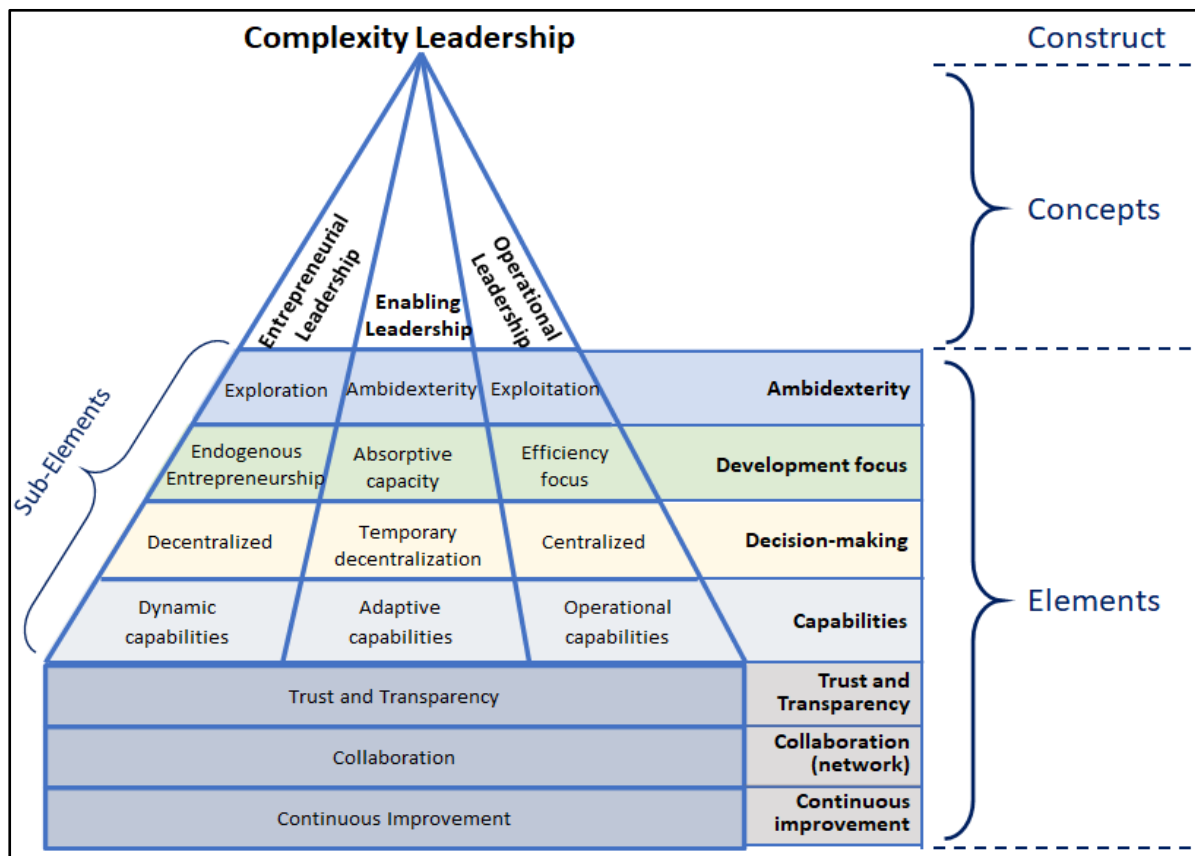
Figure 2.6: CL conceptual model of the study



(Source: Adapted from (Uhl-Bien & Arena, 2018).

This conceptual model was adapted and simplified from the CL theoretical model published by Uhl-Bien and Arena (2018) and widely supported by other CL scholars (Figure 2.5). The construct of OSS can be explained by the integration/tension of the three concepts of entrepreneurial leadership, operational leadership and enabling leadership. Enabling leadership is the decoupling point between entrepreneurial and operational leadership. Entrepreneurial leadership is an approach to innovation, operational leadership, an approach to production, and enabling leadership to adapt. Enabling leadership creates an adaptive space where the tension exists and where the change occurs. In CL, the point of integration between entrepreneurial leadership and operational leadership is enabling leadership. Here the dynamic tension between these two systems is fostered, and innovative ideas are shared and developed (entrepreneurial leadership) for implementation and integration into the formal processes of the organisation (operational leadership). Seven elements are shared across the three different leadership concepts, with four of these elements having sub-elements. All elements and sub-elements have to be evident in the display of leadership, as well as the three leadership concepts have to be in balance (same size circles) with an active adaptive space for it to be regarded as CL (Uhl-Bien & Arena, 2018). The constant tension and integration displayed in the model are imperative to create and maintain the adaptive space (Uhl-Bien & Arena, 2018). Figure 2.7 demonstrates the relationship between the concepts, elements and sub-elements of the conceptual model.

Figure 2.7: Constructs, elements and sub-elements of the conceptual model



As displayed in Figure 2.7, the first four elements of ambidexterity, development focus, decision-making and capabilities, each has three sub-elements. The last three elements of trust and transparency, collaboration and continuous improvement are shared across all three leadership concepts. These specific elements were selected from the theoretical model published by Uhl-Bien and Arena (2018) for their ease of assessment via an online survey during the study's quantitative phase.

2.3 OPERATIONAL SYSTEMS AND STRUCTURES

The following section will explain the OSS (construct) that this study leans on by presenting a high-level overview of the three concepts that form the OSS's construct. This will be followed by a deep-dive discussion of the different variables shared by the three concepts, and that will be assessed in this study. Next will a section be presented where the three concepts will be criticised, and the role of the three concepts in healthcare be discussed. This section on OSS will be concluded with an explanation of the conceptual model for this study's OSS construct.

2.3.1 The three concepts of operational systems and structures

In a global environment with dynamic and rapid changes caused by innovations, pandemics, new regulations and changes in industry structures, organisations are faced with VUCA.

Organisational ambidexterity (the ability to explore and exploit) has been indicated as the fundamental strategic approach to assist an organisation in aligning with the existing environment and adapting to the turbulence and disruption experienced. Simultaneously, the failure to achieve balance could be disastrous (Du & Chen, 2018).

To achieve change for lasting performance improvement, organisations can implement several OSS to achieve exploration and exploitation (De Raedemaeker et al., 2020; Du & Chen, 2018). Agile, lean, and leagile are operational systems typically applied in supply chain and manufacturing. However, increased interest to transfer the best practice of these systems to services organisations has been witnessed (Wikner et al., 2017). Agile, lean and leagile support the adaptive principles of exploration (agile) and exploitation (lean) whilst creating the adaptive space (leagile). Organisations think they need to select one approach. However, combining agile and lean, with leagile as the decoupling point, can improve the impact of the operational approach, as there is more flexibility (De Raedemaeker et al., 2020). For this study, the three concepts of agile, lean and leagile will apply.

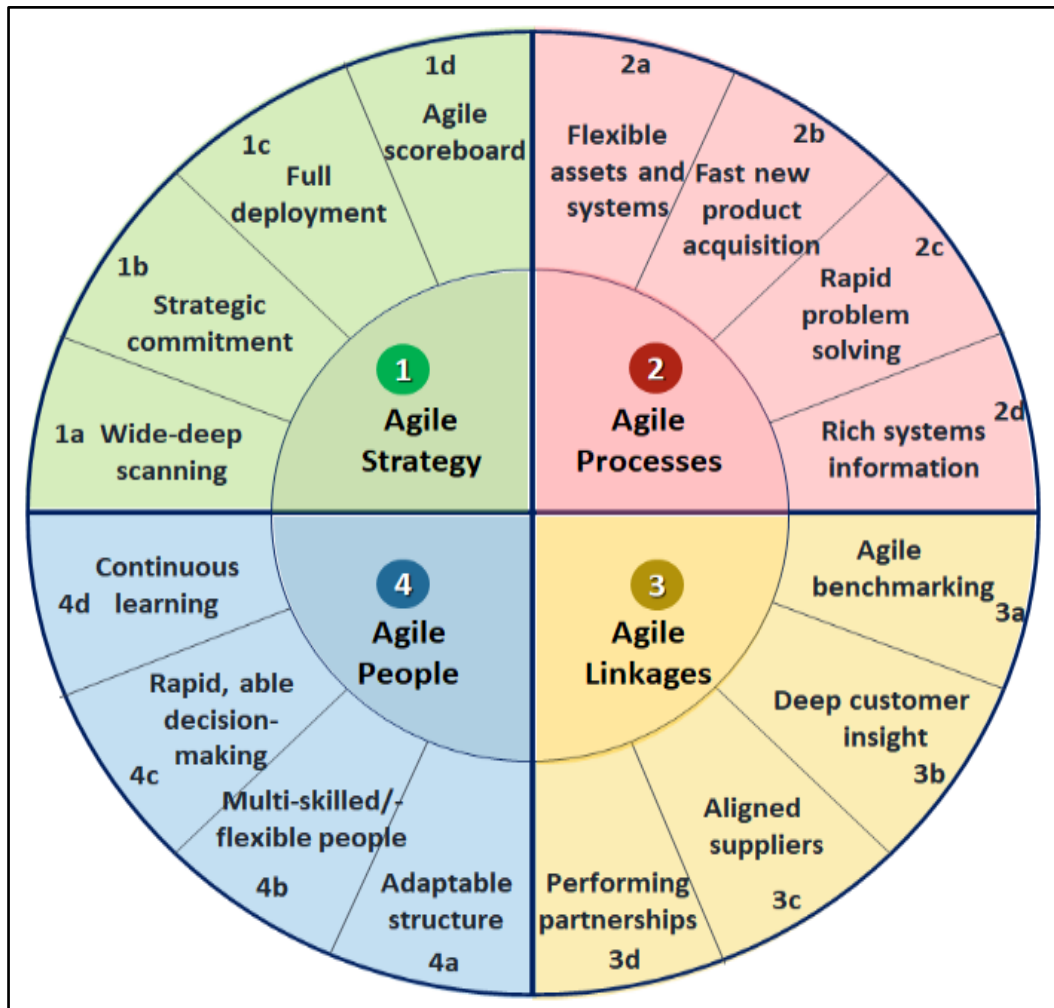
2.3.1.1 Agile systems and structures

Teece et al. (2016) define organisational agility as an organisation's capacity to quickly adapt to internal and external circumstances by performing value-creating and value-protecting activities, redirecting internal and external resources as needed, creating dynamic capabilities (Section 2.2.4.5). Tan, Tan, Wang, and Sedera (2017) agree that agility is the ability to sense and execute business opportunities through quick, accurate and cost-effective identification and implementation to ensure success. Organisational agility is when organisations detect changes early, develop an optimal business response, and create new opportunities to achieve and sustain a competitive advantage (Felipe et al., 2017). Therefore, agility has a proactive side that reacts and creates new opportunities and a reactive side that rapidly responds to changes in the market (Tolf, 2017). An agile organisation thrives in continuously changing, unpredictable environments (Wang, 2018). Therefore, agility is needed at a personal, team and organisational level (Baran & Woznyj, 2020). For an organisation to become agile, it must understand the strengths of the market, understand the attributes of the organisation and the levels at which it operates, maintain a good infrastructure and apply sound business practices (Preiss et al., 1996, as cited by Abdelilah, El Korchi, & Balambo, 2018).

Organisational agility started in manufacturing companies with one of the first reports on this topic published by Nagel and Dove (1991), with some agility concepts noted in Japan, South Korea and Europe. In 2000 the Agile Wheel Reference Model (AWRM) was published by Meredith and Francis (2000) as a model that manufacturing organisations could apply to

become agile by balancing strategy and operations. This model identified the components of organisational agility that will achieve agile initiatives (Francis, 2017). The AWRM has 16 interdependent dimensions, and if any of the spokes in the wheel is absent or under-developed, the wheel loses its strength and impact. As displayed in Figure 2.8, the wheel is divided into four quadrants containing four individual spokes (Meredith & Francis, 2000).

Figure 2.8: The Agile Wheel Reference Model



(Source: Adapted from Meredith and Francis (2000).)

The AWRM can broadly be discussed as follows:

- Q1 focuses on strategic issues, mainly related to corporate identity, sharing values, core capabilities and the measuring of success.
- Q2 focuses on processes, specifically looking at the efficiency, responsiveness, effectiveness, capacity of operations, and adding value within an agile organisation.
- Q3 focuses on linkages that will connect the organisation and supportive ecosystems and provide opportunities to gain customer insight.

- Q4 focuses on human capital, the ability and willingness of people to enable the whole organisation to become more fit-for-purpose (Francis, 2017).

Each of the four quadrants has four sub-sections that, when combined, create the spokes of the AWRM. All sixteen spokes are of equal importance and must be fully implemented in an organisation for the organisation to achieve agility. Table 2.1 discusses the specific sections of the AWRM.

Table 2.1: Agile Wheel Reference Model sub-sections discussion

Quadrant I: Agile strategy Quadrant	Quadrant II: Agile Processes	Quadrant III: Agile Linkages	IV: Agile People
Ia: Wide-deep scanning: Comprehensive searching for different signals that will open opportunities or identify threats.	Ila: Flexible assets and systems: Flexibility in buildings, systems, services, layout, information technology, other technologies and control systems.	IIla: Agile benchmarking: Produces data to compare performance against best practice in the industry.	IVa: Adaptable structure: Adaptable organisational structures that fit with current needs and that provide developmental resources.
Ib: Strategic commitment: Top management adopts the agile approach and consistently promotes agile implementation across the organisation.	Ilb: Fast new product acquisition: Fast development of new and improved products or rapid acquisition from others.	IIlb: Deep customer insight: Thorough understanding of current and potential customers.	IVb: Multi-skilled, flexible people: Involved, committed, empowered, and capable people with the skills to adapt to the changed requirements.
Ic: Full deployment: All employees know the importance of agility and their role in achieving it.	Ilc: Rapid problem solving: Fast identification and practical problem solving becomes the norm.	IIlc: Aligned suppliers: Innovative and responsive suppliers assist with agile capabilities.	IVc: Rapid able decision- making: Informed and able people close to the actions makes decisions.
Id: Agile scoreboard: Measurement to evaluate the degree of agility are closely monitored.	Ild: Rich information system: State-of-the-art technology for data collection and analysis with rapid, accurate decisions.	IIId: Performing partnerships: New capabilities through network partnerships and temporary organisations.	IVd: Continuous learning: Capturing and developing knowledge for renewal and effectiveness.

(Source: Meredith & Francis, 2000).

The AWRM forms the basis of a significant number of current research studies on agility (Conforto, Amaral, da Silva, Di Felippo, & Kamikawachi, 2016; El Mokadem, 2017; Kumar, Babu, & Muthusamy, 2016) and will be used as a reference for the components of agility used in this study. The concept of agility gained further momentum by establishing agility as a software development approach through the Agile Manifesto (Fowler & Highsmith, 2001).

IQBusiness (2018) reported that achieving organisational agility in South Africa is slow, with a lack of understanding and a lack of management buy-in. Being agile is not only a business

and process solution but, more specifically, a people solution (IQBusiness, 2018). Employees must have an agile mindset to react and adapt to changes quickly, take advantage of the changes and have a mindset for continuous learning and change (Cai, Huang, Liu, & Wang, 2018). VersionOne (2018) reported that worldwide agile is gaining momentum, and organisations that do not change, run the risk of being too late.

2.3.1.2 Lean systems and structures

Lean is a concept that was introduced by Toyota (Ohno, 1978; Womack & Jones, 1996) using the Toyota Production System (TPS), which resulted in a record profit in 2006, while other car manufacturers went bankrupt (Seddon & Caulkin, 2007). According to Seddon and Caulkin (2007, p. 10), a system is "...something composed of parts but which adds up to more than just these parts", which then result in a "joined-up-ness" and interconnectedness. An organisation, a hospital and a human body, amongst other things, are all systems that must be managed as a whole and not as the parts forming the whole (Seddon & Caulkin, 2007). In many ways, CL is about leading in a fluid and complex environment with many moving parts.

Lean is a systematic approach that will identify and eliminate waste by implementing continuous improvement (Andersson et al., 2006, as cited by Tolf, 2017). The focus of lean is to optimise the workflow, eliminate waste and have scheduled customisation (Ohno, 1978; Womack & Jones, 1990). Lean is the ability of an organisation to be efficient in its output (Tolf, 2017). Lean is best suited for functional products with low variety, predictable demand, and a long product life cycle (Mishra et al., 2018). In a lean operation, capacity maximisation and cost-effectiveness are important considerations (Seddon & Caulkin, 2007; Tolf, 2017). Lean thinking has five specific principles that are applied in a particular order:

- 1. To understand the customer/patient value:** focus more on the customer's needs than on the provider's needs through close customer interaction and collaboration.
- 2. To define the value stream/patient pathway:** strictly identify the components that add value and do not add value and make the necessary changes.
- 3. The removal of waste to improve the flow:** identify the smooth flow of processes across all organisational boundaries to create total value and eliminate waste.
- 4. The pulling of resources:** respond to the needs of customers and not the needs of suppliers.
- 5. Strive for perfection:** be transparent and standardise processes to achieve perfection (Tolf, 2017; Williams, 2017).

The first step in lean is to identify the value-add and non-value-add products and processes, thus eliminating the non-value-add items (Al-Zain et al., 2019). Lean is suitable for competitive markets with limited assets (Galankashi & Helmi, 2016) and is an approach to thinking that improves the processes, impacts the leadership style, and changes the mindset, with the subsequent impact on healthcare delivery improvement culture (Graban, 2016). Lean can be used to react to an unpredictable environment, as in healthcare, even if additional services with a limited life cycle is introduced (Tolf, 2017). Lean is an approach that challenges leaders, helps them understand where the real problem is, and improves the process/system in small manageable actions (Graban, 2016). Lean maintains a stable demand by focusing on market knowledge, information and forward planning (Naylor, Naim, & Berry, 1999).

2.3.1.3 *Leagile, a combination of agile and lean*

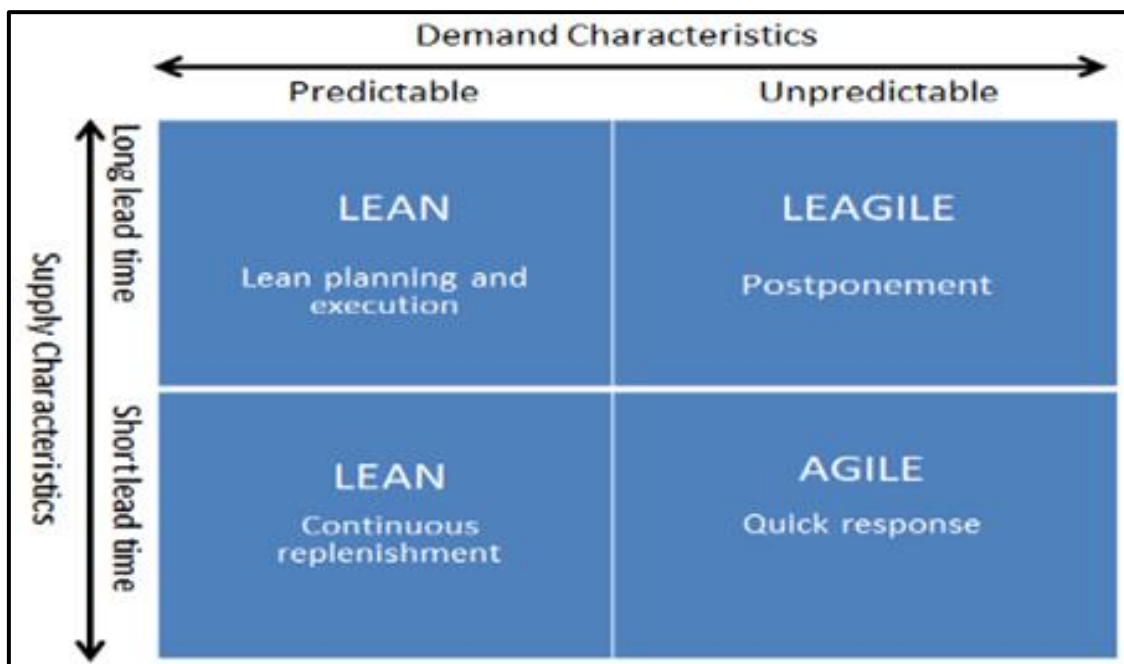
Lean and agile are the two extremes paradigms on the continuum of OSS, with lean focusing on predictable demand and low variation and agile focusing on volatile market and great variety (Mishra et al., 2018). Leagile is the decoupling point between agile and lean, with agile processes being downstream and market-driven, focusing on the customers' orders, and lean systems being upstream and driven by the forecast and planning (Naylor et al., 1999). Leagile becomes the point of differentiation with the activities before the decoupling point (lean) being the standard make-to-stock activities, and the actions after the decoupling point (agile) are make-to-order activities (Aktan & Akyuz, 2017). At this decoupling point, the strategic stock is often held that will be a back-up (buffer) between customer orders (or product) variety and production standardisation (Naylor et al., 1999). At the decoupling point, the principle of postponement applies to move the variable point as close as possible to the end customer to minimise the organisation's risk (Naylor et al., 1999). In an emergency room, several of the planning and preparatory activities are lean, with the activities when a patient arrives agile, intending to move the customisation for the patient's needs (leagile) as close as possible to the point of delivery (Rahimnia & Moghadasian, 2010). Leagile, also called the decoupling point is, the adaptive space where the process moves from being lean to becoming agile (Aktan & Akyuz, 2017). The adaptive space is the holding space for the change and movement of processes from agile to lean, or from lean to agile (Rahimnia & Moghadasian, 2010).

Within a lean and agile supply chain, the principles of utilising market knowledge, compressing lead time and integrating the supply chain apply to both lean and agile (Galankashi & Helmi, 2016; Naylor et al., 1999). However, eliminating waste and level scheduling apply more to lean, and rapid configuration and robustness apply more to agile (Naylor et al., 1999). Organisations that are already lean will only implement agile when unexpected political, regulatory and market pressure is experienced (Tolf, 2017). However, organisations should

combine agile and lean in an attempt to survive and remain competitive since quality, cost, lead time and service are essential elements of competitiveness and success (Aktan & Akyuz, 2017). Therefore, a leagile supply chain should be able to respond to volatile downstream demand, provide a level of scheduling upstream from the decoupling point, and be able to handle the variability in products and production (Galankashi & Helmi, 2016).

There will always be situations where pure agile and pure lean would be the appropriate approach (Mishra et al., 2018). However, at times a leagile approach as a hybrid strategy would be more appropriate, for example applying lean principles to the distribution of oral medicines and nursing items in a chronic care setting, but using leagile to the distribution of insulin and diabetic footwear in the same facility (Mishra & Sharma, 2011). According to Fisher (2003), as cited by Mishra et al. (2018), the product/process characteristics will determine which OSS will apply, especially in a complex supply chain, of which a hospital is a perfect example. As displayed in Figure 2.9, the following matrix is applied to decide on the desired OSS to use.

Figure 2.9: Global supply chain characteristics



(Source: Fisher (2003), as cited by Mishra et al. (2018).)

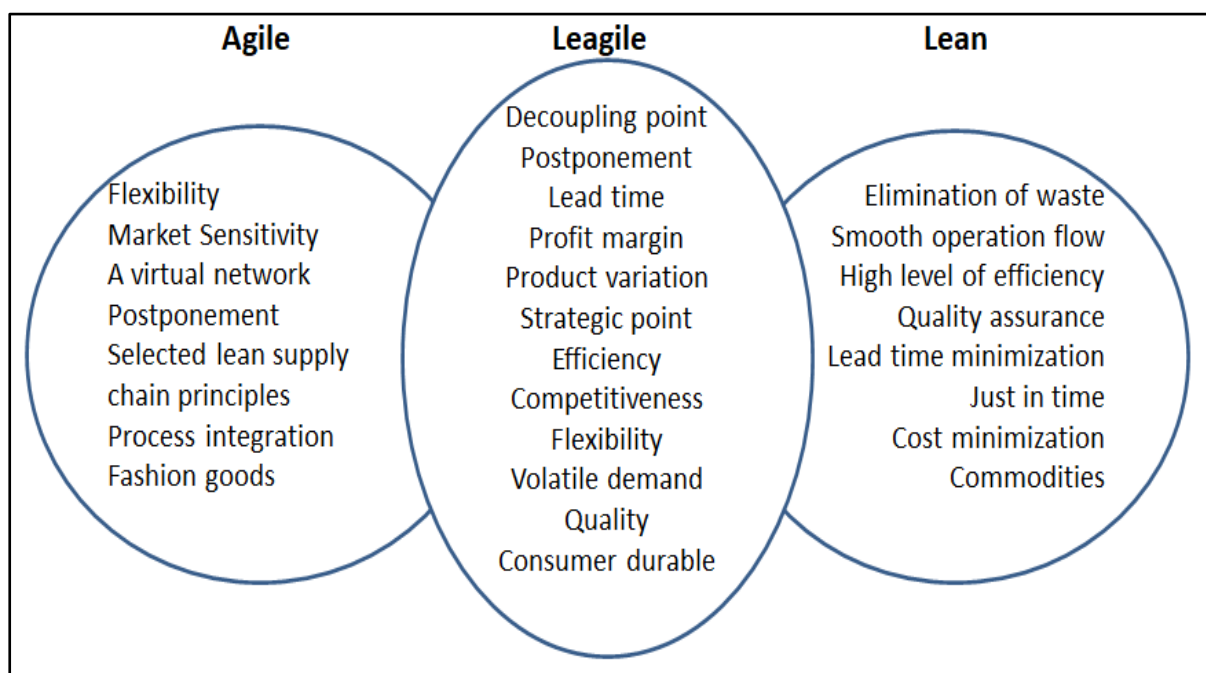
As displayed in Figure 2.9, Fisher (2003), as cited by Mishra et al. (2018) suggested that functional products (or systems) that have a long product life cycle with a steady demand should be managed through an efficient supply chain (lean). Innovative products (or systems) where a wide variety in demand exist with a shorter life cycle must be managed by a flexible supply chain (agile). Should a longer lead time and unpredictable demand be needed, then a

leagile process will apply with the decoupling point placed as close as possible to the end customer (Fisher, 2003, as cited by Mishra et al., 2018).

Assessing the application of leagile outside of the supply chain and in a services organisation is a new research area. Minimal research has been done on leagile in healthcare (Mishra et al., 2018). Within service organisations, such as a hospital, decoupling is separating activities physically or organisationally by placing them under different supervision, often referred to as back-office and front-office tasks, segregating it also from the customer value perspective resulting in overall lower cost and a better fit for the job (Wikner et al., 2017). Employees with higher interpersonal skills and public relations focus will work in the front-office, and employees with more analytical and technical abilities will work in the back-office (Wikner et al., 2017). Certain similarities exist between the supply chain in manufacturing and service organisations. The main focus in service organisations is when, where, and why efficient activities are needed for customer satisfaction (Wikner et al., 2017).

For managers in a hospital to be successful in the combination of agile and lean activities, they need to display CL, be ambidextrous and apply dynamic capabilities in their role (Tolf, 2017). The main attributes of agile, lean and leagile, has been summarised in Figure 2.10

Figure 2.10: Main attributes of agile, lean and leagile



(Source: (Mishra & Sharma, 2011).

Some of the main attributes of agile, lean and leagile will now be discussed as OSS.

2.3.2 The underpinning principles of operational systems and structures

Between agile, lean and leagile, several concepts are shared, but that are applied in different ways, resulting in a profound and robust relationship. The shared concepts across agile, lean and leagile will now be explored.

2.3.2.1 *Unpredictable projection, predictable projection and decoupling point*

The projected demand in a supply chain and a service organisation can be unpredictable or predictable. Predictable demand also called push demand, is a factory that manufactures according to a forecast. If the forecast was incorrect, they need to find ways to get rid of the extra products. In contrast, a factory with a pull strategy running on unpredictable demand first sells the product, then manufactures it and collects the money (Seddon & Caulkin, 2007). In a supply chain, the product (unique or standard), demand (unpredictable or predictable), lead time (short or long) will determine the choices made (Aktan & Akyuz, 2017). The same principles that apply to the supply chain apply to hospitals. Aktan and Akyuz (2017) proposed how such processes will apply to lead time and demand:

- A lean strategy will apply to products that require a short lead time with predictable demand (Aktan & Akyuz, 2017), such as a day ward where the number of admissions is known beforehand.
- A lean strategy will apply to products with a long lead time and predictable demand (Aktan & Akyuz, 2017), for example, a patient visiting the wound care clinic weekly with a set appointment.
- An agile strategy will apply to products with a short lead time and unpredictable demand (Aktan & Akyuz, 2017), for example, the emergency room activities as the demand is unpredictable.
- A leagile strategy will apply to products with a long lead time and unpredictable demand (Aktan & Akyuz, 2017), for example, the emergency room preparation, as the demand is uncertain.

The healthcare industry experiences the same effects of unpredictable and predictable disruption in the supply chain, impacting patient care and costs with drug shortages, downtime and loss in life (Wang, 2018). Service organisations do not have inventory to assist with capacity planning or time buffers, which could have assisted in managing the decoupling point (Wikner et al., 2017). However, the customer inputs and outputs, or staffing requirements, can be predictable or unpredictable and, therefore, the principles discussed above will apply

(Wikner et al., 2017). Healthcare organisations must manage predictable and unpredictable demand (example for organ transplants) (Wang, 2018). Lastly, if employees are given more active problem-solving roles in an unpredictable environment, the environment becomes more predictable and less stressful (Tolf, 2017).

2.3.2.2 Short-life cycle, long-life cycle and decoupling point

The product life cycle is the time lapse from when a product is introduced into a market until the product is removed from the market (Kopp, 2020). A product can have a long- or short-life cycle, with the following four stages: introduction, growth, maturity and decline (Kopp, 2020). An agile strategy would be best suited for innovative solutions, a volatile demand, and a shorter product life cycle with a responsive, flexible supply chain (Mishra et al., 2018). Lean is best suited for functional products with a low variety, predictable demand, a long product life cycle with a focus on cost reduction and effective utilisation of resources (Mishra et al., 2018).

Fisher (2003), as cited by Mishra et al. (2018), suggested that functional products (or processes) that have a long product life cycle with a steady demand should be managed through an efficient supply chain, focusing on the minimisation of cost and high utilisation of resources, namely a lean process. Innovative products (or methods) where a wide variety in demand exist with a shorter life cycle must be managed by a responsive supply chain with high capacity and high flexibility, namely an agile process. Should a longer lead time and unpredictable demand be needed, then a leagile process will apply with the decoupling point placed as close as possible to the end customer (Fisher, 2003, as cited by Mishra et al., 2018).

2.3.2.3 Service orientation, eliminate waste (cost) orientation and integrative orientation

An agile strategy is more focused on the change in the demand of the customer with a service orientation (Mishra et al., 2018), whereas a lean focuses on optimising the workflow, eliminating waste (cost) and providing a flexible approach (Ohno, 1978; Womack & Jones, 1990).

An agile system reacts to the customer's demand for high-quality services and products, even if they have a short life cycle (Aktan & Akyuz, 2017). An agile organisation has an adhocracy culture, with change as the foundation, focusing on excellent, customised and sustainable services and products, meeting the client's specific needs (Felipe et al., 2017). An agile approach's main aim is to delight the customer, having the needs of the customer central to all activities (IQBusiness, 2017).

Lean systems want to achieve improved value by eliminating waste, including eliminating time and creating a level schedule (Naylor et al., 1999). Activities that the end-user do not experience as valuable are removed from the system (Tolf, 2017). Waste is eliminated by managing operations in such a way that a failure can be identified and corrected before it impacts operations significantly (Seddon & Caulkin, 2007). Inventory is closely monitored so as not to carry excessive inventory or expired stock. Therefore, the IT Department is, within a lean healthcare organisation, an essential enabler for waste management (Wang, 2018).

An integrative orientation is the decoupling point where the flexible customer focus orientation (agile) and efficiency/cost orientation (lean) meet to form a leagile approach.

2.3.2.4 *Production variety focus, production uniformity focus and decoupling point*

Agility is when an organisation can respond quickly to any changes in the demand for variety and volume within the production system (Patri & Suresh, 2017). Therefore, an agile approach is suited for a market that expects a great variety, has a volatile demand, and has a shorter product life cycle (Mishra et al., 2018).

Production uniformity focus is when different models of the same item are produced without any impact on the production speed, which can only be achieved if all the necessary resources are present (Seddon & Caulkin, 2007). The type of product (unique or standard), the demand from the market (unpredictable or predictable), and the lead time will determine the type of production line (Aktan & Akyuz, 2017). Lean is best suited for functional products with a low variety, predictable demand, and a long product life cycle (Mishra et al., 2018).

In manufacturing, the decoupling point of the production line will be the point where change is made between producing from a forecast (push)(lean) to producing against a customer order (pull)(agile) (Wikner et al., 2017).

In healthcare, the items that form part of the operations uniformity focus would be back-office functions such as the provision of tests, equipment, medicines and materials. In contrast, when the patient arrives at the hospital or engages in a specific service, that becomes a front office function with an operations variety focus, and with the arrival of the patient mostly being the decoupling point (Wikner et al., 2017). The increased variety that is expected as part of the deliverables of a hospital is the single most significant root cause for waste because of the high inventories that are carried, obsolescence, expiry, and high transport cost of low-value items (Wang, 2018).

2.3.2.5 Quick change, planned, scheduled change and decoupling point

Being agile is characterised by change. Therefore, agility is calculated by measuring the cost of change, time of change, the stability of change, the extent of change, and frequency of change (Kidd, 1994, as cited by Abdelilah et al., 2018). Agile implementations can be a combination of proactive, reactive, and embrative strategies (Tolf, 2017). Agility, together with flexibility, gives organisations the ability to react quickly to changes in the market and, therefore, do quick implementations for a competitive advantage (Abdelilah et al., 2018). Agile implementation in a hospital is characterised by quick responses, essential in healthcare (Dixit et al., 2019).

The scheduling of activities during a lean implementation is an integral part of the lean system. However, the schedule must be suitable to the organisation's needs (Ramadan, Salah, Othman, & Ayubali, 2020). Lean systems want to achieve improved value by eliminating waste, including eliminating time and creating a level schedule (Naylor et al., 1999). The strategies applied in an organisation to schedule and dispatch items are pillars of the lean approach (Ramadan et al., 2020). A lean implementation strategy will focus on a tailored approach, strict schedule of the deliveries, and a continuous replenishment system, creating a level, smooth, stable response to the market (Kozak, Madlenak, & Neszmelyi, 2020). Within a hospital, implementing lean could mean a more structured approach around appointments, scheduling of procedures, scheduling the times of doctors and other healthcare providers (Al-Zain et al., 2019).

2.3.2.6 Integrated supply chain

In a business, the supply chain success determines whether customers experience the business as a success or failure (Mishra & Sharma, 2011). An agile approach would be suitable when an innovative solution is offered with variable demand, a short-life cycle with a responsive, flexible supply chain in response to a dynamic and uncertain environment (Mishra et al., 2018). Lean systems want to achieve improved value by eliminating waste, including eliminating the waste of time, prioritising cost and quality, and creating a level schedule by streamlining the whole supply chain (Naylor et al., 1999).

An integrated supply chain system must integrate demand management, supplier management, order management, inventory management and logistics management (Wang, 2018). An organisation must respond to their customers' needs in a timely, correct and fast way by using an effective supply chain strategy suitable for the clients and the market, not a one-size-fits-all system (Aktan & Akyuz, 2017). Supply chain strategies within an organisation

can be both lean and agile, with leagile being the decoupling point (Aktan & Akyuz, 2017; De Raedemaecker et al., 2020).

Healthcare service providers use supply chain principles to reduce their operational costs (Wang, 2018). The automation of manual processes, reducing waste and excess, developing strong relationships with suppliers, centrally maintaining supplier data, and enabling automation of networks are some of the strategies used (Wang, 2018). The supply chain in a hospital is the technical and physical resources needed to deliver a satisfactory, cost-effective service to the patient (Arora & Gigras, 2018). Hospitals have to collaborate with all stakeholders, customers, and suppliers to form beneficial high-value networks and improve individual competitiveness (Tolf, 2017). An integrated hospital supply chain links departments, operations and revenue, ensuring the availability of items/medicines at specific times for maximum patient care with minimum inventory wastage (Arora & Gigras, 2018). The end-to-end management of a hospital's supply chain, including assets, infrastructure, systems, labour and storage, account for on average 33% of the annual operating expenses, a significant budgetary item (Nachtmann & Pohl, 2009, as cited by Wang, 2018). The Healthcare supply chain differs from the traditional supply chain because of special handling requirements of products, varying quantities, diagnoses and procedures and physician preference and training, resulting in particular demands (Wang, 2018). Within a hospital, the decoupling point will be at different places in the supply chain (Mishra et al., 2018). In a service organisation, the inventory is all the work performed and stored before the customer's arrival (Wikner et al., 2017). The point where the customer/patient arrives in a service organisation is the decoupling point which needs to move closer to the customer for an enhanced experience; thus, more work (preparation) is required before the customer arrives (Wikner et al., 2017).

2.3.2.7 Collaboration in operational systems and structures

Collaboration in healthcare is when healthcare workers and social care professionals work together to positively impact patient care (Reeves et al., 2017). Hospitals have to co-operate and collaborate with many stakeholders to offer good quality care, and failure could result in fragmented, inadequate services (Tolf, 2017). The focus for healthcare providers is not to be standalone entities anymore, but to collaborate with customers (patients), suppliers and even competitors to create networks that add value (Tolf, 2017). Following the earlier discussions, collaboration can occur in different divisions and different ways, but for it to be successful, the various role-players must trust one another (Mishra et al., 2018).

Inter-organisational collaboration often occurs in reaction to a turbulent environment, where these organisations' bargaining power is improved as a collective, resulting in new, innovative solutions, economies of scale, cost-sharing, and increased market access (Ungureanu,

Bertolotti, & Macri, 2018). Collaboration between hospitals in different hospital groups is imperative for the sector to exchange new findings in the field and position of healthcare for success (Rahimnia & Moghadasian, 2010).

Certain conditions increase the possibility of successful collaboration, such as innovative relationships that already exist, well-defined and robust governance systems, and external support, for example, funding (Cooke, 2002, as cited by Ungureanu et al., 2018). It does sometimes happen that organisations that collaborate to find solutions for VUCA create more disharmony because of the different experiences and priorities (Ungureanu et al., 2018). Hospitals that successfully collaborate share, for instance, certain products' inventory and, through effective collaboration and integrated supply chain, can exchange products where needed (Wang, 2018).

2.3.2.8 Continuous improvement (innovation) in operational systems and structures

Continuous improvement appears in lean, as exploitation, and in agile, as exploration, with the central concept of innovation (Tolf, 2017). Continuous improvement is, therefore, a concept that will apply to agile, lean and leagile.

One of the cornerstone principles of an agile organisation is managers that focus on continuous improvement (Felipe et al., 2017) through implementing, inspecting, and adapting cycles (IQBusiness, 2017). Continuous improvement is a top-down initiative and a bottom-up initiative where all employees experience their contribution to new ideas and suggestions as valued in making the organisation better (De Raedemaeker et al., 2020). A culture of trust and transparency enables continuous improvement as failure is allowed (IQBusiness, 2017). Risk is identified and managed through a process of continuous improvement (Wang, 2018).

Continuous improvement is one of the lean foundational principles to add value and reduce waste through continuous improvement (Tolf, 2017). Lean has an approach of constant learning, with managers that do not have a command and control approach but approach to make it easier for employees to respond to customer needs (Seddon & Caulkin, 2007). The continuous improvement in lean is one of the critical factors in dealing with paradoxes in organisations (Erthal, Frangeskou, & Marques, 2020).

The successful innovation focus is often not a top-down approach but rather a bottom-up approach with micro-innovations across the business (Du & Chen, 2018). Changes in the product design of an organisation can occur in three ways: bringing in innovation, continuous improvement and changes that are forced (Kaikkonen, Haapasalo, & Hänninen, 2018). The main task of a leader in a lean organisation is to assist the workers closest to the problems or the customer with the solutions to fully serve the customer (Seddon & Caulkin, 2007). Only

organisations that develop a culture that embraces errors as learning opportunities will continually improve (Chatfield et al., 2017).

2.3.3 Operational systems and structures in healthcare

The healthcare industry has been categorised as a VUCA industry, in need of a new reality, new culture, and an adjustment in the way things are done (García, Navarro, Rodríguez, Fernández, & Freixes, 2017; Turner, 2018). However, the healthcare industry faces a triple challenge where a balance must be achieved between better health, improving care, and lowering costs (Adebanjo et al., 2016). For healthcare improvement, the people, processes, and technology must be combined and integrated (Williams, 2017). Healthcare organisations' challenges are similar to traditional operations management and supply chain organisations with inadequate strategic planning, design and facility planning, scheduling and workforce planning, supply chain, demand, and capacity (Williams, 2017). Some of the healthcare performance measures are waiting times, length of stay, employee morale, patient satisfaction, increased capacity, cost reduction, and improved quality (Adebanjo et al., 2016). Williams (2017) professes that the healthcare environment is much more complex despite similarities between healthcare and manufacturing.

Research in OSS in healthcare is important, due to concerns over patient safety, medical errors, increase in healthcare delivery costs, suggestions around front-office and back-office segregation of activities, and the effect of separation of patient flows, effectiveness and efficiencies (Wikner et al., 2017). The private hospital industry needs urgent and focused change to existing processes and structure and new innovative solutions to deal with the internal and external complexities and challenges.

2.3.3.1 Agile in healthcare

Agility in healthcare is the long-term capability a hospital has to adapt to the environment and to manage reductions in the budgets (Tolf, 2017). An agile approach is suitable when great variety and customised demand is needed, as in healthcare (Wang, 2018). A small number of agility studies have been conducted in healthcare. However, the number of agility studies in healthcare is limited (Patri & Suresh, 2017; Williams, 2017). Agile strategies can successfully be implemented in a hospital setting by focusing on the external environment through proactive, reactive or embracing coping strategies, with agility being a long-term capability to adapt to the external environment (Tolf, 2017). Agile in healthcare is enabled by the structure of the organisation, a workforce that is flexible and motivated, co-operation between the management team and the employees, the available training and the value that is given to suggestions from management and employees by implementing the suggestions (Dixit et al.,

2019). Because agility is a novel concept in healthcare, only a few examples of agile healthcare organisations exist; however, more healthcare leaders have started to embrace agility (Berlin, De Smet, & Sodini, 2017). The healthcare landscape has the challenge to balance the changing reimbursement model with the changes in the service delivery model that asks for an agile approach (Wang, 2018).

2.3.3.2 *Lean in healthcare*

Lean has been extensively applied in healthcare, with several international studies on the impact of lean in healthcare (Akmal et al., 2020; Mishra et al., 2018; Narayanamurthy, Gurumurthy, Subramanian, & Moser, 2018; Tolf, 2017). The main aim of implementing lean in healthcare is to simplify the process by identifying what adds value, removing activities that do not add value and hampers the flow of patients and activities surrounding patients (Tolf, 2017). Lean in healthcare was implemented to limit unnecessary and duplicate processes, e.g., repeated recording of patient details, managing movement of patients between wards and departments, and coordinating discharge planning to limit stay (Narayanamurthy et al., 2018). The redesign of current healthcare processes to become lean often exposes patients and providers to risk, impacting such implementations (Parker & DeLay, 2008, as cited by Wang, 2018). The implementation of lean in healthcare implies that healthcare providers have to update, improve and implement logistical actions (purchasing, material, capacity planning, scheduling, warehousing) with the intended outcome of improved physical efficiencies (pharmacy, buildings, services) and with information that is real-time (medical and patient records) across all functional areas of the facility (Adebanjo et al., 2016)

Several researchers have pointed out limitations in applying lean thinking in healthcare: narrow technical solutions, too strong focus on internal efficiency without awareness of external effectiveness, and a limited systems approach that impacts lean implementations in complex scenarios (Tolf, 2017). The failure rate of implementing lean in healthcare is very high and is between 50% and 95% (Narayanamurthy et al., 2018). These implementation failures are partly because lean is not well interpreted, often misunderstood and implemented with too a narrow focus to eliminate variation in processes, eliminate waste and increase financial performance (Erthal et al., 2020). Lean also fails because it is not approached as a total cultural change in hospitals but only as a set of tools to implement from a toolbox (Erthal et al., 2020).

2.3.3.3 *Leagile in healthcare: a combination of agile and lean*

Rahimnia and Moghadasian (2010), as cited by Wang (2018) stated that healthcare processes could be categorised into three pipelines (lean, agile and leagile) depending on the most

suitable position of the decoupling point. Combining lean and agile is suggested for hospital management. Lean management will achieve efficiencies and manage costs, while agile management will respond flexibly to the hospital environment (De Raedemaeker et al., 2020). However, ambidextrous and dynamic management flexibility are needed to make implementations effective (Tolf, 2017). Hospitals that function in dynamic and uncertain environments must implement a combination of agile and lean, with leagile being the decoupling point, to achieve effective and efficient utilisation of current resources and the identification of additional assets (Tolf, 2017). Healthcare decoupling thinking, similar to manufacturing decoupling thinking, regards the patient as a material flow with the just-in-time service commencing with the customer's arrival (Wikner et al., 2017). When conditions in the hospital support agile and lean implementation, grouped for the decoupling point to emerge, one must, however, still consider the human element as a vital factor for the success of such implementations (Rahimnia & Moghadasian, 2010).

The skills of management for the enablers in a hospital to increase lean and agile implementation to rapidly react to changes, adjust the job roles to the changes, and employ people with flexible skills (Tolf, 2017). Healthcare organisations must deal with predictable demand effectively but be responsive in dealing with unpredictable demand, e.g. the demand associated with transplants (Wang, 2018). The orientation of management towards the implementation of proven production processes, their market-orientation, the readiness of the organisation for change, the ability to cope with rapid transitions, and the flexibility in the application of resources (human and physical) are the key for a hospital to successfully implement agile, lean and leagile (Tolf, 2017).

2.3.4 Criticism of agile, lean and leagile

Within agile thinking, the concept of criticism is fundamental because, within agile software development, the team need to, at the end of every iteration, objectively criticise the process and output in an attempt to learn from their mistakes (Bhatta & Thite, 2019). However, criticism of the concepts of agile, lean and leagile in business exist.

The most significant criticism of agile is that, because it is so different from the traditional approach and thinking, the implementation often fails because there is no top-down buy-in for organisational transformation (Bhatta & Thite, 2019). Organisations often want to maintain their hierarchical structure and culture but implement an agile approach because it is politically correct, but these two principles are incompatible (Hohl et al., 2018). Criticism is also often experienced by the internal project management team or development team with agile implementation, as it impacts the current job profiles extensively, especially if it is not part of the current roles and responsibilities (Gupta, George, & Xia, 2019). Agile then became a

buzzword and has been commercialised by businesses and developers (Hohl et al., 2018). Business often uses the term to create specific image impressions. However, if the principles are not applied as intended, the results are not achieved. This can result in agile being labelled as ineffective (Hohl et al., 2018). Agile is also sometimes criticised for the scalability for implementation in large projects and organisations, with the suggestion that the agile guidelines and practices need to be adapted for implementation in a broader context, keeping complexity, project size and team dispersion in mind (Turetken, Stojanov, & Trienekens, 2017). Additionally, the development team might have explicit knowledge of the needs of the customer, but because there is not enough knowledge sharing, the development team do not have tacit knowledge on what is needed, resulting in the development not meeting customer needs (Suryaatmaja, Wibisono, Ghazali, & Fitriati, 2020).

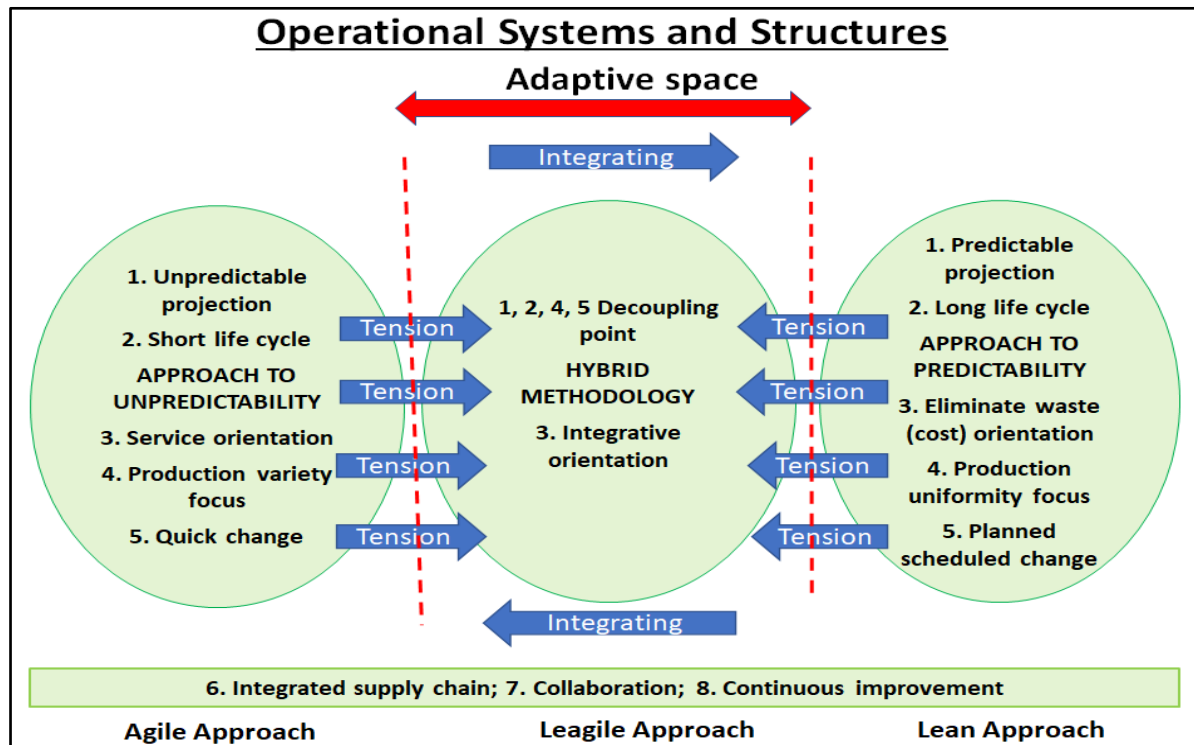
Several researchers criticised lean because of too narrow technical solutions, a too strong internal efficient focus, ignorance of awareness of external effectiveness, and limited systems approach, which negatively impacts the effects of lean when turbulent external complexities are experienced (Tolf, 2017; Wang, 2018). It is often challenging to implement lean thinking because lean has wrongly been labelled as a cost and employee reduction approach. In contrast, lean is an approach that empowers employees to serve the customer (Seddon & Caulkin, 2007). Employees also often find it challenging to implement lean as lean focuses on meeting the customer's uniformed needs. However, employees usually prefer to focus only on meeting their targets, regardless of whether the customer is satisfied or not (Seddon & Caulkin, 2007). Another criticism of lean in healthcare is that, despite lean focusing on the patient, it does not necessarily increase the patient's satisfaction, which further supports the notion that the benefit in lean is more in the increased efficiencies and cost reduction than in the patient satisfaction (Tolf, 2017).

Aronsson et al. (2011), as cited by Wang (2018) maintains the view that leagility is not appropriate for healthcare because of the high levels of uncertainty and demand in hospitals. Despite the criticism of agile and lean, overwhelming evidence exists of successful impact in business and healthcare. Implementation teams and business leaders alike, therefore, need to be conscious of the criticism towards these approaches during the planning and execution of projects.

2.3.5 The conceptual model for operational systems and structures in this study

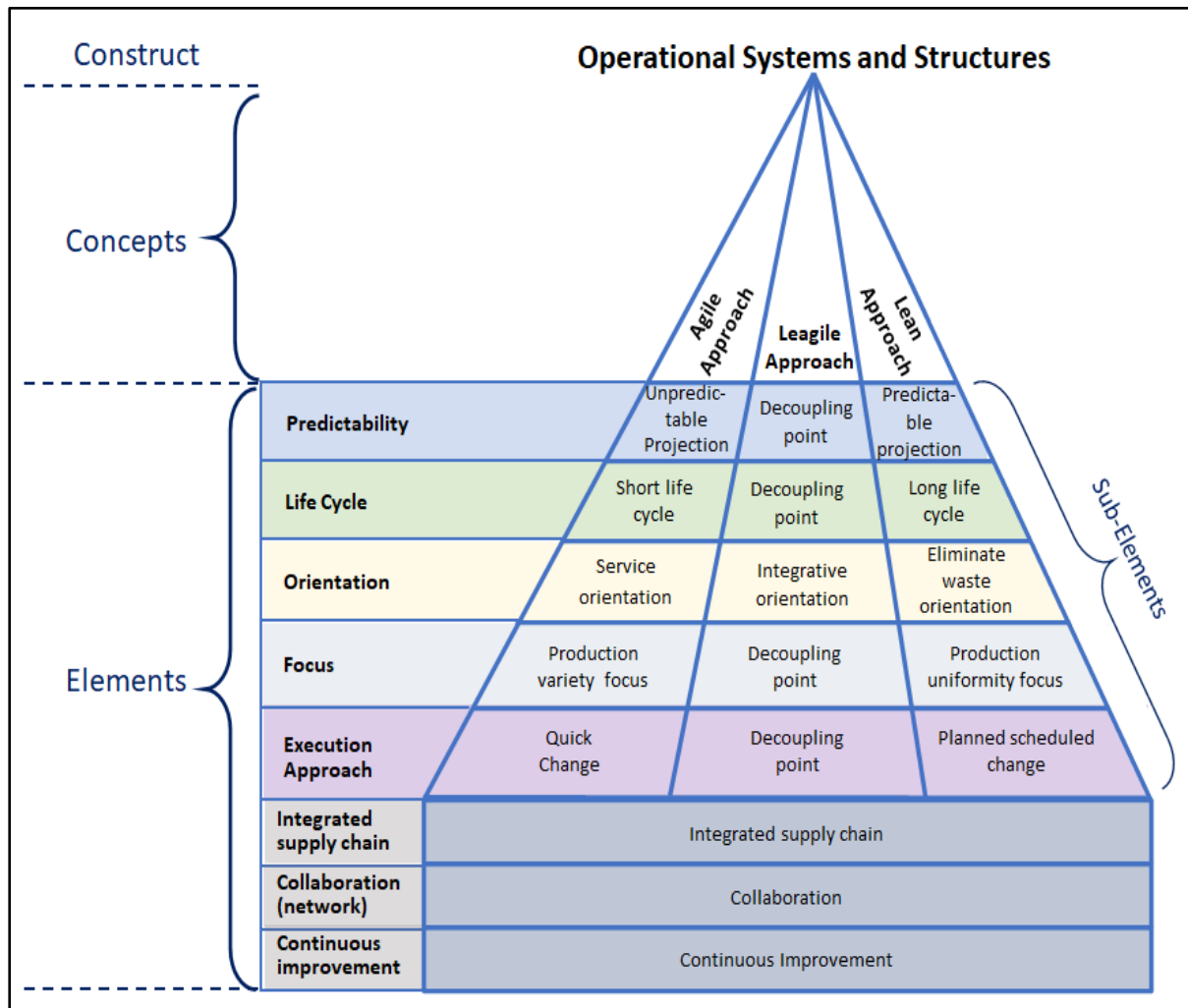
Following the analysis of all factors that impact the display of OSS in private hospitals, the conceptual model for the OSS section of this study is displayed in Figure 2.11.

Figure 2.11: Conceptual model of the OSS in this study



The display/design of the conceptual model is aligned with the display/design of the CL conceptual model, as published by Uhl-Bien and Arena (2018). The construct of OSS can be explained by the integration/tension of the three concepts of agile, lean and leagile, with leagile being the decoupling point between agile and lean. Agile is an approach to unpredictability, lean is an approach to predictability, and leagile is the applied hybrid system. Leagile is the adaptive space where the tension exists and where the change occurs. The adaptive space in OSS is similar to the adaptive space in CL (see Section 2.2.7), called the holding environment (Arena & Uhl-Bien, 2016; Northouse, 2016). In OSS, the point of integration between agile and lean is leagile. Here, the dynamic tension between these two systems is fostered, and entrepreneurial ideas are shared and developed (agile) for implementation and integration into the organisation's formal processes (lean). Eight elements are shared across the three different OSS concepts. All elements and sub-elements must be evident in the display of the implemented OSS, as well as the three concepts of OSS (agile, lean, leagile) must be in balance with an active adaptive space for it to be regarded as OSS, according to the conceptual model of the study. Figure 2.12 displays the relationship between the concepts, elements and sub-elements of the conceptual model.

Figure 2.12: Constructs, elements and sub-elements of the conceptual model

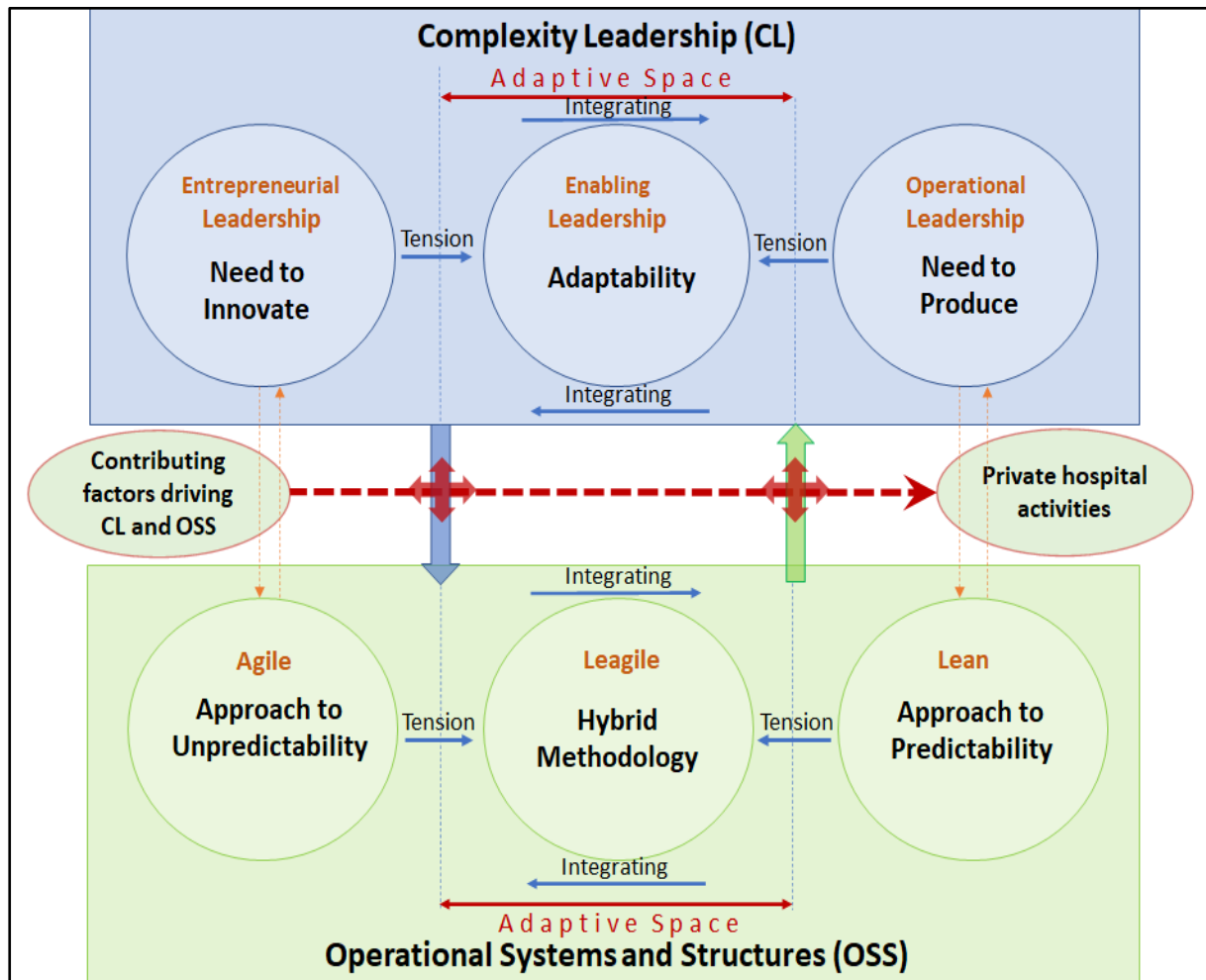


As displayed in Figure 2.12, the first five elements of predictability, life cycle, orientation, focus and execution approach have three sub-elements each. The last three elements, which are integrated supply chain, collaboration and continuous improvement, are shared across all three concepts. These specific elements were selected from the literature study that was performed for their ease of assessment via an online survey during the study's quantitative phase. The conceptual model, as displayed in Figure 2.11, will, therefore, apply to the OSS section of this study.

2.4 OVERALL CONCEPTUAL MODEL FOR THE STUDY

CL and OSS are multidimensional constructs with multiple underlying concepts. The synergies between these two constructs are evident in the information presented in the literature study. Figure 2.13 displays the high-level overall conceptual model of this study.

Figure 2.13: High-level overall conceptual framework of the study

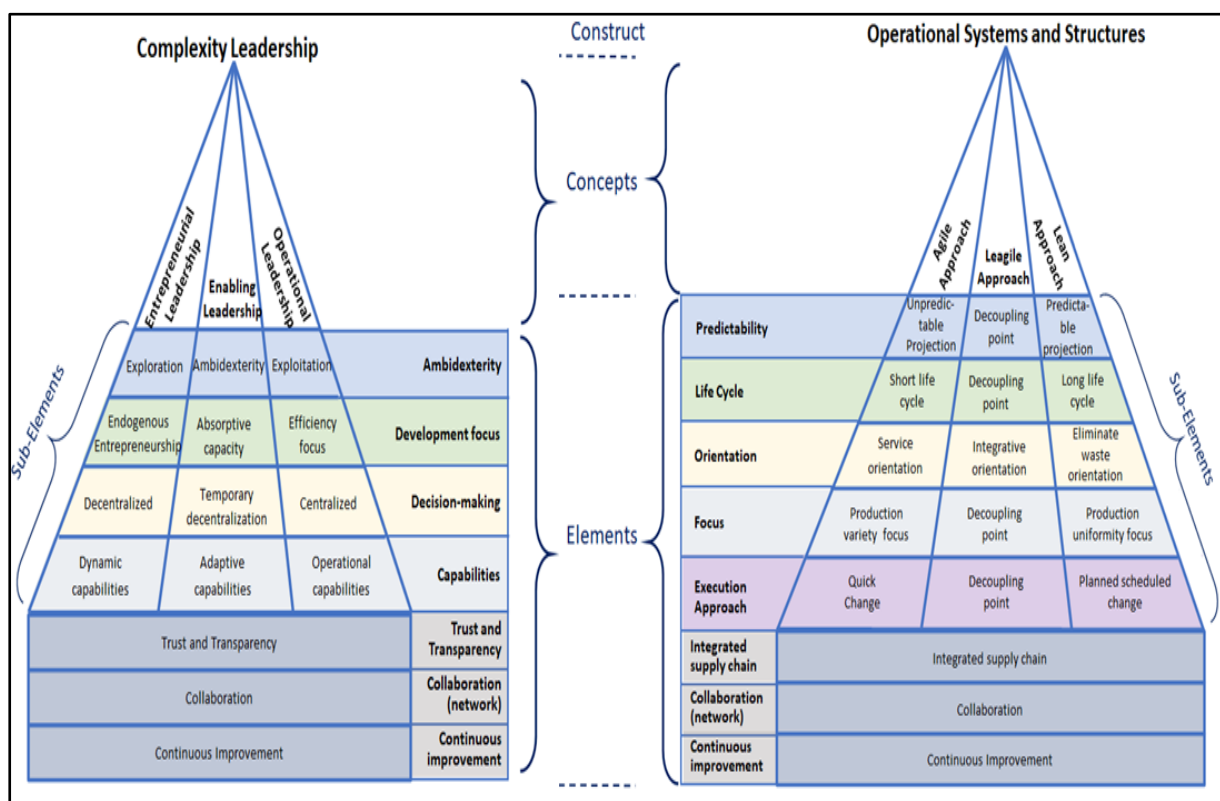


The constructs of CL and OSS have been explained in the literature study, and the underlying concepts, elements and sub-elements that impact these constructs have been discussed. The conceptual model of CL and OSS has been integrated into this mixed-methods study by identifying the relationships between the two constructs of CL and OSS, as illustrated in Figure 2.13. This integration also identified how these concepts potentially impact one another (entrepreneurial leadership with agile; operational leadership with lean). The qualitative integration of the mixed methods is indicated in the conceptual model showing where the qualitative study will explore why the relationships exist and what can be done to change the situation.

As illustrated in Figure 2.13, it is expected that the construct of CL impacts OSS, whilst the construct of OSS then again influences CL through complex interactions between the concepts, elements and sub-elements of the two constructs. The correlation between entrepreneurial leadership and agile will be tested, as well as the correlation between operational leadership and lean. For this study, the overall relationship between CL and OSS will subsequently be determined, as well as the contributing factors that can explain the

dynamics of this relationship. As displayed in Figure 2.13, the relationship between the concepts of CL internally, the concepts of OSS internally, and between CL and OSS needs to be in balance for this suggested model to impact the hospital successfully. Therefore, all the circles in the model are of the same size, and all the arrows are equal. The construct of CL has been fully explained in Section 2.2, and OSS has been fully explained in Section 2.3. Based on the literature, the relationship between CL and OSS at the level of constructs, concepts, elements and sub-elements are displayed in Figure 2.14.

Figure 2.14: Relationship between CL and OSS at the level of constructs, concepts, elements and sub-elements



From Figure 2.14, it can be concluded that both constructs CL and OSS consist of three concepts each. Each construct has several elements that are shared across the three concepts, seven elements for CL and eight elements for OSS. Some elements also have sub-elements, for instance, CL has four elements with sub-elements, whilst OSS has five elements with sub-elements.

2.5 CREATING THE ADAPTIVE SPACE

Organisations today focus mostly on managing, coordinating and controlling the day-to-day activities. New ideas get stifled, and short-term operations are perfected at the expense of long-term adaptability, resulting in a suppressive organisation where new ideas are seldom heard (Arena, 2018). The key to adaptability is creating the adaptive space that engages the

tension between innovative ideas that collide with the operations, generating and scaling the innovation into the larger organisation (Schulze & Pinkow, 2020). Hierarchical organisations with an order response want to eliminate the tension by implementing more order and control (Uhl-Bien et al., 2020). Constant feedback occurs between the need of the organisation to innovate, the need to maintain and improve current processes and the adaptive space where enabling leadership is displayed, collaboration and adaptability occur, and constant integration of processes and activities across the adaptive space into the operational space exist (Uhl-Bien, 2020a).

To create the adaptive space in a hierarchic organisation is to implement change, which can only occur if the forces striving for change is increased, or the forces for maintaining the status quo is decreased, or a combination of both (Hussain et al., 2018). Triggers for change can be an exogenous shock (disruptive technology, competitor innovation or regulatory change) resulting in reactive change, or alternatively endogenous entrepreneurship (new ideas for products and services), which is a proactive change in response to the exogenous shock (Uhl-Bien & Arena, 2018). Complex organisations that function in an environment where they are insulated will often not engage adaptability and the creation of the adaptive space, resulting in them still applying old traditional leadership models (Uhl-Bien, 2020b). The change will only occur when the insulation is removed due to an exogenous shock, for example, changes in the regulatory space (Uhl-Bien & Arena, 2018). Leadership is the most vital part of any organisational change process (Hussain et al., 2018). Therefore, change-orientated leadership positively and directly impacts any change in an organisation (Al-Ali, Singh, Al-Nahyan, & Sohal, 2017).

Two elements of the adaptive space are conflicting: promoting tension to trigger the development of innovation, and connecting which is the sharing of ideas of the heterogeneous individuals into the organisation (Schulze & Pinkow, 2020). The leader must be humble enough to take risks in opening the adaptive space to allow team members to experiment, sometimes creating controlled tension that may make people feel uncomfortable (Uhl-Bien & Arena, 2017). All three leadership approaches have to be present and in balance to improve an organisation's current processes and develop new innovative strategies to react to internal and external uncertainties (Uhl-Bien, 2016). The same principles apply for creating the adaptive space for OSS, which is the point of leagile between agile and lean (Naylor et al., 1999).

Organisations need to be redesigned for adaptability by developing the following four types of connections across a variety of platforms (Arena, 2018):

1. **Discovery connections** that connect different groups across the organisation, overcoming silos and encouraging challenging ideas.
2. **Development connections** are the sharing of ideas in cohesive teams, also called two-pizza teams, often resulting in high-trust relationships with a safe space for refining ideas.
3. **Diffusion connections** are people that can spread the ideas from the development connections through the larger organisation for comment and adoption.
4. **Disruption connections** break down the existing structures and formally endorse a change in the organisation through disruptive initiatives (Arena, 2018).

These deliberate connections and adaptability are achieved if leaders allow employees headspace, which is defined as free time during office hours, spending on other tasks than the work tasks, networking, being innovative, or developing a specific interest (Schulze & Pinkow, 2020). The adaptive space is developed when employers create and encourage networking events during office hours (and sometimes after hours) with heterogeneous groups of participants (to achieve variety and tension), where the leaders are actively involved in engaging the conversation (Schulze & Pinkow, 2020). The quality of these topic-centred interactive sessions and communities engaging particular topics or problems, and finding solutions, is heavily reliant on the facilitator's abilities (Schulze & Pinkow, 2020). A climate of trust, honesty, caring, and transparency is essential for employees to feel safe to share ideas and feel empowered to show initiative (Uhl-Bien & Arena, 2018). Some companies have increased virtual collaboration spaces and physical collaboration spaces to encourage engagement (Schulze & Pinkow, 2020), while positive changes in communication style support increased levels of engagement (Coetzer, 2019). Furthermore, being valued for one's contribution is likely to result in a positive impact to gain greater access to the executive function, which could enhance problem-solving and innovation (Coetzer, 2019). Leaders must create an adaptive space, but all levels in the organisation can display innovative leadership (Schulze & Pinkow, 2020). Barriers within the organisation, such as political barriers, structural barriers (time and budgets), and cognitive barriers (someone will steal my idea) need to be addressed (Schulze & Pinkow, 2020).

It is possible to create the adaptive space in a hospital within the principles of nursing governance by assisting and guiding the traditional nursing leaders to approach their environment as CAS, creating a space for innovation and implementation of new ideas and processes (Crow, Hahn, & French-Bravo, 2019). Structures within the hospital can be transformed to support entrepreneurial, operational and enabling leadership and enable the

adaptive space (Crow et al., 2019). Healthcare organisations that implemented CL and maintained their hierarchical structures acknowledged the importance of external pressure, informal networks and human behaviour (Weberg & Fuller, 2019).

For a hospital to deal with change, the hospital's readiness for change needs to be determined (Vaishnavi & Suresh, 2020). Implementing the adaptive space in the hospital start with the nurse manager enabling an adaptive and learning approach (replacing the authoritative approach), aligning the control of resources, tasks, conflict and strategies with this approach, and enabling an environment that will promote adaptability, innovation, and the flow of knowledge (Henriksen, 2016). Implementing the adaptive space in the hospital does not have to be expensive, but leadership intent is needed to implement an open-door policy, hotlines, purposeful leadership rounds, champion meetings, innovation departments, coaching programmes, and other initiatives aiming to give the employees a voice (Galuska, 2014; Uhl-Bien et al., 2020). It starts with the small things; the words the leader uses to describe their work, the information shared, the manner in which it is shared, the frequency and structure of meetings, one-on-one discussions, and micro-interactions, all set the foundation for change (Weberg & Fuller, 2019). Readiness can be increased by keeping meetings with employees regular, frequently collecting and evaluating, providing employees comprehensive guidance, building a culture of trust that considers diversity, and maintaining a clear understanding of the policies that impact the employees (Vaishnavi & Suresh, 2020). Leaders have to take ownership of mentoring and developing upcoming leaders through programmes that transition healthcare organisations, teams and individuals (Mazzocchi & Wolf, 2016). Intentionally diverse interaction platforms for employees need to be created with face-to-face interaction within the organisational constraints, underpinned by a culture of trust, authenticity, integrity and tolerance of imperfection (Galuska, 2014).

2.6 CONCLUSION

Chapter two consisted of four sections that covered the conceptual foundations of this study.

In the first section, the theories underpinning this research were discussed. The overarching theory is the Autopoiesis Theory, supported by the Complexity Theory, the Chaos theory, the Cynefin framework and Seddon's Systems Thinking Theory. These five underpinning theories were collectively necessary to describe the complex relationships between leadership and operational systems and structures. Throughout this conceptual chapter, but also later chapters, clear linkages back to the different theories were displayed.

The second section discussed leadership in complex organisations, leadership styles that apply to this study, the construct of CL, and leadership in healthcare. The complexity of the

framework of CL was clearly displayed as the construct has a total of 20 different elements and sub-elements that were discussed. CL is the recommended leadership framework for organisations that must achieve adaptability in a VUCA world. The theoretical framework of CL was explored, explaining and linking the different elements and sub-elements of CL. The tension needed between entrepreneurial leadership and operational leadership, the importance of the adaptive space (enabling leadership), and the integration between entrepreneurial leadership and operational leadership was discussed. Criticism of CL was presented, but despite the criticism, CL is the recommended leadership framework for adaptability. Furthermore, leadership in healthcare was also discussed, the challenges that absent leaders present, the steep authority gradient in private healthcare, the lack of business skills, lack of understanding leadership roles (especially by non-clinical managers), and the challenge of having enough managers but not enough inspirational leaders, were discussed.

The third section of this chapter discussed the construct of OSS with agile, lean and leagile. The foundation of these three concepts was discussed, followed by the elements and sub-elements that formed the concepts of agile, lean and leagile, clearly indicating the relationships between these elements and sub-elements. The complexity of OSS resulted in a total of 18 elements and sub-elements, which were discussed. Throughout the OSS discussion, the discussion was linked back to the underpinning theories that supported the concept of OSS. The concepts of agile, lean and leagile in healthcare were subsequently explored, followed by the criticism that gets levelled against these concepts. The literature is clear that implementing a combination of agile, lean and leagile is the ideal strategy for adaptability, especially for organisations functioning in complex environments. This OSS conceptual model is strongly aligned with the conceptual model for CL in this study.

Chapter two was concluded by presenting the overall conceptual model of the study, which is the integration of the study at the methodological level. This chapter concluded with a discussion on the necessity of creating, enabling, and maintaining the adaptive space, which is essential for complex organisations in VUCA industries. This section also explored implementing the adaptive space in organisations in general and in hospitals specifically. Lastly, adaptability was confirmed as the ideal approach to deal with complexity in a VUCA industry.

In the next section, the trends in the global healthcare landscape, as well as the African healthcare landscape, will be explored. On the global healthcare landscape, specific attention will be given to the increased life expectancy and ageing of the population, increases in non-communicable diseases, pandemics, the shortage of healthcare workers, increased healthcare costs and the impact of technology improvements on healthcare. Next will specific

attention be given to the African healthcare landscape, with a focus on the uniqueness and challenges experienced by healthcare in Africa. Healthcare service delivery, the healthcare workforce, information systems in healthcare, technology and medicine, financing, and governance and leadership will be discussed.

CHAPTER 3: GLOBAL HEALTHCARE

3.1 INTRODUCTION

For some years now, politicians, healthcare managers, and leaders worldwide have agreed that healthcare change is needed for a variety of reasons (Oliveira, Barrenho, Vernet, Autio, & Barlow, 2017). The COVID-19 pandemic has changed the global healthcare landscape and highlighted inadequacies and problematic health policies locally and internationally (Kher & Nair, 2020). COVID-19 is a severe respiratory syndrome caused by coronavirus 2 (SARS-CoV-2), resulting in viral pneumonia, severe illness, and death (Ng et al., 2020). Furthermore, apart from COVID-19, all countries are generally experiencing increased healthcare challenges resulting in an ever-increasing percentage of GDP allocated to healthcare (Oliveira et al., 2017).

Health systems are highly context-specific, and therefore identifying problems and finding solutions need to consider the context (World Health Organization, 2015). Healthcare systems in Africa suffers from man-made challenges unique to the continent that impacts human resources, financial, institutional, political and technical developments (Oleribe et al., 2019). Although relative health improvements were made, these are deeply unequal (World Health Organization, 2015) and, therefore, will global healthcare and healthcare in Africa be discussed before healthcare in South Africa is discussed in the next chapter. It is imperative to understand the most prominent global and African healthcare trends as a foundation for understanding healthcare in South Africa

The following section will explore global healthcare, explicitly considering Universal healthcare. Universal health coverage is a global WHO initiative to ensure cost-effective, equitable, good quality healthcare is provided worldwide in preventative, curative, promotive, rehabilitative, and palliative services (World Health Organization, 2019c). Next will specific global healthcare trends be explored, such as the ageing society, non-communicable diseases, pandemics, shortage of healthcare workers, increasing healthcare costs, and technological innovations in healthcare. This chapter will be concluded with a discussion on healthcare payment models.

3.2 WHAT IS GLOBAL HEALTHCARE?

Health refers to complete mental, physical and social well-being, not only the absence of disabilities and disease (Schwab, 2019). Universal health coverage is a global goal of the WHO, supported by the UN and other international bodies. Universal health coverage wants to ensure everyone has access to equitable, cost-effective, good quality healthcare (World

Health Organization, 2019c). Good health and well-being have been specifically stated as objectives in the 2015 United Nations' 17 Sustainable Development Goals (SDGs) initiative for 2030. Slow economic growth in poorer countries has slowed the SDG initiative and impacts healthcare services, affecting citizens' quality of life (Schwab, 2019).

Countries in Africa experience significant challenges such as insufficient human resources, inadequate budget allocation for health, poor management, and leadership in health, often due to neglect and underfunding (Oleribe et al., 2019).

3.3 EMERGING TRENDS IN GLOBAL HEALTHCARE

Global healthcare expenditures have been rising from US\$7.724 trillion in 2017 to an expected US\$10.059 trillion in 2022 (Deloitte, 2019). The annual healthcare spend per person in the United States of America (USA) was US\$12 262, in Pakistan US\$45 (Allen, 2020) and in some low-income countries US\$9 per annum in 2019 (World Health Organization, 2020a).

Countries must apply the following approaches to healthcare challenges:

- Establish financial stability within the uncertain healthcare economy.
- Adapt to the changes in the needs, demands and expectations of the consumer.
- Develop new models to improve the access and the affordability of care.
- Regulatory compliance, as well as cybersecurity, must be maintained.
- Digital innovation, together with transformation, is imperative, despite the cost.
- Top talent must be recruited, developed and retained (Deloitte, 2019).

Some of the global healthcare challenges will be discussed in the following section.

3.3.1 Increase in life expectancy and ageing

An increase in life expectancy and declined fertility rates impacts the global demographic landscape (Yeganeh, 2019). The global average life expectancy is currently above 70 years. However, in some African countries, it is 53 years, and in Japan, it is more than 80 years (Roser, Ortiz-Ospina, & Ritchie, 2019). In 2015 12% of the world population was above 60 years of age; however, in 2050, that number is expected to be 22%, with 80% of these people living in lower- and middle-income countries (World Health Organization, 2018). Governments should take sufficient action to improve their social and healthcare systems' efficiencies to meet the older generations' demands (Yeganeh, 2019). Health systems need to transform to

provide affordable integrated services centred around more senior people (World Health Organization, 2017).

The World Healthcare Organisation published a global strategy and plan on ageing and health with the overall objective to achieve a decade of healthy ageing from 2020–2030. The specific goals are a commitment to action, aligning health systems to older people's needs, developing age-friendly environments, strengthening long-term care, and improving the measuring, monitoring, and research related to older people (World Health Organization, 2017).

3.3.2 Increase in non-communicable diseases

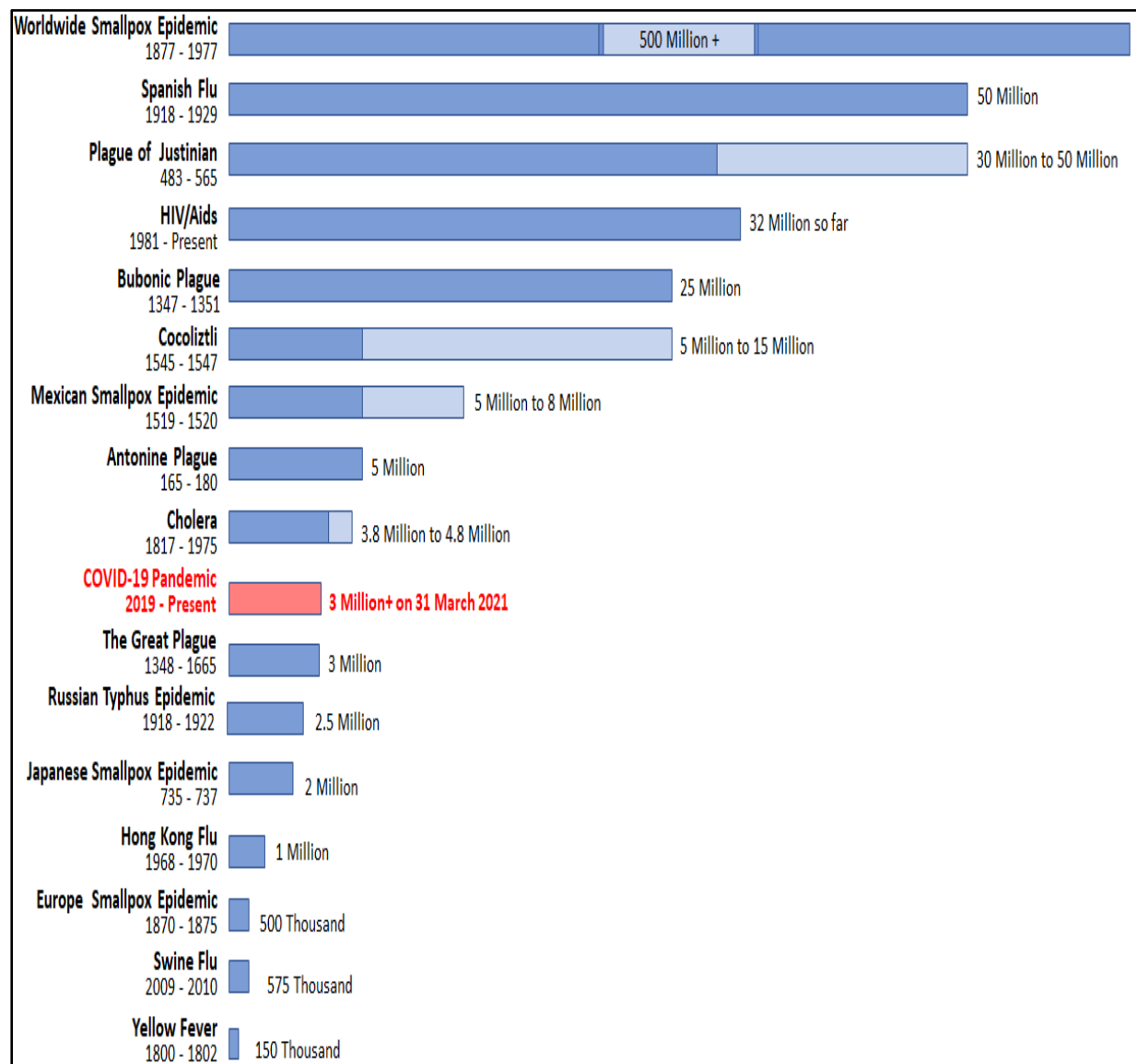
Health creates wealth and, therefore, is health a pivotal contributor to the SDGs success, and must non-communicable diseases (NCDs) be addressed to achieve health and wealth (Niessen et al., 2018). The UN SDG goal 3 is to reduce premature mortality rates due to NCDs with a third by 2030 (Nugent et al., 2018). The main categories of NCDs are cardiovascular diseases, chronic respiratory conditions, diabetes, cancers and mental disorders (Yeganeh, 2019). Because poverty often occurs due to NCD, poverty exacerbates the illnesses. Making progress with addressing poverty, and SDG goal 3, will impact nine SDGs, making it imperative for governments to simultaneously address all SDGs (Nugent et al., 2018).

Due to NCDs, deaths are expected to rise to 52 million per annum by 2030, with 80% of these deaths in low- and middle-income countries (Ndinda, Ndhlovu, Juma, Asiki, & Kyobutungi, 2018). Although there is a decline in premature deaths due to NCDs', the reduction is insufficient to achieve the WHO goal to reduce NCDs by 30% by 2030 in relation to the 2015 numbers (NCD Countdown 2030 collaborators, 2020). In less developed countries, death due to infectious diseases is still higher than deaths due to NCDs (Yeganeh, 2019). Middle-income countries spend about 30% of their annual health budget on NCDs, and low-income countries, only 13%. NCDs that impact adults and older people have the biggest threat to the health of the global population (Yeganeh, 2019). The industry is shifting away from curing disease to preventing and managing the disease and promoting wellness (Deloitte, 2019).

Investments in the prevention and control of NCDs are beneficial to all countries regardless of the income level, with a significant return on investment (Nugent et al., 2018). Fiscal initiatives should promote healthy lifestyles and a nutritious diet, encourage sustainable production and food consumption, and promote universal healthcare (Nugent et al., 2018).

3.3.3 Pandemics

Globally pandemics have killed millions of people and impacted even more livelihoods. The deadliest pandemics are displayed in Figure 3.1.

Figure 3.1: Some of the deadliest pandemics

(Source: Adapted from Tortorice (2020).)

Infectious diseases such as malaria, HIV/AIDS, tuberculosis and cholera are some of the deadliest diseases causing millions of deaths annually, especially in low- and middle-income countries (Yeganeh, 2019). One of the leading causes of these outbreaks is poverty, where access to clean water is often limited, with poor hygiene and reduced sanitary standards (Yeganeh, 2019). In low- and middle-income countries, half of the health spending is on infectious diseases (World Health Organization, 2020a).

Malaria is the most prevalent in Africa and parts of India, and in 2017 it is estimated that 620 000 people died from malaria, with a child dying every two minutes (World Health Organization, 2019b). Ninety per cent (90%) of these deaths occurred in Africa, with two-thirds being children under 14-years of age (Roser & Ritchie, 2019). Since 2000, good progress has

been made that resulted in a decline in the incidence of malaria. However, the figures for malaria are again slowly increasing (World Health Organization, 2019b).

The Human Immunodeficiency Virus (HIV) attacks the immune system of the body, and if untreated, it can develop into Acquired Immunodeficiency Syndrome (AIDS), where the body's immune system becomes severely impaired (Centers for disease control and prevention, 2020). Leaders globally, specifically in Africa, need to develop a new sense of what they can do locally to offer primary healthcare, especially for the fight against HIV and Aids (Gumede, 2013). The 2014 target was to end the AIDS pandemic through a 90-90-90 campaign. By 2020, 90% of everyone living with HIV had to know their status, 90% of all people diagnosed with HIV had to be on antiretroviral treatment, and 90% of all people on antiretroviral treatment had to achieve viral suppression (United Nations, 2017). Insufficient investments from countries and the COVID-19 pandemic resulted in the 90-90-90 targets not being achieved. However, for 2025 new targets have been set (United Nations, 2020a).

Tuberculosis (TB) is a communicable disease among the top ten causes of death from a single agent (World Health Organization, 2020b). TB is a disease of poverty and economic distress, marginalisation, vulnerability, discrimination and stigma (World Health Organization, 2020b). In 2019 10.0 million people got infected globally with TB, 1.2 million HIV negative people passed away because of TB, and 208000 HIV positive people passed away from TB. The highest percentage of people developing TB in 2019 was in South-East Asia (44%) and Africa (25%). TB is treatable and curable, and it is the aim of the WHO to completely eradicate TB by 2030 (World Health Organization, 2020b).

Cholera is an acute form of diarrhoea that can lead to death within hours if untreated, with an estimated annual death rate of between 21 000 and 143 000 with just over one million (1.3 million) and four million people diagnosed with cholera annually. Cholera is a waterborne bacteria, and providing safe and sanitised water is the most prominent method for prevention (World Health Organization, 2019d).

A WHO report in 2015 advised that the world had to be better prepared to respond to health emergencies (World Health Organization, 2015). The world's reaction to the COVID-19 pandemic confirmed that the international healthcare community generally was not ready to deal with severe pandemics (Kher & Nair, 2020). COVID-19 is caused by coronavirus 2 (SARS-CoV-2) (Ng et al., 2020). The first case of the Coronavirus was diagnosed on 17 November 2019, and by 31 March 2021, the virus infected more than 150 million people globally and killed more than three million people (Worldometers.info, 2021). The COVID-19 pandemic has abruptly and forever changed how we live, do business, and perform healthcare (Rusch & Wexner, 2020), with serious consequences for global health systems (World Health

Organization, 2020a). More than 150 countries initiated lockdown measures early in 2020, resulting in businesses, besides essential services, moving offsite, digitising and trading online (Rusch & Wexner, 2020). Although healthcare systems experienced unprecedented strain (Durojaiye & Morgan, 2020), global collaboration across various disciplines and industries, including governments, have occurred to help communities save lives, resulting in a culture of cooperation, altruism, and open-source creation data-sharing hubs (Palanica & Fossat, 2020).

The WHO announced stringent guidelines for healthcare workers to wear N95-masks when they work with COVID-19 infected patients or when they perform aerosol-generating procedures. All other healthcare workers have to wear standard surgical masks (World Health Organization, 2020c). These guidelines were adequate protection for healthcare workers (Temkin et al., 2020). However, due to the global shortage of Personal Protective Equipment (PPE), some countries blocked the export of face masks (McMahon, Peters, Ivers, & Freeman, 2020). Low-income countries experienced severe shortages in PPE (McMahon et al., 2020). The pandemic created anxiety and stress with healthcare workers and clinicians, especially regarding the availability of PPE (Shah et al., 2020) and the financial impact on surgeons that had to stop all elective surgery for a period (Rusch & Wexner, 2020). Hospitalised COVID-19 survivors reported increased rates of Post-Traumatic Stress Disorder (PTSD), anxiety, depression, insomnia and obsessive-compulsive disorder, either due to an immune response to the virus or social distancing (one of the treatment protocols for the illness) (Mazza et al., 2020). A mental health crisis is expected to follow after COVID-19 (PwC Health Research Institute, 2020).

The COVID-19 pandemic impacted other pandemics, with fewer people being diagnosed and treated for HIV. Lockdown measures have reduced reporting of serious illnesses such as cancer and mental illnesses, likely because of fewer patients seeking medical attention (United Nations, 2020a). The COVID-19 pandemic displayed an increase in gender-based violence during country lockdowns (Viero, Barbara, Montisci, Kustermann, & Cattaneo, 2020). Furthermore, the pandemic caused severe political and socioeconomic challenges worldwide (Durojaiye & Morgan, 2020), highlighting the challenges of the poor and vulnerable with higher out-of-pocket medical expenses and loss of livelihood (Kher & Nair, 2020). Following the COVID-19 pandemic, a new global healthcare framework is needed to identify the hurdles experienced. The UN SDG goal three states, “ensuring healthy lives and promoting well-being for all at all ages,” remains an important target (Kher & Nair, 2020).

3.3.4 Shortage of healthcare workers globally

The WHO predicted that the global shortage of 18 million healthcare workers is a major obstacle as it impacts the implementation of universal health coverage by 2030 (World Health

Organization, 2019a). Globally countries are experiencing challenges with health worker shortages resulting in constant research to find solutions (Ned et al., 2020; Walton-Roberts et al., 2017).

Health workers often do not have the right type and level of skills for their environment's complexity and feel they do not have enough time to do what is needed (Combrinck, 2018). The right employee levels for specifically nursing have been revised. However, a lack of performance data and inadequate care pathways lead to frustrated employees leaving the industry (Deloitte, 2019). Additional challenges experienced are employers' inability to close the demand-supply gap, hours clinical employees spend on documentation, the challenge for employees to stay current, and the lack of well-being reported by clinical employees (Allen, 2020). Within the current shortage of healthcare workers, 78% of physicians experience burnout, and 46% consider a career change (Allen, 2020).

The turnover of young female general practitioners is high, as healthcare does not accommodate their personal and family needs (Bardoel, Russell, Advocat, Mayson, & Kay, 2020). Clinical employees are often not sufficiently prepared for the changing working environment with new technologies, such as digitisation and artificial intelligence (Allen, 2020). Some countries, such as Ghana, has an oversupply of health workers but not sufficient change in the labour market to accommodate the supply (Asamani, Amertil, Ismaila, Akugri, & Nabyonga-Orem, 2020). Healthcare providers have to focus on determining which functions can be automated, increase the training of healthcare workers, keeping in mind the international recruitment of healthcare workers from lower-income to higher-income countries, and evaluate if the care can be offered in other settings, for example, at the patient's home (Deloitte, 2019)

3.3.5 Increasing healthcare costs

In 2018, US\$8.3 trillion was spent on global healthcare, which amounts to 10% of the global GDP (World Health Organization, 2020a). Thirty-two low-income countries are experiencing severe healthcare challenges, exacerbated by COVID-19 (World Health Organization, 2020a). Although the aid to these countries is only 0.7% of wealthier countries' health budget, since 2000, this aid has doubled and contributes 25% to poorer countries' health expenses (Ortiz-Ospina & Roser, 2017; World Health Organization, 2020a).

Several public and private health systems worldwide are experiencing financial challenges with a decline in government funds, resulting in facilities utilising technology to enhance efficiency and maximise their per-bed matrixes (Deloitte, 2019). The key drivers to increased healthcare costs are the ageing population, increased numbers of chronically ill patients, costly

infrastructure, increases in medical technology, devices and medicine, rise in labour costs, employee shortages and the growing demand for a broader service (Allen, 2020). Providers deal with the cost increases by changing to a value-based care model, establishing Universal healthcare, negotiating pricing controls on pharmaceuticals and devices, and investing in understanding public health (Allen, 2020). A decline in the number of members belonging to private medical insurance is experienced, as young and healthy individuals are not taking insurance due to the increasing out-of-pocket expenses and lack of transparency on what is covered. They instead invest in sport, nutritional supplements and other recreational activities (Deloitte, 2019).

The advances in technology are among the factors that drive up total healthcare costs. However, technology drives innovation, improves efficiencies through digitisation and, over the long run, could potentially reduce costs (Deloitte, 2019) (this issue will be discussed in the following sections).

3.3.6 Technological innovations

The COVID-19 pandemic inspired innovation through collaboration and problem-solving globally across multiple disciplines, with the one goal of saving lives (Palanica & Fossat, 2020). Innovation embraces the concepts of novelty, diffusion and benefit (Oliveira et al., 2017). During COVID-19, healthcare innovation occurred at unprecedented speed with timelines that usually were years, becoming weeks or days (Palanica & Fossat, 2020). COVID-19 increased innovation because of an increased focus on health, side-stepping administrative barriers, and a lesser focus on profits (Palanica & Fossat, 2020). Technology is often regarded as the preferred solution to international healthcare challenges, but half of the world's population have never seen a smartphone, making technology not necessarily the solution (Schwab, 2019). Digitisation and robotics in healthcare will now be explored.

3.3.6.1 Digitisation in healthcare

The health industry is lagging behind other sectors in using high-quality data for digital transformation with technologies available to share, access, harmonise and utilise the large volumes of data produced by the industry (Colombo, Oderkirk, & Slawomirski, 2020). A positive digital transformation in the health industry is possible if information systems are harmonised, ethical frameworks are developed, the appropriate skills are made available, and the stakeholders engage in the process (Colombo et al., 2020). The fundamentals of healthcare are being challenged with disruptive technologies introduced by traditional non-health companies (Deloitte, 2019). Policy and institutional frameworks hamper digital transformation and need to be assessed, together with a digital health strategy that includes

health data governance, coherent and standardised electronic health records, and incentives with cross-country collaboration for global solutions (Colombo et al., 2020). The consumers and patients that demand care and therapies that are predictive and preventative, cheaper, precise and less invasive drive the need for digital solutions (Allen, 2020)

Companies are using Artificial Intelligence (AI) to assist with the detection, monitoring and lifestyle management of certain diseases (Deloitte, 2019). AI is the study and the development of computerised systems that can think and act similarly to humans (Oxford University Press, 2019). Pharmaceuticals recently started adopting the highly disruptive technology of AI to assist patients with the self-management, treatment of disease, and the creation of wellness pathways (Panesar & Panesar, 2020). The adoption of AI was accelerated with smartphones and the Internet of Things, impacting the shift from a volume-based system to a value-based system (Panesar & Panesar, 2020). Telehealth, also called M-health or E-health, is healthcare delivered through a telephone, often a mobile phone, which has significantly impacted the African continent, where infrastructure is often a challenge (Istepanian & Woodward, 2017). During COVID-19, telehealth was used to monitor high-risk patients at home to prevent hospitalisation, or post-hospitalisation, for proactive detection of challenges (Martínez-García et al., 2020).

There are, however, several ethical concerns surrounding AI and telehealth, for example, data ownership, bias, and how it affects human behaviour (Panesar & Panesar, 2020). Digital innovations can help healthcare providers achieve the triple aim of improving health, improving care, and reducing cost (Deloitte, 2019). The challenge of physician shortages and increased patient numbers make telehealth very appealing to consumers, despite physicians being sceptical regarding the risk for medical errors, cost and security (Deloitte, 2019). Increased technology and digitisation holds an increased security risk and, therefore, cybersecurity is a vital component that needs to be considered (Allen, 2020).

3.3.6.2 Automation in healthcare

Automation in healthcare is a fast-growing technological field, ranging from pathology laboratories to procedures. For instance, robots can perform tasks humans find difficult, for example, precision robot-assisted surgery, rehabilitation, and personalised healthcare (Yadav, 2018). The junction of robotics, social network systems, AI and knowledge sharing will change the healthcare landscape significantly in the next two decades (Yadav, 2018).

Robotics are used in the care of older people via a monitoring system with a combination of a social robot, wearable and non-wearable sensors, providing an accurate interactive report of the patient's health status for intervention if needed (Neef & Richert, 2020). During COVID-

19, a collaborative robot system was tested with ICU patients' basic care, resulting in less PPE and reduced risk exposure for healthcare workers (Freeman et al., 2020). Robot-assisted surgery is laparoscopic surgery, where the surgeon is behind a computer console, away from the surgical table (Lawrie et al., 2019). Robot-assisted surgery is becoming more common and is used in surgery for rectal cancer (Wang, Cao, Mao, Lao, & He, 2020), hysterectomy and other gynaecological procedures (Lawrie et al., 2019), ophthalmology surgery (De Smet, Naus, Faridpooya, & Mura, 2018), urology surgery (O'Kelly, Farhat, & Koyle, 2019) and much more.

The cost of digitisation and robotics is high, and it is still unclear if leveraging these technologies will justify the added expenses (Deloitte, 2019). Most global legislative systems have not been adapted to accommodate AI and robotics (Yadav, 2018).

3.3.7 Payment models and structures

Different payment models have been applied in healthcare to contain the increase in healthcare costs. Fee-for-service is the payment to providers for the number of services provided. Therefore, incentivising more services will result in more income (Park, Braun, Carrin, & Evans, 2007). Diagnosis-related Groups classify patients into groups with a similar diagnosis with comparable outcome and cost and pay providers what the average price for that procedure would be, therefore incentivising cost containment per procedure and encouraging short hospital stay. However, the concern is of low quality, early discharge, and increased volumes (Park et al., 2007). Healthcare payment models are currently predominantly fee-for-service and diagnosis-related group models that incentivise volume, resulting in increased costs (Vlaanderen et al., 2019).

Healthcare payment models change from the traditional fee-for-service approach to a community-sharing model of Value-Based Care, where the responsibility, risk, and outcomes cost is shared (Deloitte, 2019). Pay-for-performance (P4P) reimburses healthcare providers for meeting pre-defined quality targets, for example, the desired length of stay in a hospital. However, these payment models seem to be costly (Vlaanderen et al., 2019). These P4P models form the foundation of value-based healthcare models to achieve increased value and quality at the lowest price (Vlaanderen et al., 2019). For risk-sharing models to be efficient, a substantial investment is needed with data aggregation and business integration, improved and aligned clinical engagements, a coordinated care model, and sophisticated technology infrastructure (Deloitte, 2019). These models will reward facilities and clinicians that provide good quality care with better than average outcomes at acceptable cost levels, with additional income and bonuses (Deloitte, 2019).

3.4 EMERGING TRENDS IN AFRICAN HEALTHCARE

Although several global healthcare challenges are experienced in Africa or impact Africa, there are various healthcare challenges specific to the African continent. The WHO identified six pillars of healthcare: an essential framework with fundamental building blocks for healthcare delivery. The pillars intend to have different healthcare impacts, which altogether strengthens the health system (World Health Organization, 2010). The healthcare challenges in Africa will be addressed referencing the six pillars of healthcare, which are (1) service delivery, (2) healthcare workforce, (3) information systems in healthcare, (4) technology and medicine, (5) financing, and (6) governance/leadership (World Health Organization, 2010). Most African countries are not successful in meeting these requirements (Oleribe et al., 2019). These six pillars will now be discussed.

3.4.1 Service delivery

The WHO defines access to healthcare as a fundamental right. Therefore, health equity is essential in all international and national interventions (Kher & Nair, 2020). Universal Health Coverage is subsequently regarded as a human-centred health service. This includes focusing, inter alia, on humane globalisation; improved living standards; eradicating poverty; fulfilling peoples' basic needs; and actively promoting human rights (Kher & Nair, 2020).

The characteristics of good healthcare service include a comprehensive range (preventative, palliative, curative, rehabilitative), accessibility (close to people and close to primary care), coverage addressing the needs of the sick and healthy, continuity of care (across all life stages and all illness stages), quality of care (effective, safe, patient-centred), person-centred (not disease centred), coordinated, and with accountability and efficiency (World Health Organization, 2010).

However, the health experience in Africa is very different. Health service delivery in Africa is of poor quality due to the combined effect of all the challenges discussed in this section (Oleribe et al., 2019). Access to healthcare in most developing countries is very low. Basic sanitation and safe drinking water are some of the crucial aspects needed to maintain health in poor and developing countries (Gumede, 2013). Research about the affordability of healthcare and in Madagascar found that when fees for healthcare services were exempted for certain categories of medicine and services, the utilisation increased by 65% (Garchitorea et al., 2017). Inadequate healthcare systems in Africa can lead to medical tourism, for example, with more than 5000 Nigerians annually spending 1.2 billion US dollars on medical tourism outside of their own country (Oleribe et al., 2019). Additionally, regular industrial action

by healthcare workers refusing to treat the ill negatively impact health workforce availability in Nigeria (Oleribe et al., 2019).

3.4.2 Healthcare workforce

Several studies indicated a direct link between a country's ability to achieve the necessary health outcomes and the healthcare workforce's number and quality (World Health Organization, 2010). Inadequate healthcare human resources in Africa has been identified as the most critical challenge experienced by the continent (Oleribe et al., 2019). African countries carry 24% of the global disease burden but have only three per cent of the global health workforce to manage that (Oleribe et al., 2019).

The WHO defines the healthcare workforce as all people that are engaged in activities with the principle aim to enhance health (World Health Organization, 2010). Since 1990, international recruitment by England and the United States of healthcare staff from Africa increased significantly. Although a global problem, it has a bigger impact on low and middle-income countries (Miseda, Were, Murianki, Mutuku, & Mutwiwa, 2017). The brain drain from Africa to the Middle East, Europe and North America is significant and contributes to various healthcare challenges (Oleribe et al., 2019). Incentives are suggested to be implemented to reduce the healthcare brain drain to other countries (Gumede, 2013). It is expected that countries with less than 23 physicians, nurses and midwives per 10 000 of the population will fail to achieve adequate health outcomes set by the WHO (World Health Organization, 2010). The brain drain is not only expressed by the sheer number of workers recruited internationally but especially the number of highly skilled African healthcare workers that are recruited internationally (Miseda et al., 2017). Furthermore, the distribution of existing healthcare workers is a concern due to the migration of health workers to bigger cities and preferences to utilise private practice healthcare rather than public healthcare (Oleribe et al., 2019).

Databases regarding healthcare workers are, however, often not accurate and current. Therefore, classification and mapping of healthcare worker movements are not always reliable (World Health Organization, 2010).

3.4.3 Information systems in healthcare

Accurate and reliable information is essential for all decision-making across all six pillars (World Health Organization, 2010). Information and communication technology (ICT) is an enabler on multiple levels and a platform for various healthcare technological activities. Information systems in healthcare have the following key functions: (i) generation of data, (ii) compilation (grouping) of data, (iii) analysis and synthesis of the data, and (iv) communication

and application (World Health Organization, 2010). Furthermore, ICT offer tools and technologies that ultimately improve the quality of healthcare services (Busagala & Kawono, 2013).

A South African research report by Maramba, Coleman, and Ntawanga (2020) highlighted the following practical ICT issues in healthcare, especially with the implementation of such systems, namely:

- a lack of organisational culture changes to align healthcare with ICT-based knowledge management systems;
- too little support, commitment and accountability throughout the industry;
- knowledge gaps between clinical and knowledge management designers;
- rapidly changing information technology;
- lack of systems integration;
- inadequate human resources (especially for technologically skilled staff);
- tacit and explicit healthcare information is not converted into systematic knowledge; and
- failure to comprehend the complex nature of healthcare.

In summary, fragmentation and the lack of coordination with the implementation of information systems in Africa often result in major challenges with poorly integrated and ineffective ICT systems (Senyoni, 2021), impacting all the other pillars of healthcare negatively.

3.4.4 Technology and medicine

A well-functioning healthcare system provides access to essential technologies and medical products, which ensures safety, efficacy, quality, and cost-effectiveness, and is scientifically sound to use (World Health Organization, 2010). This can only be achieved if there are national policies, standards and guidelines; pricing information and trade agreements; reliable manufacturing and quality control in the country; procurement, supply and storage with minimal wastage; and support, strategies and guidelines for the correct use of the medicine/equipment (World Health Organization, 2010).

Pharmaceutical companies have been setting up local manufacturing operations in Africa, especially over the past 20 years and most notably in South Africa, Nigeria, Ghana, Kenya, Zimbabwe, and some smaller economies such as Ethiopia and Botswana (Mackintosh, Banda, Tibandebage, & Wamae, 2015). However, with over one billion people in Africa, the local capacity to serve this market is limited, and the continent remains reliant on international manufacturers. This situation has been exacerbated by COVID-19 (Koff et al., 2021). Only

South Africa has local COVID-19 vaccine manufacturing capability, leaving most African economies at the mercy of external, collective efforts for vaccines (for instance, by the African Union) (Koff et al., 2021). There is a growing consensus that local African pharmaceutical manufacturing can contribute to economic development and efforts to improve general public healthcare in Africa (Mackintosh et al., 2015).

Technological and knowledge management in healthcare in Africa is limited and often fails because the knowledge management systems are often not linked to the national and local business strategies (Maramba et al., 2020). For knowledge management systems to be successfully implemented, an organisation-wide culture change is needed, which requires strong leadership and governance (Maramba et al., 2020). From a user perspective, technology utilisation is on the increase in Africa with the mobile money technology that is, for instance, readily being applied by the population of Kenya to purchase formal healthcare services (Ahmed & Cowan, 2021).

3.4.5 Health financing

Health financing is not only about raising sufficient funds for healthcare delivery but also protecting the population from financial risk by ensuring that all resources (funds) are applied in an efficient manner (World Health Organization, 2010). The problem is furthermore complicated by the lack of information systems that track how funds are received and utilised, especially where funds were offered by non-governmental organisations or other third parties (World Health Organization, 2010). Health information systems and procurement are often open to fraud and corruption, which is exacerbated by poor ITC infrastructure (World Health Organization, 2010).

Some African countries, such as Kenya, Tanzania, Rwanda, Nigeria and Ghana, implemented social health insurance. However, large out-of-pocket expenses first occur before the insurance pays out. This excludes most of the poor that are in the greatest need of such social health insurance (Oleribe et al., 2019). Despite significant increases in external financial support to developing countries, especially in Africa, resources are still grossly insufficient to meet the healthcare needs of the growing population (World Health Organization, 2010). In Madagascar, when point-of-service health services were replaced with a free health service, the utilisation increased by 65% for all patients, 52% for children younger than five years, and 25% for maternity patients. This had a significant positive impact on the health of the population (Garchitorena et al., 2017). Inadequate financial allocation has been identified as one of the most critical healthcare challenges on the African continent (Oleribe et al., 2019).

In developing countries, especially Sub-Saharan Africa, systemic corruption forms an endemic part of the culture and often forms an inherent part of many awarded government contracts (Herbert, Tsegba, Ene, & Onyilo, 2017). Corruption, which is regarded as a perverse form of fraud, entails the laundering of monies through price inflated government contracts (Herbert et al., 2017). Fraud in healthcare is on the increase, with, for example, fraud amongst dental therapists in South Africa increasing from 1 case in 2007 to 22 in 2015 (Putter & Naidoo, 2018). Poor governance and leadership, coupled with the infrastructure deficit in healthcare in especially Sub-Saharan Africa, promotes fraud and corruption (Herbert et al., 2017).

3.4.6 Governance and leadership

The WHO identified governance and leadership as one of the six building blocks for a sound healthcare system (World Health Organization, 2007). Governance and leadership primarily entail developing strategic policy frameworks that are combined with effective oversight, regulation, system design and accountability. Leadership is an important factor for the renewal of Africa, but despite independence in most African states, the leadership has failed the people (Gumede, 2013). Governance and leadership can practically be viewed as stewardship, which is about high-level direction and guidance of the entire healthcare system. The WHO further states that governance and leadership are arguably the most complex and critical building blocks of any health system (World Health Organization, 2007).

Poor healthcare leadership and management have been identified as some of Africa's most significant healthcare challenges (Oleribe et al., 2019). A notion of responsibility is experienced in the Ubuntu values of 'I am because we are', which is important for good governance that is needed to address critical issues of healthcare in Africa (Gumede, 2013). African leadership must be committed to the practice of African transformation and development (Ngara, 2014). The national healthcare systems have to be viewed as complex systems with multiple, dynamic, interconnected parts that have to work together for success; high leadership and governance levels are required (World Health Organization, 2010). Healthcare leaders must create initiatives that develop community resources, for example, the training of the community and better remuneration of healthcare workers, that will supplement the service of poorly managed healthcare institutions (Gumede, 2013). Healthcare leadership is essential for developing the healthcare agenda, ensuring policy frameworks exist, are implemented, and that oversight, regulation, and accountability are promoted (World Health Organization, 2010). Harmonisation and alignment of policies are especially important considering the fragmentation of the industry.

Leaders in Africa must take an intellectual approach to the development of balanced and critical policies to advance the continent from a social, religious, economic and political

perspective (Kame, 2014). The healthcare challenges in Africa are unique to the continent and require in-depth exploration of the prevailing circumstances to find contextual solutions that can make a population-level impact with the effective application of available resources (Oleribe et al., 2019). Leadership in Africa must create a balance between engaging the current realities and developing the leaders of the future (Gumede, 2013). A study by Ten Ham-Baloyi, Minnie, and Van der Walt (2020) highlighted that improving healthcare in Africa will require the implementation of various best practices, of which leadership for change should feature prominently. This will include considering the different types of leaders needed throughout the health system, strategies for implementing best practices used by healthcare leaders, positioning leaders in organisations, and leaders' attitude and support to other fellow leaders.

3.5 CONCLUSION

Good health and wellbeing are goals of the WHO, supported by the 17 SDGs from the UN. Slow economic growth of poorer countries, especially in Africa, impact the achievement of global health by impacting the goal to improve global living standards, eradicate poverty, fulfil people's basic needs, and promote human rights.

Global trends, such as the increase in life expectancy and ageing, increase in NCDs and the global pandemics, impact global healthcare deliverables. More specifically, poverty in lower-income countries plays a significant role in these global challenges. Pandemics, especially such as the COVID-19 pandemic, have an added impact on the healthcare landscape by creating further pressure on an already strained healthcare system. The global shortage of healthcare workers, together with increased health expenses due to digitisation and robotics, impacts overall healthcare payment models. This has resulted in the drive to change to risk-sharing models.

With its one billion population, Africa was highlighted as a continent with significant healthcare challenges. Africa has less than three per cent of global healthcare workers but, on this continent, has to deal with a quarter of the global disease burden. Although many countries are moving forward towards improving quality healthcare to their citizens, most African countries lag significantly in terms of the six pillars of healthcare identified by the WHO. The healthcare system, specifically in Africa, needs to focus on improving service delivery, increasing the healthcare workforce, improving the quality and accessibility to information systems, improving the availability and access to technology and medicine, reviewing health financing, especially the inability of the population to contribute to healthcare costs, and significantly improve and increase the governance and leadership in healthcare.

In the next chapter, the South African healthcare system will be explored, first looking at the external South African healthcare landscape indirectly impacting private hospitals and then looking at factors directly impacting private hospitals.

CHAPTER 4: HEALTHCARE IN SOUTH AFRICA

– AN INDUSTRY IN CRISIS

4.1 INTRODUCTION

Mr Cyril Ramaphosa, President of South Africa, indicated that South African healthcare is an industry in crisis. Public healthcare challenges include access to medicine, technology and equipment, workforce shortage, unprofessional conduct, corruption, and labour unrest. Private healthcare challenges include above-inflation increases, unfair distribution of providers and facilities, over-servicing, incentives that reward the wrong behaviour, failure to pay for services, and high out-of-pocket expenses (Presidential Health Summit, 2018).

Healthcare is the diagnosis, treatment, and prevention of illness, injury, disease and other mental and physical impairments (Faulkner & Nicholson, 2020). Aligned with Chaos Theory (Obolensky, 2016), healthcare can be described as a large, fragmented, diverse, complex industry where fixing one problem can cause another challenge (Faulkner & Nicholson, 2020).

The most pertinent factors that impact the South African private healthcare industry resulting in it being a complex industry, will be discussed in the following sections. The compounding effect of these challenges increases the need for the implementation of CL and OSS within the healthcare sector and, more specifically, private hospitals in South Africa.

4.2 THE SOUTH AFRICAN HEALTHCARE LANDSCAPE

South Africa has three broad categories that create complexity in the industry and impacts the ability of the sector to perform and meet the needs of all its stakeholders:

- **Demand-side** factors include the socio-economic factors that are part of the South African history and demography (History.com, 2010), current pandemics (Statistics South Africa, 2020), the increase in NCDs (Rheeder et al., 2017), and life expectancy with ageing (Statistics South Africa, 2020).
- **Supply-side** factors include the lack of sufficient clinical employees (doctors, nurses and others) (Writer, 2020a), the inability of healthcare to sufficiently serve the nation (Kahn, 2019), and the lack of competition between the hospital groups (Competition Commission of South Africa, 2019).
- **Regulatory** factors include the implementation of the National Health Insurance Bill (NHI) (Department of Health, 2019), the changes to the Medical Schemes Amendment

Act (MSA) (Department of Health, 2018) and the recommendations of the Health Market Inquiry (HMI) (Competition Commission of South Africa, 2019).

Combining these three categories increases the South African healthcare industry's complexity, significantly impacting private healthcare.

4.3 THE IMPACT OF SOUTH AFRICAN HISTORY ON HEALTHCARE

Section 27 of the Constitution in South Africa guarantees every citizen access to health services (Republic of South Africa, 1996). However, this did not apply during apartheid (translated as "apartness") which was a legislative system from 1948-1994 that maintained segregation politics against non-white citizens (History.com, 2010). Non-white citizens (which are the majority) were forced to live in separate areas from the whites and have different public facilities, schools and health services, with limited contact with whites (History.com, 2010). Activists, Nelson Mandela and Ex-President F. W. de Klerk, were instrumental in ending apartheid in 1994 when the country became a democracy (History.com, 2010).

During apartheid, colour segregation occurred with most health funding channelled to whites-only facilities, which were world-best hospitals, with services to the non-white population significantly under-funded, over-utilised, and poorly staffed with limited services, medicines and equipment (Brauns, 2016; McIntyre & Ataguba, 2017). The apartheid government developed ten ethnic homelands where Africans lived against their will, with each homeland having its own health department and governing bodies, resulting in deterioration of health services due to a lack of resources (Maphumulo & Bhengu, 2019). In non-white hospitals, patients often shared a bed with limited doctors since most doctors had a private practice in affluent white areas because patients could pay (Brauns, 2016).

More than 25 years since democracy in 1994, many failures of apartheid still plague the healthcare system that remains unfair, unequal and polarised (Burger & Christian, 2018), with some aspects that have even deteriorated since democracy (Mhlanga & Garidzirai, 2020). Progress was made to increase public healthcare availability, build more facilities, and provide better access to the poor and people in rural areas (Burger & Christian, 2018). However, the system's performance remains low compared to countries with a similar income due to poor leadership, underfunding, lack of a functional district healthcare system, and failure to deal with the health workforce crisis (Rispel, 2016).

4.4 SOCIO-ECONOMIC FACTORS IMPACTING HEALTHCARE

Despite several reforms in South Africa regarding healthcare availability and affordability since 1994, many of the population and rural communities still experience challenges accessing healthcare (Burger & Christian, 2018) due to poor infrastructure, poverty, low education levels, unemployment, transport challenges, and other social factors (Grobbelaar & Uriona-Maldonado, 2019). Rural patients often walk long distances to access primary clinic services often overcrowded, understaffed, with a high patient load (Winchester & King, 2018). Initiatives by the government to improve access, availability, control and adherence have been implemented. However, the efficacy must still be tested (Meyer et al., 2017).

In 2019 the World Economic Forum stated that globally South Africa has one of the most unequal healthcare systems being ranked in the 127th position (Schwab, 2019). Housing, portable water, sanitation, employment, education, and a regular income are socio-economic factors impacting healthcare (McIntyre & Ataguba, 2017). Sustainable economic growth is the key for the society to move out of poverty, improve quality of life, improve health, education, nutrition and survival (Schwab, 2019). Socio-economic factors directly affect the private hospital industry since the number of the South African population that can access private hospitals is continually shrinking (Council for Medical Schemes, 2020b).

4.5 THE SOUTH AFRICAN PUBLIC/PRIVATE HOSPITAL BALANCE

In South Africa, 84% of the population is being serviced by public healthcare using 4.1% of GDP, and 16% of the population is being serviced by private healthcare using 4.4% of GDP (Groenewald, 2017; Statistics South Africa, 2018). Both services offer comprehensive care, but the service's distribution is more constrained in the public sector (McIntyre & Ataguba, 2017). Since 1970 the South African population figures more than doubled. However, the number of public hospital beds declined by 25% (Netcare Limited, 2018).

Public healthcare for patients is mostly free and funded by the government through the fiscus (Burger & Christian, 2018), with poor governance structures, underfunding, employee shortages, inadequate information systems, poorly managed infrastructure, problematic administration and capacity systems, and overall inefficiencies (Presidential Health Summit, 2018). Additionally, there are long waiting times, increased adverse events, poor infection control, poor hygiene, increased litigation due to avoidable events, lack of equipment and medicine, and poor record-keeping (Maphumulo & Bhengu, 2019). Refugees, asylum seekers, and immigrants have access to public health (Alfaro-Velcamp, 2017).

On the other hand, private healthcare experiences the challenge of unaffordable prices, perverse incentives, maldistribution of providers and facilities, over-servicing, high out-of-pocket expenses, and a lack of accountability (Presidential Health Summit, 2018). Private healthcare experiences better facilities, better equipment, no rushed appointments, shorter waiting times, proper disease control, and prevention practices (Mhlanga & Garidzirai, 2020; Young, 2016). Private healthcare is either utilised by purchasing medical insurance, called medical schemes, or by paying for it privately, often very expensive (Mhlanga & Garidzirai, 2020). Medical Schemes are the main financial contributor to private hospitals, with 92% of the three larger groups' income from medical schemes in the 2014/2015 – 2016/2017 period (Econex, 2017). Members of private medical schemes often have high premium contributions and out-of-pocket expenses (Competition Commission of South Africa, 2019).

The challenges experienced in South African healthcare are evident in the Future Health Index study results, a limited study conducted in 19 countries, evaluating the country's ability to achieve maximum healthcare results at the lowest cost. South Africa scored the lowest of all 19 countries with a score of 4.4 compared to the average of 10.5 of the group of countries assessed (Groenewald, 2017).

4.6 LEGISLATION AND INQUIRIES

Numerous (fragmented) pieces of legislation regulate and impacts the South African healthcare industry. Two crucial pieces of legislation, the NHI and MSA, have recently been published for public comment. Additionally, the HMI report was also released. These three publications will now be discussed.

4.6.1 National Health Insurance Bill

In moving towards universal healthcare underpinned by universality and social solidarity, the NHI Bill was published on 26 July 2019 as a redistributive policy and with the intention of creating an equitable, integrated, cost-effective healthcare system (Blecher et al., 2019; Omarjee, 2018). The proposed NHI is a health financing system to pool funds towards universal quality healthcare accessible to all to ensure that patients can receive healthcare without financial hardship (Department of Health, 2019). A total of 64 861 responses to the draft Bill were received and are currently being processed (Writer, 2020a). The intention is for the NHI to be fully implemented by 2026 (Department of Health, 2019). However, experts predict that this will take much longer to implement (Malan, 2019).

All South Africans will automatically belong to the NHI (Wasserman, 2019). Traditional medical schemes will cease to exist (Malan, 2019) because "...medical schemes [can] only offer

complementary cover to services not reimbursable by the Fund” (Department of Health, 2019, p. 19). Section 8 of the Bill indicates that the fund will not pay if patients are not entitled to the services, fails to comply with the referral pathways, if the service is not medically necessary or not included in the fund’s formulary (Department of Health, 2019). Only services not covered by the fund may be purchased from a medical scheme (Malan, 2019). Citizens will have the freedom to consult a doctor of their choice, but it will be for their own cost if the doctor is not registered with the NHI (Pretorius, 2019). Membership and contribution to the fund will be compulsory. The funding of the NHI fund will be “...in accordance with social solidarity...”(Department of Health, 2019, p. 25) through a variety of taxes and reallocation of medical scheme tax credits, all managed by Treasury (Department of Health, 2019; Malan, 2019).

The services offered by the NHI have not been clarified. However, NHI has been described as “comprehensive health care services” (Department of Health, 2019, p.5), aligned with Section 8, as described above, and available at no cost or co-payments (Department of Health, 2019). The NHI fund will purchase healthcare services from 2022 for women, children, the elderly, and people with disabilities (Department of Health, 2019) by contracting private and public providers and monitoring the service (McIntyre, 2019). The NHI has a strong primary care focus resulting in members selecting a primary care facility and provider and only visiting a specialist if referred (Department of Health, 2019; Malan, 2019). Strategic purchasing under the NHI will decrease high prices and increase money value (Blecher et al., 2019).

The minister and MECs will appoint the CEO, board, and sub-committees (Child, 2020; Van den Heever, 2019). The government will introduce a purchaser-provider split as the single purchaser of healthcare for the entire population (Blecher et al., 2019), resulting in considerable power over increases and provider rates, with referral pathways ensuring service at the lowest cost (McIntyre, 2019). Committees will set prices, implement price control and guidelines for all healthcare providers, decide on protocols, treatment, drugs and technologies, and the accreditation standards (Child, 2020).

Undocumented migrants and asylum seekers can only get emergency treatment and treatment for notifiable conditions, such as TB. Registered refugees would have access to the NHI if they registered for the NHI (Department of Health, 2018). The South African Medical Association advised that 38% of surveyed medical professional respondents will leave the country if the NHI Bill was implemented in the current format (Writer, 2020b). A report by the Solidarity Union indicated that 85% of medical practitioners believe that the NHI will destabilise and destroy the healthcare system (Writer, 2019). NHI will make the medical scheme industry

unstable since anti-selection will occur, making it impossible for schemes to manage a proper risk pool (Pretorius, 2019).

The powers of the Minister of Health within the NHI as single-payer controlling the market raised concerns (Child, 2020; McIntyre, 2019; Van den Heever, 2019). It leaves the fund open to corruption since a conflict of interest occurs (Van den Heever, 2019). The centralised single funder model removes freedom of choice since healthcare is subject to budget availability (Pretorius, 2019). The fund is exempted from the Competition Commission Act, which is concerning since the fund will pay a set pre-determined price to providers, potentially harming the gains made in the competitive pricing space over the past 20 years (Pretorius, 2019). A variety of acts needs to be changed for the NHI Bill to pass, for example, the MSA Act (Child, 2020).

The NHI funding model is of concern since the fiscus is already under pressure, and at the current annual budget set out for NHI of 256 billion, the health budget would have to grow by 10% per annum, which is not feasible (Malan, 2019; Omarjee, 2018; Pretorius, 2019). The current low economic growth is a concern raised regarding access to sufficient funds for this project (Omarjee, 2018).

Within the NHI, all South African citizens will have to select their specific care providers. NHI is an activity-based payment system. The system must match patients with their information, their chosen provider, the services they received and validate it for payment (Van den Heever, 2019). A high-quality electronic patient record and payment system with the associated business processes is needed (Van den Heever, 2019), and extensive change management for public hospitals (Pretorius, 2019).

The quality of government leadership and administration is concerning. The 2018 Auditor-General's report scored the Western Cape 83%, Gauteng 52%, and the other provinces 24% or less, mentioning that healthcare needed urgent attention to prevent a system collapse (Van den Heever, 2019). The private healthcare system has strong distrust in public healthcare, and public confidence in the state to run large institutions is low, looking at other state-owned entities (Arnold, 2020; Blecher et al., 2019; Kahn, 2019). In inspecting public health facilities in South Africa in 2016/2017, the national average for hospitals was 59 % (conditionally compliant with serious concerns), community health centres 50% (conditionally compliant with serious concerns) and clinics 47% (non-compliant) (Office of Health Standards Compliance, 2018). A score of 70-79% is required to be compliant with requirements, and a score of $\geq 80\%$ to be compliant (Office of Health Standards Compliance, 2018). The public sector's quality and provision of services are concerning (Blecher et al., 2019).

The NHI will change the private healthcare payment landscape impacting the benefits medical schemes can offer members, the risk management of medical schemes, the reimbursement to private healthcare providers, and the services private hospitals may offer through medical schemes. Implementing the NHI is a regulatory change that will result in an exogenous shock to the industry (Uhl-Bien & Arena, 2018), removing the insulation that has always been buffering change, forcing the industry to have a reactive approach to the change (Uhl-Bien, 2020b).

4.6.2 Medical Schemes Amendment Bill (MSA)

On 21 June 2018, the MSA Bill was published for public comment (Department of Health, 2018). It proposes significant changes to the medical scheme industry that will impact private healthcare funding (Brothwell, 2018). When the draft Bill was announced, medical schemes held R60 billion in reserves, amounting to 33% of the contributions, compared to the statutory requirement of 25% (Brothwell, 2018). Changes to the medical schemes financial model will directly impact private hospitals; thus, the MSA draft Bill must be aligned with the NHI Bill (Pretorius, 2019).

The MSA draft Bill requires ending co-payments and abolishing the practice of brokers (Department of Health, 2018). Although the number of beneficiaries using medical schemes increased slightly (Council for Medical Schemes, 2019), there is an overall decrease in the percentage of the population on medical schemes due to the population growth (Kahn, 2019).

The current Prescribed Minimum Benefits (PMBs) are a set of defined benefits for which all schemes have to cover the full cost to ensure that all members have access to certain minimum health benefits, despite the plan they are on (Competition Commission of South Africa, 2019). Comprehensive Service Benefits will replace PMBs, which will cover more services (Department of Health, 2018). Income and age cross-subsidisation will continue, and savings have to be passed to members (Department of Health, 2018).

Going forward, the Registrar from the Council of Medical Schemes (CMS) must approve new options, address unequal benefits of medical schemes (Department of Health, 2018), and ensure all options are in the best interest of members (Brothwell, 2018). A central beneficiary registry will be developed to assist the Registrar in analysing trends and gathering more NHI information. Risk mitigation practises of schemes, such as late joiner penalties and waiting periods before claiming, will be cancelled. Improved governance of medical schemes enforce a minimum qualification of the Board of Trustees (Brothwell, 2018; Department of Health, 2018; Writer, 2018)

All proposed changes will impact the financial position of medical schemes, which will have an impact on the private hospitals and providers, resulting in additional exogenous pressure, removing the insulation and forcing the industry to react to the additional complexity (Uhl-Bien, 2020b; Uhl-Bien & Arena, 2018).

4.6.3 Health Market Inquiry (HMI)

The Health Market Inquiry (HMI) was an extensive 4-year analysis of all stakeholders within the private healthcare market, highlighting the private healthcare sector's features that prevent or distort competition and providing recommendations to the industry (Competition Commission of South Africa, 2019). Overall the report states that private healthcare experiences several market failures from a funder and provider (facilities and practitioners) perspective, with behavioural, structural and regulatory challenges that negatively impact competition and access to healthcare (Solanki et al., 2020). The findings of this report will be discussed, looking at facilities, practitioners, funders and the recommendations.

i) Facilities

The HMI report argued that the three larger hospital groups (Mediclinic, Netcare, Life Healthcare) dominate the market by collectively owning 83% of the private beds in 2016, each responsible for about 29% of the admissions between 2010 and 2014 (Nkonki et al., 2019). This barrier to entry was significant, resulting in no new notable entrants into the market at this time. Independent hospitals lack bargaining power on cost and the ability to attract top medical practitioners (Competition Commission of South Africa, 2019). Not enough information is available to independent hospitals to negotiate performance-based reimbursement contracts (Competition Commission of South Africa, 2019; Solanki et al., 2020). This leads to an increased collusion risk and the funders not having the power to discipline hospital groups through designated service provider agreements (Competition Commission of South Africa, 2019). Competition is limited due to the high concentration of funders and facilities, the three larger groups dictating the annual increases to the funders, and contracting the best specialist with lucrative contracts that impacts admission rates (Competition Commission of South Africa, 2019; Nkonki et al., 2019). The relationship between the three large groups and the funders has elements of the authority gradient where some role-players have considerably more control than others in a specific relationship where both are of equal importance (Green et al., 2017).

The three larger hospital groups all made a profit year on year and did not vigorously compete or negotiate better rates with schemes and administrators (Nkonki et al., 2019). A lack of

transparency from providers and facilities exist around pricing, quality, reporting and outcomes (Solanki et al., 2020). The private healthcare industry is characterised by high healthcare costs and over utilisation without improved outcomes (Competition Commission of South Africa, 2019). Hospital utilisation rates (admission rates), level of care (number of days in specialised care) and general length of stay in hospital were higher than expected, indicating over-servicing and increased cost (Competition Commission of South Africa, 2019).

ii) Practitioners

The HMI postulated that having practitioners that receive perverse incentives from providers acting as agents for ill-informed patients in a fee-for-service market resulted in a supplier-induced demand scenario (Solanki et al., 2020). South Africa has 1.75 private practitioners per 1000 of the insured population, but no reliable database is available (Competition Commission of South Africa, 2019). General practitioners were evenly spread across the population. However, specialists were concentrated in the provincial capitals (Nkonki et al., 2019).

Practitioners in private associations collude on coding, charging, participation in networks and anti-competitive behaviours, resulting in over utilisation without improved outcomes, low accountability, and little practitioners' regulation (Competition Commission of South Africa, 2019; Nkonki et al., 2019). Supply-induced demand was evident because an increase in specialists resulted in more hospital admissions (Competition Commission of South Africa, 2019). South Africa had a higher admission rate for similar conditions than similar countries with universal healthcare (Nkonki et al., 2019). The number of ICU admissions per head of the population was greater in South Africa than in other countries, and the availability of ICU beds increased the admission rate (Nkonki et al., 2019).

iii) Funders

The funder market has an incomplete regulatory framework, resulting in distorted competition parameters (Solanki et al., 2020). Medical scheme expenses are high, and the competition is low due to a high concentration of funders since 70% of members belonged to two schemes (Competition Commission of South Africa, 2019; Solanki et al., 2020). All medical schemes have been competing to get younger and healthier members on the schemes, forcing members to risk-rate themselves, and therefore, older and sicker members are forced to take higher, more expensive options (Nkonki et al., 2019).

Schemes advised this was done to increase options and meet the market's needs. However, the HMI disagreed (Nkonki et al., 2019). HMI advised that funders did not negotiate strong

enough with providers and hospitals, and practitioners, more specifically specialists, could set their fees without significant push-back from the funders (Competition Commission of South Africa, 2019). The relationship between the specialists and the funders also has elements of the authority gradient, where some role-players have substantially more control than others in a specific relationship where both are of equal importance (Green et al., 2017). Schemes have to pay PMBs in full, which result in increased scheme costs and increased member premiums. Therefore, as a consequence, schemes compete on members' risk profiles (Competition Commission of South Africa, 2019). Funders either passed additional costs on to members or limited benefits but did not manage the market or act in the best interest of members (Nkonki et al., 2019; Solanki et al., 2020). The HMI recommended the implementation of a risk-adjustment mechanism (new tariff structure), as well as a single base benefits package that will be identical across all schemes, for all members to purchase, understand, and better compare schemes in a transparent manner (Competition Commission of South Africa, 2019; Nkonki et al., 2019; Solanki et al., 2020).

The Department of Health received criticism for displaying inadequate stewardship by failing to manage the private hospital industry, failing to do regulatory reviews, and holding regulators accountable, resulting in the market becoming inefficient and uncompetitive (Competition Commission of South Africa, 2019). A new hospital licencing system will be implemented to be more effective, rational, inclusive and focused on innovation (Competition Commission of South Africa, 2019).

iv) *Recommendations from the HMI report*

The demand-side recommendations and supply-side recommendations will be discussed separately.

On the demand side, the recommendations are to expand the CMS role to review the PMB regulations, define a base benefits package, and evaluate funder-hospital and funder-provider contracts. These contracts have to become value-based, include risk transfer, and be aligned with competition law (Competition Commission of South Africa, 2019; Nkonki et al., 2019; Solanki et al., 2019). CMS must start with a risk-adjustment mechanism (RAM) to which all open and closed schemes will belong, providing data of all beneficiaries, including income data, which will stop schemes from competing on risk and rather compete on efficiencies, keeping in mind the single base-benefit package (Competition Commission of South Africa, 2019; Nkonki et al., 2019).

A multi-lateral negotiating forum within the Competition Act will oversee tariff negotiations, deal with potential deadlocks, leave room for possible capitulation and multidisciplinary team negotiation, having the task to set a maximum price for PMBs (Nkonki et al., 2019). A Supply-Side Regulator of Health will have the main functions of planning facilities (including licensing), performing economic value assessments, and monitoring pricing and services (Competition Commission of South Africa, 2019; Solanki et al., 2020). A significant change to provider licencing was suggested, including linking licencing to annual reporting, keeping the population needs in mind and moving licencing to a single national body (Nkonki et al., 2019). A practice code numbering system was suggested to align with annual reporting and certification from the Health Standards Compliance office, an industry compliance body, to promote quality service. This system will apply to all practitioners and facilities, promoting value-based purchasing linked to the practice number and supply-side regulator (Competition Commission of South Africa, 2019; Nkonki et al., 2019; Solanki et al., 2020).

The HMI chairman recommended a comprehensive analysis of public and private healthcare and a review of statutory healthcare bodies (Solanki et al., 2020). Should all the recommendations in this report be implemented, it will have a far-reaching impact on the future of healthcare. However, the HMI report's actions must be approached in conjunction with the NHI implementation plan (Solanki et al., 2020). Recommendations of the HMI is expected to be implemented over time and will significantly impact the South African private healthcare industry (Competition Commission of South Africa, 2019; Herbst, 2018).

4.7 THE MEDICAL SCHEMES LANDSCAPE

South Africa has 78 registered medical schemes (20 open and 58 restricted), administered by 19 administrators, and supported by 41 managed care organisations (Council for Medical Schemes, 2020b). Since 2010 the medical scheme price increases have consistently exceeded the Consumer Price Index (CPI), and in 2019 the average increase of 8.2% was double the average CPI of 4.1% (Council for Medical Schemes, 2020a). In 2016 8.5% of GDP was spent on healthcare (Macrotrends, 2020), exceeding the WHO recommendation of 5% of GDP for countries of similar size (Williams, Krugel, Grove, Dreyer, & Krugel, 2018). In 2019 membership to the medical schemes increased by 1.1% (Council for Medical Schemes, 2020b). Comparing 2018 and 2019, the medical scheme payments to providers have increased by 7.9%, again higher than CPI inflation of 4.9%, which is aligned with the HMI report's finding of over-servicing in the industry, keeping in mind the membership only increased by 1.1% (Council for Medical Schemes, 2020b).

Historically, the distribution of the population that utilises medical schemes are still unequal. Table 4.1 displays the percentage per population group on a medical scheme.

Table 4.1: Percentage of population groups on private healthcare

Race	Black African	Coloured	Indian/Asian	White	South Africa
% Covered	10%	17%	52%	73%	16%

(Source: Adapted from Mhlanga and Garidzirai (2020).

As displayed in Table 4.1 and aligned with the historical legacy of apartheid (Section 4.3), a larger percentage of the white population is on private medical insurance than the other populations, with the Black African population's percentage the lowest (Mhlanga & Garidzirai, 2020).

The industry's instability can be noticed in the demographic change with the number of open schemes shrinking from 41 in 2006 to 21 in 2019 and closed schemes from 83 in 2006 to 58 in 2019 (Council for Medical Schemes, 2019). The new Medical Schemes Act will significantly impact the industry and medical aids' structure, the benefits they can offer, the cost of contributions (Writer, 2018), and the schemes' risk management (Pretorius, 2019).

The current private hospital business model with medical schemes that pay 92% of private hospitals' income and have to pay practitioners often at cost without a choice is the dynamic that has been insulating the private healthcare industry against adaptability (Uhl-Bien, 2020b). The NHI bill, the MSA bill, and the HMI findings will significantly impact the industry in the foreseeable future. These three initiatives will likely remove the insulation from the industry, forcing healthcare organisations to become adaptable.

4.8 INCREASED LIFE EXPECTANCY AND AGEING

The South African healthcare system's challenges (both private and public) include the ageing population, the overall increase in population figures, and a substantial number of foreigners in South Africa, also requiring healthcare (Statistics South Africa, 2018; Williams, 2017).

The 2019 life expectancy in South Africa was 68.5 years for females and 62.5 years for males, and the infant mortality rate was estimated at 23.6 per 1000 live births (Statistics South Africa, 2020). The current 5.4 million people over 60 are expected to become 15 million by 2030 (Kelly et al., 2019; Statistics South Africa, 2020). The percentage of the population that is over 60 years has grown from 7.6% in 2002 to 9.1% in 2020 (Statistics South Africa, 2020). Research indicated that individuals' healthcare cost over 60 years with no chronic conditions

is 3.17 greater than those under 60. With co-morbidities, the cost increases to 5.52 times higher (Solanki et al., 2019). The South African primary healthcare infrastructure does not have sufficient capacity to assist older people who stay in communities rather than institutions (Kelly et al., 2019). It is recommended that self-management and ageing in community settings be promoted, aligning health systems with older persons' needs and being trained accordingly (Solanki et al., 2019).

4.9 THE INCREASE IN NON-COMMUNICABLE DISEASES

Lower-and middle-income countries have the burden of HIV and TB, together with NCDs, with the poor being particularly disadvantaged and at-risk (Rheeder et al., 2017). South Africa has high numbers of non-communicable and communicable diseases (Meyer et al., 2017). Changes to a westernised lifestyle, obesity and other lifestyle factors impact the incidence of NCDs; however, due to the rural nature of South Africa, NCDs, such as hypertension and diabetes, are often undetected (Rheeder et al., 2017). Adherence to NCD treatment is often poor (Rampamba, Meyer, Godman, Kurdi, & Helberg, 2018), and the accumulated losses to the GDP due to diabetes, coronary heart disease and stroke was US\$1.88 billion between 2006 and 2015 (Hofman, 2014). In low-and middle-income countries, there are five times more deaths from infectious diseases than from NCDs.

The WHO wants to reduce 25% of early mortality due to NCDs by 2025, focusing on tobacco use, salt intake, harmful alcohol use, hypertension, raised blood sugar, diabetes, and obesity (Hofman, 2014). To reduce the number of these deaths, the population must understand the risk factors and their impact on healthy living, combined with public participation and health policy implementation, two critical factors in curbing the increased number of diagnoses and deaths due to NCDs (Ndinda et al., 2018). South Africa is the most overweight and obese nation in Sub-Saharan Africa, with 70% of South African women being overweight. Therefore, low- and middle-income countries have to reconfigure their health systems to find solutions to address NCDs (SAMRC, 2018).

4.10 PANDEMICS

The prevalence of the Human Immunodeficiency Virus (HIV) and Tuberculosis (TB) crisis has over the years increased to pandemic levels in South Africa, with a subsequent impact on the healthcare system (United Nations, 2017). Statistics indicate that 13% of the South African population lives with HIV, approximately 7.8 million people. It is estimated that 18.7% of adults aged 15-49 years are HIV positive, and 25% of all women in this age group are HIV positive (Statistics South Africa, 2020; United Nations, 2020a). About 4500 new infections are reported

per week, of which a third are in women aged 15-24 (Allinder & Fleischman, 2019). South Africa is the country with the biggest HIV epidemic and has made progress by achieving the first 90-90-90 targets by 2018 (Avert.org, 2020). Twenty per cent of all people in the world living with HIV are in South Africa (Allinder & Fleischman, 2019). South Africa has the most effective antiretroviral treatment (ART) programme globally and is the first country in Sub-Saharan Africa to fully approve a pre-exposure prophylaxis programme for HIV (Avert.org, 2020). The South African government finances close to 80% of all the HIV expenses, which is an unparalleled commitment compared to other Sub-Saharan countries (Allinder & Fleischman, 2019). HIV challenges in the country is the prevalence of drug resistance and people failing to achieve viral suppression on antiretroviral therapy (Hunt et al., 2017). HIV positive patients on antiretroviral therapy displayed more adherence to treatment protocols for other chronic diseases, which suggests that ART treatment could strengthen other chronic programmes (Manne-Goehler et al., 2017).

South Africa had an estimated 360 000 active TB cases in 2019, with an estimated 14 000 new cases in 2019, with TB as the largest contributor to death in South Africa (Kanabus, 2020). Nearly ninety per cent (88%) of the population aged 30-39 staying in informal settlements are infected with the latent TB bacteria (Kanabus, 2020). From 2006 to 2016, the number of deaths due to TB declined from 76 881 annually to 29 399 annually (Loveday, Mzobe, Pillay, & Barron, 2019). The profile of deaths also changed with fewer children, women and adults in the reproductive ages 15-49 dying from TB (Loveday et al., 2019). The target to achieve a 95% reduction in TB mortality by 2035 is still achievable (Loveday et al., 2019). TB is a curable disease, but the patient must be treated for six months and complete the regime (Kanabus, 2020). There is a close relationship between the rise in TB, HIV and non-communicable diseases, requiring treatment and control of these programmes to be integrated (Loveday et al., 2019).

The first COVID-19 case in South Africa was diagnosed on 5 March 2020 (National Institute for Communicable Diseases, 2020). Private hospitals started with COVID-19 preparation in February 2020 (Life Healthcare, 2020; Mediclinic, 2020; National Hospital Network, 2020; Netcare Limited, 2020a). The first COVID-19 death in South Africa occurred on 27 March 2020 (Department of Health, 2020). The South African population became one of the most infected African populations, and on 31 March 2021, more than 1.7 million infections were recorded, with just over 55 000 deaths (Worldometers.info, 2021). On 29 December 2020, it was announced that more than 41 000 healthcare workers had contracted COVID-19 since it started, and more than 400 healthcare workers succumbed to the virus (Timeslive, 2020).

COVID-19 forced the world to become adaptive and agile since that was the only way to deal effectively with such a major disruptive event (Janssen & van der Voort, 2020). Practical leadership was needed to communicate to employees, implement changes quickly and involve the whole multidisciplinary team in all decision-making (Parker, Karamchand, Schrueder, Lahri, Rabie, Aucamp, Abrahams, Ciapparelli, Erasmus, Cotton, Lalla, Leisegang Meintjes, Mistry, Moosa, Mowlana, Koegelenberg, Prozesky, Smith, Van Schalkwyk & Taljaard, 2020). The South African approach to the COVID-19 pandemic, led by the Department of Health, was aimed at promoting cooperation, information sharing, and standardisation of practices within the public and private healthcare sectors to reduce costs and ensure adequate equipment, medical supplies, and PPE was available (Nkonki & Fonn, 2020). A recent report by the Lowy Institute, however, ranked South Africa poorly at number 82 out of 98 countries, evaluated for its COVID-19 response and management (Lowy Institute, 2021). The disease highlighted the need to move towards virtual care, the high reliance on China for the supply chain, the need for more flexible delivery channels that all impact healthcare costs overall, especially for the medical schemes (Theophanides & Omar, 2020).

In the hospital, all employees were faced with desperately ill, often dying patients, an insufficient number of ventilators for patients, not enough PPE for employees, and the constant struggle between their professional duty and fear for their personal safety (Luis & Vance, 2020). Healthcare employees also experience anxiety because of constantly changing guidelines (Luis & Vance, 2020). Healthcare employees had to deal with traumatised families that could not be with their dying relatives (Champagne, 2020). Going forward, healthcare leadership must help shape the landscape and not just adapt to it, helping their organisations emerge stronger from the crisis than before, helping organisations to thrive and not just survive (Kalina, 2020).

4.11 STRUCTURE OF THE SOUTH AFRICAN PRIVATE HOSPITAL INDUSTRY

In 2016, there were a total of 814 healthcare facilities, of which 409 were private facilities (Competition Commission of South Africa, 2019; Groenewald, 2017). For this study, only the following private hospital types will be considered: acute, day, ophthalmology and rehabilitation. No central database could be obtained that contained a comprehensive list of private hospitals. The three larger groups negotiate their prices nationally, resulting in local competitiveness not being realised (Competition Commission of South Africa, 2019). The high concentration of the three larger groups at the national level impacts independent hospitals' growth, the implementation of alternative reimbursement models, and the industry's competitive dynamics (Competition Commission of South Africa, 2019). By 2019, private

hospitals' landscape changed significantly with the following hospital groups functioning independently: Netcare, Mediclinic, Life Healthcare, NHN, Clinix and Joint Medical Holdings, some mine hospitals, and independent facilities. Table 4.2 displays the private hospital groups and the number of acute, day, ophthalmology and rehabilitation beds that were considered.

Table 4.2: Private hospitals considered for this study: October 2019

Hospital Group Name	Hospital Group Category	Number of Hospitals in Group	Number of Beds
Clinix Group	Private Group	5	1 501
Joint Medical Holdings (JMH)	Private Group	6	640
Life Healthcare	Private Group	64	8 543
Mediclinic	Private Group	57	8 187
Netcare	Private Group	57	10 187
NHN Group	Independent Hospitals	155	8 794
Total number considered		344	37 852

(Source: (Clinix Health Group, 2019; Joint Medical Holdings, 2019; Life Healthcare, 2018; Mediclinic International, 2018; National Hospital Network, 2019; Netcare Limited, 2018).

The following six hospital groups were considered for this study:

- *Clinix Health Group*: This group opened its first hospital in 1992 in the Vosloorus community in Johannesburg. Clinix owns seven hospitals and employs 2600 individuals. The mission of Clinix is to provide affordable quality healthcare to underserved communities, offering a wide range of medical and surgical services. The largest part of the Clinix hospitals is in the Gauteng province (Clinix Health Group, 2019). The Clinix group could not participate due to operational challenges.
- *Joint Medical Holdings (JMH)*: JMH is a predominantly black-owned independent hospital group that owns several hospitals and medical centres and has 640 beds. JMH employs 1300 individuals and offers a wide variety of medical and surgical services. All the JMH hospitals are in the KwaZulu-Natal province, with most of them in the city of Durban (Joint Medical Holdings, 2019). The JMH group could not participate due to operational challenges.

- *Life Healthcare*: Life Healthcare Group Holdings Limited is an international healthcare service provider. The primary business remains in South Africa, with activities in Botswana, western Europe and Poland. For this study, we only refer to the Life Healthcare services in South Africa. The group has close to 16 000 employees in Southern Africa, including Botswana. The Life Healthcare Group is listed on the Johannesburg Stock Exchange (JSE) (Life Healthcare, 2018). The Life Healthcare group purposefully did not co-operate with the study.
- *Mediclinic*: Mediclinic International is a multi-disciplinary healthcare service provider with services mainly in South Africa, Switzerland, and the United Arab Emirates. For this study, only the Mediclinic operation in South Africa will be considered. Mediclinic South Africa employs just over 16 000 employees in a variety of acute and day hospitals. Most of the Mediclinic hospitals are in the Western Cape province of South Africa. Mediclinic is listed on the JSE (Mediclinic, 2019; Mediclinic International, 2018). The Mediclinic group purposefully did not co-operate with the study.
- *Netcare hospitals*: The investment holding company, Netcare Limited, consist of Netcare hospitals (acute, day), Netcare 911 (ambulance service), Medicross (family medical and dental centres), and Akeso (mental health facilities). For this study, only Netcare hospitals were considered. Netcare Limited employs 21 000 people across all companies and divisions. Netcare Limited is listed on the JSE. Most of the Netcare hospitals are in the Gauteng province (Netcare Limited, 2018). The Netcare group purposefully did not co-operate with the study.
- *National Hospital Network (NHN)*: The fourth larger group is the National Hospital Network (NHN), established in 1996 when independently owned private hospitals realised that in order to stay competitive, they needed to negotiate tariffs with the medical schemes as a collective. The Competition Commission granted permission for the establishment of the NHN to balance the health market. Therefore, as the fourth competitor with Netcare, Mediclinic and Life Healthcare, the NHN, a group of independent hospitals, has competitive bargaining power. A board of directors manage the association according to a Memorandum of Understanding. Membership to the NHN follows strict criteria to ensure that patients receive quality care and stay efficient in care delivery to be competitive. Several of the groups within NHN participated in the study, and the breakdown of these groups are displayed in Table 4.3 (S. Goosen, personal communication, 30 October 2020, subject line: PhD Karen Nel).

Table 4.3: Breakdown of the National Hospital Network group: October 2019

Hospital Group Name	Hospital Group Category	Number of Hospitals Group	Number of Beds
Advanced Health	Day Hospital Group	10	227
Busamed Hospital Group	Acute Hospital Group	7	921
Cure Day Group	Day hospital Group	8	186
Lenmed Group	Acute Hospital Group	8	1239
Melomed	Acute Hospital Group	5	824
RH Bophelo	Acute and Day Hospital Group	11	969
Balance of independent groups and hospitals in NHN		106	4428
Total NHN (excluding sub-acute)		155	8 794

(Source: National Hospital Network (2019).

As of 31 October 2020, the main groups that comprise the NHN are as follows:

- *Advanced Health* is a national group of 11-day clinics, with 225 registered beds and 191 employees. Advanced Health focuses on utilising relevant and cost-effective technology to add value to the needs of patients, medical practitioners, personnel and stakeholders. The group aims to be the industry leader, inspiring confidence by focusing on delivering cost-effective healthcare and enriching the lives of our patients, employees and associated medical practitioners and stakeholders. The group aims to maintain a work environment that fosters personal and professional growth for all employees. Because of their role, managers and supervisors have the additional responsibility to lead in a manner that promotes respect for each person (K. Makeni, personal communication, 17 November 2020, subject line: PhD Karen Nel). Advanced Health co-operated with the researcher in this study.
- The *Busamed hospital group* is an award-winning, proudly South African private hospital group providing specialist services in 7 state-of-the-art hospitals across South Africa. The total employees complement consists of 1290 employees and 962 beds. The vision of Busamed is to provide quality, cost-effective services to all its patients in

partnership with its specialist health professionals, using a combination of high clinical standards and innovative technology. All the facilities operate with the backing of the Busamed Management Company. Each of the hospitals under the Busamed umbrella has core specialities together with in-house ancillary services, such as radiology, pharmacy, pathology, and physiotherapy. Busamed offers more than just exceptional clinical care (T. Laas, personal communication, 23 November 2020, subject line: Busamed Overview). Busamed co-operated with the researcher in this study.

- *Cure Day hospitals* were established in 2009 by a group of doctors whose dream was to provide private healthcare that is more affordable and more accessible to South Africans. This group specialises in many surgical and medical procedures where the patient can be admitted as a day patient. There are currently nine hospitals in the group, all proudly COHSASA accredited. The values of Cure day are Compassion, Unity/Teamwork, Respect, and Excellence (L. Hattingh, 24 November 2020, personal communication, subject line: Cure Day Hospitals). The Cure Day Group co-operated with the researcher in this study.
- The *Lenmed Group* is committed to creating places of healing for their communities, focused on attracting the best expertise and dedicated to building a steadfast team. Lenmed is an established hospital group providing private patient healthcare in Africa through the management and ownership of hospitals. Lenmed devotes itself to being a relevant and growing hospital group, championing exceptional patient experiences and clinical outcomes, remaining true to the roots, the communities and the people they serve. Lenmed has a total of 1914 beds in South Africa, Mozambique and Botswana and employs 2500 permanent employees (S. Hall, 26 November 2020, personal communication, subject line: PhD Karen Nel). Lenmed co-operated with the researcher in this study.
- The *Melomed private hospitals'* group started in 1989 with the Gatesville Medical Centre in the Cape Flats to bring affordable healthcare to the previously disadvantaged. Melomed is the largest wholly-owned black private hospital group in South Africa, with most of its hospitals situated in the Western Cape province. Melomed provides a wide variety of medical and surgical services at its facilities (Melomed, 2020). Due to the impact of the COVID-19 pandemic in the Western Cape, this province was the hardest hit of all provinces during the beginning of the first wave (Worldometers.info, 2021), resulting in Melomed indicating that they could not participate in the study.

- *RH Bophelo* is a pan-African investment entity to advance healthcare in Africa through strategic investments. RH Bophelo is listed on the JSE. This group owns a variety of acute and day hospitals and other financial investments, with a specific focus on the uninsured market (RH Bophelo, 2019a, 2019b).

4.12 HEALTHCARE PRACTITIONERS IN PRIVATE HOSPITALS

Private hospitals do not directly employ medical practitioners. However, practitioners contract rooms at a hospital, see their patients at the rooms, admit their patients into the hospitals and do some after-hours visitations at the hospital where they have contracted space (consulting rooms). The medical practitioners are central to the decisions around healthcare goods and services, tests and other expenses, with facilities offering preferential shareholding to high-admitting doctors and other financial exemptions (Competition Commission of South Africa, 2019). Larger groups also offer shareholding to their specialists, impacting smaller facilities' negotiating power and affecting the relationship between the facility and the specialists. The specialists have excessive power (Competition Commission of South Africa, 2019).

Since 2010, in-hospital claims have increased by an average of 10.84% per year, since hospitals have invested heavily in technology and equipment to attract specialists, resulting in over utilisation in order to cover the costs (Competition Commission of South Africa, 2019). Doctors have unassailable status in the industry and are permitted to not conform to organisational rules. It is challenging for nurses and hospital employees to display the expected leadership when medical practitioners are involved (Mbebwo, 2019).

Comparing the number of medical practitioners in South Africa to first-world countries, the picture is bleak. South Africa has 1.75 medical practitioners (general practitioners and specialists) per 1000 of the insured population in private practice, compared to the 2.8 per 1 000 in the United Kingdom and 3.2 per 1 000 of the population of France (Competition Commission of South Africa, 2019). The public healthcare sector has 0.3 medical practitioners (general practitioners and specialists) per 1 000 of the uninsured population (Competition Commission of South Africa, 2019). South Africa experiences a net outflow of healthcare workers to developed countries resulting in an increased burden on the remaining workers (Mlambo & Adetiba, 2017). The reasons for emigration are healthcare workers' salaries, poor working conditions, infrastructure, skills shortage and political uncertainty (Mlambo & Adetiba, 2017).

South Africa will need an additional 97 000 healthcare workers, of which one third is community workers, by 2025, as well as 88 000 primary care workers to deal with the expected

epidemiological and demographic changes, with an annual salary bill of R34 million (Writer, 2020c). According to the health minister, Dr Zweli Mkhize, the severe shortage of doctors and nurses is because the public health sector budget has not increased in real terms over the past ten years (Writer, 2019).

The allied health professional services (physiotherapy, occupational therapy, speech therapy, and audiologist) also experience severe shortages. Seventy-five per cent (75%) of occupational therapists service the private sector, and 25% service the public sector, with the under-resourcing and disparities in this profession harming rehabilitative services (Ned et al., 2020). Audiologists and speech therapists are expected to face a critical shortage by 2030 if significant interventions are not implemented to by re-evaluating the current framework regulating the training (Pillay, Tiwari, Kathard, & Chikte, 2020).

The two main healthcare bodies in South Africa, the South African Nursing Council (SANC) and the Health Professions Council of South Africa (HPCSA), are both in disarray (Rispel, 2016). SANC has postponed the detailed plan for nursing training, which has been in existence from 2012-2017. Implementation of the new nursing qualifications framework only commenced in 2019 (Ramakobya, 2019). Nursing employees are the highest expense of a hospital's wage bill, and with nursing salary increases above CPI, shortage of skilled nurses, public nursing colleges being closed, the emigration of nurses, and challenges experienced when foreign nurses are employed, makes the nursing profession a concern (Competition Commission of South Africa, 2019). A ministerial investigation concluded that the HPCSA was dysfunctional and could not efficiently and effectively perform its primary duties, as stipulated in the Health Professions Act 56 of 1974 (Rispel, 2016). The HMI also severely criticised the HPCSA and suggested significant changes (Competition Commission of South Africa, 2019).

The Human Resource for Health (HRH) Strategic plan of the government is a five-year plan to address healthcare practitioners' shortages. However, the plan lacks the necessary detail and does not keep the NHI strain on healthcare resources in mind (Rispel, 2016). The shortage in healthcare providers was raised as a major concern for implementing the NHI system, as significant more providers are needed to make the NHI effective (Pretorius, 2019).

4.13 LEADERSHIP IN SOUTH AFRICAN HOSPITALS

Limited leadership studies have been completed in private healthcare in South Africa. The studies in private healthcare were mostly focused on the nursing healthcare experience.

Although professional nurses experience support, respect and appreciation contributing to their professional dignity, they often experience humiliation from their patients and other

multidisciplinary team members (Combrinck, 2018). Nurse leaders are intrinsically motivated, and the motivation gets influenced by autonomy, competence, support and relatedness (Breed, Downing, & Ally, 2020). Team members experience nursing leaders to inspire employees towards a shared purpose, evaluate information, and lead with care (Naicker, 2018). However, line managers lack the knowledge to make well-judged decisions, explain complex and controversial procedures in an understandable manner, and shape future plans with the team to inspire hope (Naicker, 2018). Furthermore, line managers experience difficulty in uniting the team around a common purpose, finding opportunities for celebration, and to reward high standards (Naicker, 2018). Nurse leaders do not share stories to develop pride, does not provide mentoring and long-term coaching and does not identify high potential individuals that can be developed (Naicker, 2018).

Naicker (2018) reported that leadership development is imperative for the hospital's leadership to be effective. Seutloadi (2015) support the continual development of nurse leader skills, competencies and behaviours because nurse leaders do not feel sufficiently prepared for their management and leadership role. This is aligned with international research that nurse leaders are clinically well trained but not adequately trained in leadership and business skills (Uhl-Bien et al., 2020). Nurse leaders feel disempowered and frustrated since they know the right thing to do, know what staffing their units need, but have to plead for sufficient resources, and do not have the power to implement what is required (Shirey, et al., 2010, as cited by Combrinck, 2018).

The leadership that is displayed, a just culture (fair non-punitive), and a focus on organisational learning significantly impact safe patient care (Combrinck, 2018). Employees in a private hospital in South Africa experienced the amount of management support inadequate with the view that leadership only became interested (with a punitive approach) if an error occurred (Combrinck, 2018). Unit managers with a tertiary qualification in management revealed a higher perception of leadership competencies. In contrast, managers that have been in leadership for an extended period scored lower on leadership competencies than newer managers (Naicker, 2018). Chief Nursing officers can only overcome the C-suite's unwritten hierarchy if developed in relationship building, leadership, political savvy, depersonalisation, and business acumen (Jones et al., 2017). Factors impacting hospital managers' leadership can be categorised as people-management, self-management, health service management and general management (financial skills and human resources skills) (Asiabar & Ardestani, 2018).

The WHO identified the health workforce, leadership and governance within health systems, as two of the six pillars to achieve healthcare change in the world (World Health Organization, 2007). Poor healthcare leadership is mentioned as a specific weakness of the South African healthcare system, impacting the strategic and operational execution of health services, despite sufficient resources (Doherty et al., 2018). The healthcare industry requires the highest leadership and stewardship level to improve what the current healthcare system offers the population (Presidential Health Summit, 2018).

4.14 CONCLUSION

The South African healthcare industry has been classified as a VUCA industry in need of urgent change, as confirmed by Mr Cyril Ramaphosa, the President of South Africa. Both public and private healthcare have many challenges.

Historically, the divide created by apartheid remains in the country with the socio-economic challenges and the divide between the private and public healthcare systems. During apartheid, the non-white population had significantly fewer healthcare opportunities than the white population. Many of these failures of apartheid still impact the healthcare system in South Africa. A result of apartheid is the socio-economic divide, with South Africa classified as the most unequal country in the world due to poverty, poor infrastructure and low levels of education of the non-white population, just to mention a few. The imbalance between public and private healthcare is evident, with 84% of the population served with 4.1% of GDP in public hospitals and 16% of the population served with 4.4% of GDP in private hospitals. Public healthcare is mostly free but poorly managed with a poor quality of service. Private healthcare is unaffordable to the largest part of the population, offering a much higher quality of care. The democratic Government of South Africa has been unable to rectify the situation in any meaningful manner.

In a fresh attempt to correct the imbalance, the Government embarked on an NHI policy, and legislation was published as a redistributive policy to address the imbalances and create a universal healthcare system. The NHI will significantly impact the healthcare landscape, changing the benefits medical schemes can make available to members and changing how healthcare practitioners can offer their services. The NHI will significantly impact private hospitals' profitability since 92% of the income of private hospitals comes from private medical schemes. Simultaneously, the MSA draft Bill was published and the HMI report, proposing a change to the private healthcare industry that will impact the hospitals, funders and providers in a significant manner. The proposed changes will remove the industry's insulation and will become a significant exogenous shock that will force the private hospitals into reactive

change, which can either be an order response or adaptive response (Uhl-Bien, 2020b)). Additionally, the healthcare industry must deal with major challenges, such as the impact of increased life expectancy and ageing, increase in NCDs and pandemics (e.g. COVID-19).

Within the private hospital industry, the lack of competition due to the three larger hospital groups monopolising the industry and the structure within hospitals where doctors control the distribution of services result in significant over-servicing and over-utilisation of healthcare in private hospitals. Additionally, the industry experiences significant shortages of doctors, nurses and allied health workers in general but specifically in public hospitals, even before the implementation of the NHI.

Several leadership studies indicated a leadership challenge in South African private hospitals. Clinical leaders in hospitals need more leadership training and training in business acumen, aligned with findings of international studies. Hospital managers and other leadership positions in hospitals also need leadership and business acumen training. Poor leadership in South African hospitals, in general, was highlighted by both the President of South Africa and the WHO as one of the reasons why healthcare in South Africa is in a crisis.

In the next chapter will the research methodology that applied to this study, be explored. The research paradigm, approach and design will first be discussed. This will be followed by a comprehensive discussion of the quantitative, qualitative and integrated approaches that will be followed. In the quantitative discussion will the population and sample, the research instrument, and the pilot study be discussed. This will be followed by the discussion on the procedure for data collection, sample analysis, reliability considerations and validity. The qualitative discussion will also discuss the population and sampling, data collection, and pilot. This will be followed by a discussion on data analysis and trustworthiness.

The next chapter will be concluded with a discussion of the demography of participants of both samples, triangulation, some general principles, and the methodology that applied to the integration of the two study components.

CHAPTER 5: RESEARCH METHODOLOGY

The purpose of this study was to critically examine whether private hospitals in South Africa are positioned for adaptability, considering Complexity Leadership (CL) and Operational Systems and Structures (OSS). The research objectives were to investigate the relationship between the Hospital Displayed Leadership (HDL) and Hospital Operational Systems and Structures (HOSS), identify whether it was aligned with CL and OSS, understand why the result occurred, and recommend what could be done to enhance these factors for private hospital's adaptability. An additional objective was to understand the impact the COVID-19 pandemic had on HDL and HOSS.

Exploring CL and OSS's relationship in one study in private hospitals in South Africa was a novel approach. The notion of applying multi-level approaches in health sciences to investigate the complex challenges that exist is growing in acceptance, together with increased usage of mixed methods (Creswell, Klassen, Plano Clark, & Smith, 2018). The aim of utilising quantitative and qualitative research in one study was to have the ability to generalise the findings, transfer the results to contexts, and interpret the findings to ensure that more broad conclusions can be made (Weis & Willems, 2017).

This chapter will explain the research paradigm, approach, and design, followed with a comprehensive discussion on the quantitative, qualitative phases, and integration phases.

5.1 RESEARCH PARADIGM

A research paradigm describes the philosophical foundation of the research (Collis & Hussey, 2013). This study adopted a pragmatism approach, drawing on multiple paradigms for a solution to the research problem. This paradigm supported mixed methods, blending quantitative and qualitative principles into one study (Creswell, 2014; Fetters & Molina-Azorin, 2019). Mixed methods are not about using two methods in one study but about integrating the findings and drawing inferences using both methods (Tashakkori & Creswell, 2007). Pragmatism focuses on human action and interventions in reaction to challenging situations and the interaction between empirical observations (Small, 2011, as cited by Thaler, 2017). The motivation for this research was borne out of the challenges experienced by the private healthcare industry, taking into consideration the newly published healthcare legislations (Parliament, 2020; Department of Health, 2018), pressure for change (Competition Commission of South Africa, 2019), increased cost (Statistics South Africa, 2019) and the COVID-19 pandemic (Worldometers.info, 2021).

In Phase 1, the study adopted a post-positivist view that states that the researcher should remain independent of the studied subjects (Zou, Xu, Sanjayan, & Wang, 2018). This is a reductionistic paradigm with the careful observation and measurement of the reality (Creswell, 2014), applying an objective methodology where the views of the researcher did not impact the results.

For the qualitative part of the study, a Constructivist Theory was followed where the meaning of the phenomena was formed through the subjective view of the researcher (Zou et al., 2018), developing personal meanings of experiences relying on the participants' view of what was being studied (Creswell, 2014). The second phase of the study involved the researcher actively participating in the results and outcomes.

Finally, these two paradigms were integrated to form a whole that was bigger than the individual parts of the quantitative and qualitative phases (Fetters & Freshwater, 2015).

5.2 RESEARCH APPROACH

The research approach refers to the strategies and actions of how the research will be done, analysed and interpreted (Creswell, 2014). The research approach was mixed methods, an approach that involves collecting quantitative and qualitative data, and integrating the data, and assuming the combined result will present a better understanding of the research problem (Creswell, 2014). Through mixed methods, both quantitative data (closed-ended) and qualitative data (open-ended) was collected sequentially according to the guidelines for the two types of data, analysed and integrated by connecting the data (Creswell, 2014). A mixed-methods approach was selected since combining CL and OSS in one study was a novel approach, and the researcher did not only want to understand the relationships between the two constructs but also to find an explanation for the relationship, to ensure industry recommendations for action could be inferred.

The question answered at the integration phase was what union was created by using quantitative and qualitative data (Fetters & Freshwater, 2015). Integration of the research has to be at all levels, namely theorising, the conceptual model, research design, research method, data analysis, interpretation of data, visualisation of results, presentation of results and the publications (Fetters & Freshwater, 2015). The result of mixing the methods must present a value-added result that presents an integrative view (Onwuegbuzie, 2012). Throughout this study, the integration of the quantitative and qualitative phases was emphasised at all levels.

5.3 RESEARCH DESIGN

Research design explains the plan that will be followed for the research, including the methods that will be followed for the analyses (Peersman, 2014). The research design was an explanatory sequential design where the quantitative phase was performed first, followed by the qualitative research, where the quantitative results informed the sample selection of the qualitative phase, and the qualitative phase provided explanations for the quantitative results (DeCuir-Gunby & Schutz, 2016). The study was a correlational study, measuring the degree of association between the display of CL and OSS in private hospitals in South Africa, therefore no dependent and independent variables were identified (Creswell, 2014). No mediating variables were measured; however, the moderating variables of manager/non-manager and clinical/non-clinical were measured. Therefore, the data collection for the two phases was related and not independent, with a more significant focus placed on the qualitative data (Creswell & Plano Clark, 2017).

The strengths of an explanatory sequential design are the following:

- The design is the most straightforward since it has a strong quantitative orientation.
- Because the two phases are sequential, one researcher can perform the research.
- The final report has a separate quantitative and qualitative section which makes it easy to write up.
- This is an emergent approach since the second phase is dependent on the outcome of the first phase (Creswell & Plano Clark, 2017)

During the quantitative section of the study, survey research was applied with a cross-sectional online survey that could be generalised to the population's views (Creswell, 2014) of employees working in private hospitals in South Africa. For the quantitative section, an objective top-down approach which was deductive with closed-vocabulary, was followed (Rohrer, Brümmer, Schmukle, Goebel, & Wagner, 2017).

The quantitative phase was followed by a qualitative assessment with a case study design providing rich empirical data of a phenomenon, with the data coming from a variety of sources (Gehman et al., 2018). This design provided an in-depth evaluation of the words behind the numbers (Padgett, 2016; Watkins, 2017) and gave answers regarding the beliefs, attitudes and concepts (Hammarberg, Kirkman, & De Lacey, 2016) of the employees of private hospitals in South Africa, explaining why the impact between HDL and HOSS existed and

what could be done to change this impact. The design of the qualitative phase of the study was phenomenological research where the lived-in experiences of several individuals were described (Creswell, 2014), specifically focusing on the phenomenon of HDL and HOSS and what could be done to align it with CL and OSS, as described. This qualitative phase had an inductive bottom-up approach with open-vocabulary, as explained by Rohrer et al. (2017).

Integration of the quantitative and qualitative phases occurred by connecting the data because the quantitative research results were used to inform the qualitative data collection sample and interview guideline (Creswell et al., 2018). Furthermore, the qualitative findings explained the quantitative results (Creswell, 2014) and provided an understanding of what could be done to change the HDL and HOSS experienced by participants. The benefit of using mixed methods is to assess complex problems from different perspectives while maximising the strength and minimising the weakness of both individual approaches (DeCuir-Gunby & Schutz, 2016).

Figure 5.1 displays the study design and methodology that was applied to this study.

Figure 5.1: Study design and methodology

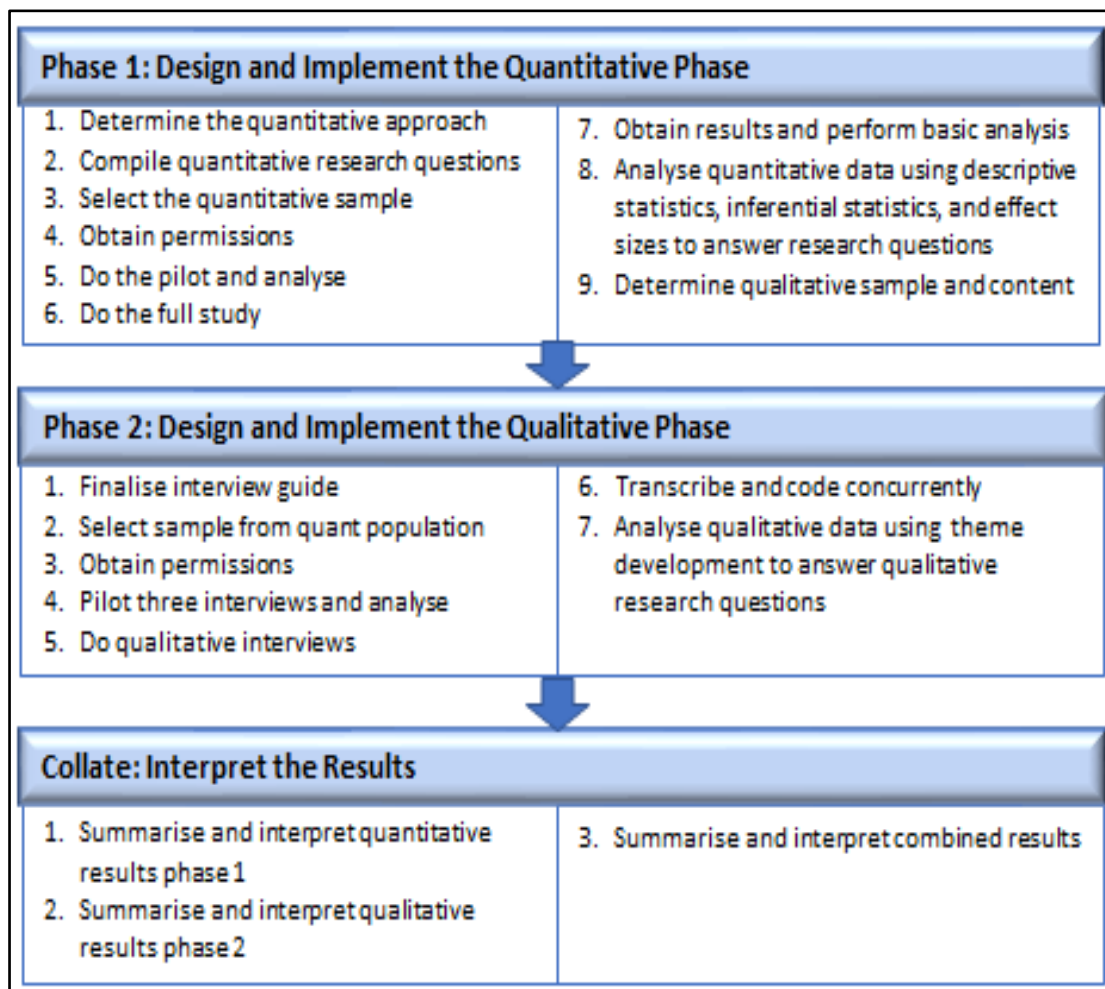


Figure 5.1 shows a mixed-methods study with three sets of analyses that occurred, namely a quantitative analysis, a qualitative analysis, and an integration analysis. A full explanation of the methodology that was applied for this study will follow next.

5.4 QUANTITATIVE STUDY

Quantitative studies involve collecting data about a phenomenon systematically, using specific measures and analysis (Hammarberg et al., 2016). The quantitative methodology discussion will expand on the population and sampling, the data collection method, and the research instrument used in this phase, followed by a discussion on the data collection procedure, analysis and interpretation, with a final section on the validity and reliability of this phase.

5.4.1 Population and sample

The study population entails all the units that the study results can be generalised to, and the sample is the number of units that will participate in the study (Hammarberg et al., 2016). A quantitative sample often consists of a larger number of participants, and a qualitative sample mostly consists of a smaller number of participants. The two phases of this study had different populations and samples selected using different methods.

For this quantitative phase of the study, the population was the total number of skilled and highly skilled employees of private hospitals in South Africa, employed in any role in the hospital or at the head office. Highly skilled labour are professionals, semi-professionals and technical positions, for example, registered nurses, accountants and general managers, where skilled employees are clerical, sales and administrative employees, for example, artisan, foremen and ambulance drivers (Econex, 2017). In 2016/2017, private hospitals in South Africa had 53 500 permanent employees, of which 41% were skilled and highly-skilled employees (Econex, 2017). Therefore, the population of skilled and highly-skilled private hospital employees that could participate in this study was 21 935. The researcher engaged the bigger and smaller hospitals groups that formed the population for permission to conduct the study amongst their employees.

Sampling is the process of selecting people (units) from the population to draw conclusions that will apply to the whole population (Peersman, 2014). The sampling approach was probability-based stratified random sampling which means that specific characteristics had to be known before the individual could be approached for the sample (Creswell, 2014). Everyone that met these characteristics had an equal opportunity to be in the sample (Creswell & Plano Clark, 2017). In this quantitative phase of the study, the individual's position (manager or non-manager), as well as the hospital group that employed the individual, had to be known

before the individual could be approached to participate in this study. With stratified sampling, the sample needs to display the population's actual characteristics with the same features (Creswell, 2014). For this reason, the sample proportions for the four large hospital groups were calculated according to the number of beds and the weighting of each hospital group in the population as declared by each in October 2019 or presented in their 2018 annual results (Life Healthcare, 2018; Mediclinic International, 2018; National Hospital Network, 2019; Netcare Limited, 2018).

Table 5.1: Bed distribution per group

Group name	Number of Hospitals	Number of Beds	Industry Weighting
Mediclinic	57	8 187	23%
Life Healthcare	64	8 543	24%
Netcare	57	10 187	28%
NHN Affiliated Hospitals	155	8 794	25%
Total	333	35 711	100.00%

Table 5.1 displays the total number of beds (35 711) as presented by the four large hospital groups. This total does not include sub-acute and psychiatric beds. Only the NHN group actively co-operated with the study. Within the NHN group, Advanced Health, Busamed hospital Group, Cure Day hospitals, and the Lenmed Group participated in the study. These hospitals all have a variety of acute, day and rehabilitation beds.

Specifying the correct sample for an academic study is an important activity of the researcher; thus, the reliable and well-tested method of Krejcie and Morgan (1970) was applied. In determining the sample size, the formula of Krejcie and Morgan (1970) (as cited in Chuan & Penyelidikan, 2006) was used:

$$s = \frac{X^2 NP(1 - P)}{d^2 (N - 1) + X^2 P(1 - P)}$$

Where:

s = required sample size

X^2 = Chi-Squared for 1 degree of freedom at the desired confidence level

N = population size

P = the population proportion (assumed to be equal to 0.5 to maximise the sample size)

d = the degree of accuracy

The margin of error displays how significant the risk would be that the data will not reflect the population's views, and the confidence level represents how confident the researcher is to achieve this margin (Peersman, 2014). For this study, a margin of error of 5% was selected with a confidence level of 95%. Using the formula of Krejcie and Morgan (1970), this study's suggested sample size from a population of 21 935 was 378. This sample was segmented into 189 managers and 189 non-managers, split across the four larger hospital groups according to the weighted average of beds from the total bed population of 35 711.

An email was sent to the CEOs of all the hospital groups with a letter attached informing him/her about the study, the expected outcome, and requesting permission for participation (Appendix B). This email contained an attachment that explained the study's details and the benefit to the hospital/group for participating (Appendix C). During this communication, the CEO was informed that, should the group assist and co-operate with the study, a report with the study results would be made available to the management team once concluded.

The qualifying and disqualifying criteria for participation are displayed in Table 5.2.

Table 5.2: Qualifying and disqualifying criteria for inclusion in the sample

Qualifying	Disqualifying
Employed by a private hospital in South Africa	Employed by a public facility or by a private entity that is not a hospital, e.g. a step-down facility
Employed in a skilled or highly skilled position	Employed in a semi-skilled or unskilled position
Permanently employed or permanent contract at only one facility	Contracted through an agency to work at several different facilities
Clinical and non-clinical	
Managers and non-managers	
Head office and hospital	

A manager is a person that manages a group of people (Oxford University Press, 2019). For the selection of managers for the study, the following criteria had to be fully met to be regarded as a manager:

- Have 'manager' in their job title at the time the survey was completed;
- Have people reporting to him/her; and

- Have the ability to impact decisions in the hospital.

All employees not meeting these criteria were regarded as non-managers. Only skilled and highly skilled employees were invited to participate.

For the quantitative study, the researcher needed access to the contact details of employees for the confidential distribution and return of the surveys. In engaging the hospitals, some hospital groups objected to providing the researcher with the contact details of their employees. The reason for the objection was either the constraints stipulated in the Protection of Personal Information Act (The Presidency Republic of South Africa, 2013), objecting to not having access to the completed surveys of their staff before submitting them to the researcher or lastly that the hospitals already utilised their allocated research hours for the year. This was aligned with the research of VanGeest and Johnson (2011), which listed some of the known barriers in healthcare research, namely time constraints, lack of institutional support, and the gatekeeper role that institutions often take. The NHN group agreed to support the study and welcomed the researcher's offer to present the results to their Board on completion of the research. The smaller groups forming the NHN group also supported the research.

Due to the abovementioned challenges, the researcher implemented a dual sampling strategy, one for the NHN group and another strategy for the other hospital groups that decided not to participate. The criteria for participation, however, remained, as per Table 5.2. The two sampling strategies will now be discussed.

Strategy 1: Direct sampling

Direct sampling was used for the hospital groups within the NHN network that were selected to participate and co-operate with the study. Permission letters on a company letterhead were obtained, and the researcher provided the head office of each group within this entity with a memo that was distributed to employees (Appendix D), explaining the research and the participation that was needed. The employees that agreed to be contacted agreed to have their contact details shared with the researcher (Appendix E). The hospitals provided the researcher with the contact details and position of these employees. All employees were contacted to participate, and a random selection was made from the completed surveys, considering managers and non-managers, as well as clinical and non-clinical staff.

Strategy 2: LinkedIn sampling

A LinkedIn sampling strategy was selected for the employees of those hospital groups that, for whatever reason, did not agree to participate. These hospitals gave the researcher

feedback in writing that they were not prepared to participate. For these groups, the researcher obtained the participants from the professional social network platform, LinkedIn. LinkedIn is an online platform that is the largest professional network globally, with over 760 million users and over 260 million monthly users (LinkedIn, 2020; Osman, 2020). Social media platforms are free and widely accessible and are getting traction to advertise and get participants for online surveys (Stokes, Vandyk, Squires, Jacob, & Gifford, 2019). Participants that join LinkedIn do so out of their own free will; however, they still have the choice to indicate if their personal data can be shared. People using LinkedIn can decide whether they want to react to a connection request from the researcher. Some of the criticism of using LinkedIn is selection bias and an unrepresentative sample, where some of the benefits are rapid recruitment, snowballing, and minimal resources needed (Stokes et al., 2019). Only a few studies could be found where LinkedIn was used as a platform to gain access to participants for a study unrelated to LinkedIn and social media (Lee et al., 2017).

A population on LinkedIn was identified that comprised of employees that met the study's inclusion criteria (Table 5.2) and were purposefully selected from the three private hospital groups that elected not to participate. The researcher sent out 2544 personalised LinkedIn connection requests only to qualifying prospects (Appendix F). These requests contained a link to the researcher's own website that could set potential participants' minds at ease. Members on the LinkedIn platform reacted to the connection requests out of their own free will. A total of 982 (39%) requests were accepted. The connection request advised that more details of the study would be shared and requested a private e-mail address. The researcher committed that no participant in the LinkedIn sample will complete the survey using hospital resources. Detailed records were maintained of which connections were requested and accepted. Once the connection request was accepted, did the researcher send an acknowledgement email (Appendix G) with an attachment (Appendix H) containing more details of the study, confirming confidentiality?

All participants in both sample groups participated voluntarily.

5.4.2 The research instrument

The research instrument selected for the quantitative phase was an online survey. A survey provides a numeric description of the sample's attitudes, trends, and opinions from the population studied (Creswell, 2014). A survey design was selected since the results are available quickly at a relatively economical cost and can be inferred to the greater population (Creswell, 2014). The participants received an email with the participant information letter and an embedded survey link. The participant information letter (Appendix I) introduced the

researcher, explained the study process and confidentiality, and provided contact details. Controls were implemented to ensure each participant could only complete the survey once.

The online survey consisted of four parts:

1. The consent agreement;
2. The demographic section;
3. The Complexity Leadership section; and
4. The Operational Systems and Structures section.

The first section of the survey was the consent section. Should the participant select 'no', the survey closed, and the participant was thanked for his/her time. Should the participant select 'yes', then the survey would move to the demographic section. Only appropriate questions were asked relating to the hospital and group where they worked, their position, the number of people reporting to them directly and indirectly, their age and gender. This section was concluded with questions on how long they worked in the group and how long they have been in their current position.

It was essential to use a survey that correctly measured the constructs of interest (Tsang, Royse, & Terkawi, 2017). The constructs that had to be measured were HDL and HOSS to be able to determine if it was aligned with the principles of CL and OSS, as defined in the literature review. After extensive analysis of available research instruments, no instrument could be found that was suitable for an individual in a hospital setting, evaluating the HDL and HOSS. After a comprehensive literature review, the dimensions (elements) of the constructs were identified, together with the sub-elements that guided the researcher in the structure of the survey, aligned with the process described by Tsang et al. (2017). The researcher, therefore, used the conceptual framework of CL (Figure 2.6) and OSS (Figure 2.11), referencing several surveys in the field (Arena, 2018; Cohn & Rubin, 2018; Course Hero, 2020; HFM Talent Index, 2018; Obolensky, 2018) and designed a CL and OSS survey that measured both constructs from an individual perspective in a private hospital. The complexity of the questions was considered since the survey was a self-administering survey (Tsang et al., 2017). Simple, familiar words were used without any technical terms referencing the measured concepts, and only one item per question was measured (Krosnick, 2018).

The questions relating to the two constructs were grouped to make it easier to answer, with more straightforward questions in the beginning and more complex questions towards each survey's end, as guided by Krosnick (2018). The structure of both surveys was similar since

the two conceptual frameworks were aligned. Referencing Figure 2.14, the elements each had three sub-elements and five questions (items) in the survey. Two of the items related to the sub-element on the left, two items related to the sub-element on the right, and one item related to the sub-element in the middle. The elements that are shared across the three concepts had three items that measure the element across all three concepts. This structure applied to both surveys testing both constructs. The CL survey, therefore, had 29 questions, and the OSS had 34 questions. (The quantitative survey is contained in Appendix J).

The item format was a forced decision six-point Likert-type scale. The original Likert scale was a five-point Likert scale measuring attitudes. Often a misunderstanding arises as a result of the word “scale”. The term is loosely used to describe the response format in many books and cases; however, according to Likert himself, the Likert scale was used to describe a number of items used as a composite. In this case, the data now not only take on, e.g. five values, but can be anything in a specific range; therefore, it can be treated as continuous data (Carifio & Perla, 2008). For this study, therefore, a forced-choice ordinal Likert scale with six points was applied. As explained by Tsang et al. (2017), this is to prevent the participants from having access to a mid-point where they can dump their answer if they do not want to make a choice. Evidence suggests that a six-point rating scale is more reliable than any other rating scale, with rating scales ranging between three- and seven-point rating scales (Krosnick, 2018). The scales for this study’s survey were the following, namely: ‘Strongly Disagree’, ‘Disagree’, ‘Somewhat Disagree’, ‘Somewhat Agree’, ‘Agree’, and ‘Strongly Agree’.

An open-ended question appeared at the end of the OSS survey: “Is there any additional information, feedback or comments regarding the topics of the survey that you would like to share with the researcher?” which is a common practice at the end of quantitative surveys, as supported by Rohrer et al. (2017).

The initial survey and data were password-protected, executed and saved in a secure cloud server. Once the study concluded, the data was downloaded into a spreadsheet format on a password-protected computer with a secure, encoded hard drive, as well as into a secure cloud server backup. Only the researcher had access to the data and specifically the data sections that contained the participants' personal information.

5.4.3 Pilot study

A pilot study is a small scale study following the process and using the primary research survey, intending to test the quality and efficiency of the primary research (In, 2017). A pilot study was conducted to determine the content validity of the answers and improve the format,

scales, and questions of the survey (Creswell & Plano Clark, 2017). Some of the pilot study's expected outcomes were to test the feasibility of the research, the recruitment and consent process, the acceptability of the participants, and the suggested sample size (In, 2017).

For this study, a pilot of ten participants was conducted. These participants were randomly selected through the direct sample method and the LinkedIn method. A similar invitation process was followed with the pilot study, as with the main study. Participants were advised that they formed part of the pilot, and it was requested that they provide feedback on the survey and their experience of the research process. Following analysis of the process, feedback and the results, the following changes were made to the original survey:

- The wording of the demographic questions was slightly changed to make it clearer.
- The age question was added as identification of the age spread of the sample.
- The data collection process was changed and streamlined for the researcher to have better control over who received and completed a survey.
- No changes were made to the CL and OSS sections of the survey.

5.4.4 The procedure for data collection and data statistics

Online surveys usually represent a quick way for data collection. However, due to the COVID-19 pandemic and the LinkedIn sampling approach, data collection took longer than anticipated. Throughout the process of gathering the data for the quantitative phase of the study, records were maintained of all activities and the number of activities that occurred until the completed questionnaires were received from the participants.

Strict confidentiality guidelines were followed during the data collection process. However, anonymity was not possible since the quantitative sample informed the qualitative sample. Therefore, the total sample for this study was 1184 skilled and highly skilled employees. The total number of completed surveys required for the population of 21 935 remained at the set level of 378.

After the initial invitation was sent, weekly reminders were sent to participants, including personalised emails. Reminders were also sent to participants that either opened the survey but did not begin or those that have started but only partially completed the survey, as was suggested by Ward, Meade, Allred, Pappalardo, and Stoughton (2017). A marked increase in the response rate occurred when personalised emails were sent that re-emphasised confirmation of confidentiality—in addition, also attesting to the fact that the researcher was

not affiliated to any hospital group nor receiving any financial assistance from any corporate institution. Finally, a measure was implemented to ensure that participants would not complete duplicate surveys.

Participants that were part of the direct sample approach received a memo explaining the study (Appendix D) after they authorised the hospital to share their details with the researcher (Appendix E). A total of 417 email addresses were received, resulting in a planned sample of 417. However, 13 email addresses were invalid, and 11 participants opted out before the survey link was sent. The final realised direct sample of 393 participants received the e-mail survey.

A total of 982 LinkedIn participants accepted the connection requests. The LinkedIn sample received a personalised reply, requesting a personal (non-business) email address, confirming confidentiality (Appendix G) and containing a Participant Explanation document that provided more details and again confirmed confidentiality (Appendix H). This reply also contained a link to a short video where the researcher thanked the participants for their time and again confirmed confidentiality. The researcher's undertaking was that, for the hospitals that elected not to support the study, employees would only be contacted on their personal email addresses. The LinkedIn message and Participant Explanation document was also sent to the personal email address once received. After this reply, 159 participants did not provide a personal email address, and 32 participants opted out. From the planned LinkedIn sample of 982 participants, the realised sample was 791 participants who received the Participant Information letter and survey link.

The sample statistics of the quantitative phase of this study are displayed in Table 5.3.

Table 5.3: Quantitative survey statistics

<u>Process Statistics</u>	LinkedIn	Direct	Total	%
Questionnaires links sent	791	393	1184	
Email received to opt-out before start	32	11	43	3.6%
Not responded	356	190	546	46%
Started the questionnaire but did not complete it	69	20	89	7.5%
Completed questionnaire	333	185	518	43.7%
Percentage that engaged the questionnaire	51%	52%	51%	
% completed	42%	47%	44%	
<u>Completed Survey Statistics</u>				
Completed questionnaires that did not meet qualifying criteria	7	7	14	2.7%
% of completed questionnaires that were outliers	10	14	24	4.6%
Good questionnaires	316	164	480	92.6%
Used for study	280	98	378	72.9%

Table 5.3 displays that 51% of the total invitations that were sent out were acted on. However, only 44% were fully completed. (Saleh & Bista, 2017) The response rate for online surveys is expected to be 11% poorer than using other modes (Saleh & Bista, 2017). Meterko et al. (2015), however, stated that no significant difference in responses was noted between the results of a 29.7% response rate and a 95% response rate in the same study. The response rate to online questionnaires is typically lower, as stated by Ebert, Huibers, Christensen, and Christensen (2018) that reported a response rate of 36.2%, nearly 10 % lower than the paper response rate. Therefore, a response rate of 44% for an online healthcare questionnaire would be an acceptable response rate.

No statistically significant difference occurred in the number of completed surveys on the LinkedIn sample compared to the number of completed surveys on the direct sample. A group of 89 participants started with the survey but never completed it. On enquiry, the feedback was that the participants were scared that their responses could somehow leak to management, jeopardising their careers or even employment – this was despite repeated guarantees of confidentiality. As displayed in Table 5.3, a total of 518 completed surveys were received. However, 14 of these participants did not meet the qualifying criteria, and 24 were identified as outliers (only selected 1 or 6) and removed from the database, with the result of

480 high-quality surveys that could potentially be used for the study. For the LinkedIn sample responses, only enough surveys were received aligned with the final sample size of 378, weighted according to industry bed distribution. The excess responses were from the direct sample hospitals and could therefore not be used. A random selection was made, considering the industry distribution of beds (Life Healthcare, 2018; Mediclinic International, 2018; National Hospital Network, 2019; Netcare Limited, 2018) to achieve 280 surveys from the LinkedIn sample and 98 surveys from the direct sample.

This resulted in a realised sample of 378 surveys representing the industry according to the distribution of beds. No surveys with missing data were identified since the programme forced the participants to complete all fields. A total of 518 (43%) surveys were completed. On completion, each participant received a personalised thank-you video message from the researcher.

5.4.5 Reliability considerations

The purpose and scope of the study have resulted in a situation where traditional statistical reliability analysis could not be directly applied. The complexity of having two major study areas in a single study, namely the relationship between CL and OSS and each with a significant number of concepts, elements and sub-elements, resulted in a situation where the researcher had to consider the appropriateness of statistical reliability indicators individually, but also collectively. This also affected the questionnaire design directly since it could result in having to use a very large number of questions to test all constructs comprehensively, which was neither required, feasible, nor practical. Although positive or negative relationships can be expected between elements and sub-elements, it may not always be necessary or even feasible to establish relationships between all elements and sub-elements for all constructs (Streiner, 2003).

Subsequently, an approach had to be found that would accommodate the analysis of the data to achieve the purpose of the study, which is to understand the relationship between CL and OSS in private hospitals in South Africa. In the design, execution and analysis of the study, specific reference was, therefore, given to latent variables (Juniper, Guyatt, & King, 1994), the difference in the application of scales and indices (Bollen & Lennox, 1991), and the appropriateness measurements of reliability (Juniper et al., 1994).

The first analysis conducted was a demographic analysis, followed by descriptive analysis using quantitative data analysis software, SPSS (Field, 2013; SPSS, 2020). During the conceptualisation of latent variables, as per the literature review that explored the complexity

of the constructs CL and OSS, items for each latent variable were constructed. These items do not aim to present a reflective construct but rather were defined to form a composite indicator that represents the latent variables. In other words, the latent variables were considered formative constructs. To this end, a principal component analysis was conducted to determine the validity of using a composite of items, called an index for each of the CL and OSS sub-components. Traditional measures of internal consistency did not necessarily apply in all instances in this study, aligned with the view of Sijtsma (2009) and Bollen (1989) that alpha is not always an accurate measure of internal consistency, neither for the degree of one-dimensionality.

Literature regarding internal consistency (reliability) noted that a foundational principle of Classical Test Theory states that scales have to display a high grade of internal consistency, as usually measured by Cronbach's Alpha (α) – a measurement of the mean inter-item correlation – as well as evidenced by a strong first component (Streiner, 2003). However, there are many instances where this rule does not apply (Sijtsma, 2009). Following Bollen and Lennox (1991), there is a difference between surveys, such as anxiety or depression inventories, which are composed of items that are manifestations of an underlying hypothetical construct (i.e., where the items are called *effect indicators or scales*) vs those where the items themselves define the construct (these items are called *causal indicators or indices*), as in this study. Because of the complexity of the constructs of CL and OSS, many elements and sub-elements had to be tested. The decision was made in the initial planning phase of the study that the items (questions) will be regarded as causal indicators (indices) and not affect indicators (scales). Questionnaires with items that are effect indicators, as explained by (Bollen & Lennox, 1991), meet the criteria of Classical Test Theory. In contrast, items that are called causal indicators or *indices*, as was applied in this study, do not necessarily meet the criteria of Classical Test Theory. For in the latter, a low correlation between the indicators can apply. The lower correlation is aligned with what was identified in this study, and what was explained by Bollen (1989).

Further literature review argued that internal consistency measures "...are extremely useful in constructing scales that tap a unidimensional construct, but one should not assume that all measures must exhibit homogeneity among the items" (Streiner, 2003, p. 222). Indices that are developed from causal indicators will often have items that are not correlated with one another. When coefficient α and other ways of measuring internal consistency are blindly applied, without considering whether they are the appropriate measure for the study, it can often lead to situations where certain indices are wrongly dismissed with the conclusion that it is not reliable, or that a scale is unfairly criticised for not producing useful results (Juniper,

Guyatt & King, 1994)(Bollen, 1989). In this study, therefore, Cronbach's α nor any other test for reliability were considered appropriate.

CL and OSS were considered reflective constructs represented by composite indicators (formative), as discussed in the study model. Structural equation modelling incorporates causal paths and displays the strength of multiple variables as a collective (Creswell, 2014). It is described as a linear model that accounts for the relationships between variables and acts as a generalisation, extension and integration of more familiar analysis modes, such as regression analysis or principal factor analysis (Hoyle, 2012). Structural equation modelling was, therefore, used for the inferential analysis of the quantitative data.

5.4.6 Validity

The validity of any quantitative data collection instrument is whether the instrument measures what it is intended to measure. External validity is the researcher's ability to generalise the results obtained from the sample to the general population (Krefting, 1991). Different types of external validity (generalisability) for quantitative research can be measured. Content validity is a subjective measurement that determines whether the instrument covers the full range of issues and problems measured. Face validity is a subjective measure when an expert in the field evaluates whether the survey appears valid on the surface. Criterion validity evaluates the extent to which an instrument's findings are aligned with the findings of a similar instrument. Construct validity identifies whether the instrument measures the theoretical principles it was designed to measure (Bolarinwa, 2015).

The content validity of the developed instrument is high since all the concepts, elements and sub-elements were included and tested in a structured and planned approach. This is evident when comparing the CL and OSS conceptual models for this study (Figure 2.6 and Figure 2.11) with the CL and OSS surveys (Appendix J). The face validity could not be evaluated since no expert in the combined fields of CL and OSS could be found. However, the survey was reviewed by experts in the leadership field. The criterion validity could not be determined since no similar survey exists, and therefore, the researcher had to design a survey. The construct validity has been confirmed since the findings from the study are aligned with international findings of specialists in the field of CL (Uhl-Bien, 2020a). External validity was increased by ensuring the sample was a representation of the population as explained in Section 5.4.1, using a heterogeneous group of participants from all the private hospital groups, all the provinces, all the categories of skilled and highly skilled employees and all the levels of staff (Mohajan, 2017). The assessment of reliability was discussed under Section 3.4.5. Internal validity is defined as the extent to which the interpretations of a study are accurate

and can be inferred to the population (Creswell, 2014). Internal validity can only be tested when the results of the study are available and compared with other similar study results.

5.5 QUALITATIVE RESEARCH APPROACH

Qualitative research is a vibrant emerging field (Anderson, 2017) which is the study of the world from the perspective of the person that is studied (Krefting, 1991). This approach is influenced by the socio-cultural, psychological and physical environment, impacted by the subjective perceptions and meanings of the individuals that are studied (Krefting, 1991). The process of qualitative research is to use words and images as data (Merriam & Tisdell, 2015) and to systematically collect, organise, describe and interpret it (Hammarberg et al., 2016).

The discussion on the qualitative methodology will explain the population, sampling principles, data collection and analysis that occurred, ending off with a discussion on scientific rigour.

5.5.1 Population and sampling strategy

The population in qualitative studies are the group from where the sample will be selected, ensuring the population is presented to increase the generalisation of the results (Weis & Willems, 2017). The quantitative and qualitative studies were integrated through connection since the quantitative participants formed the qualitative population. The quantitative results informed the sample criteria for the qualitative study, as explained by Creswell and Plano Clark (2017).

The sampling size is the number of participants from the population that will be selected as the sample (Hammarberg et al., 2016). Qualitative researchers aim to achieve criteria-based sampling that will meet a specific need or present a particular characteristic that relates to the research in general or the research questions specifically (Guetterman, 2015). The sample has to display characteristics of the population for the findings to be generalised to the population's (Weis & Willems, 2017). The sample size must provide the necessary information without causing excessive redundancy that could mislead the researcher (Weis & Willems, 2017). Content saturation is when no new themes emerge from the data, and redundancy of the data is reached (Nene, Ally, & Nkosi, 2020). For theoretical and empirical saturation, the study design's theoretical considerations had to be followed (Weis & Willems, 2017).

Qualitative research does not aim for large samples but rather samples that support the theory and can be applied to other contexts (Rohrer et al., 2017). A purposeful selection was made from the quantitative participants by considering participants who answered the quantitative

survey's last question, which was an invitation for additional comments. With the non-clinical sample, a specific focus was to have representation from both the head office and the hospitals, with the clinical sample only coming from the hospitals. To ensure representativeness, high-quality responses and maximal variation, interviewees were chosen representing different hierarchy levels, different roles and from different hospital groups, as suggested by Schulze and Pinkow (2020). Because of the structure of the industry and the study, the researcher selected a sample of 16 participants with the distribution, as displayed in Table 5.4. This sample ensured theoretical representativeness (Weis & Willems, 2017), and data that were collected from these interviews were rich with adequate content for saturation.

Table 5.4: Qualitative sample distribution

Hospital Group	Clinical leader	Clinical non-leader	Non-clinical leader	Non-clinical non-leader
Group A	1	1	1	1
Group B	1	1	1	1
Group C	1	1	1	1
Group D	1	1	1	1
Total sample	4	4	4	4

Once the qualitative participants were selected from the quantitative study results, the participants were contacted on email and LinkedIn. In this mail to the participants (Appendix M), they were invited to, via return mail, provide consent for participation, as well as select a suitable date and time for the interview. The qualitative participant information document (Appendix N) was attached to this email, and the appointment was confirmed.

5.5.2 Data collection instruments

Data collection is the process of obtaining the data that will be used for the study and explaining the research questions (Creswell, 2014). Therefore, the researcher can be responsive and adaptive to the data. However, there is the risk of researcher bias (Merriam & Tisdell, 2015). The qualitative phase of an explanatory sequential mixed-methods study is where unclear, surprising or unexpected results or statistically significant, variable, outliers or extreme results from the quantitative study is explained (Creswell & Plano Clark, 2017). The data is often collected through an interview guide that contains possible discussion points (questions) that could be highly structured, semi-structured or unstructured (Merriam & Tisdell,

2015). Semi-structured problem-centred in-depth interviews were used in this study since the relative 'open' format allows the participants to give their views and explanations for the quantitative study's findings and provide the researcher with rich information, as suggested by Weis and Willems (2017). The researcher was guided using a self-developed interview guide based on the quantitative findings, as explained by Weis and Willems (2017), also considering the theoretical foundations of CL (Uhl-Bien & Arena, 2018), agile, lean and leagile (De Raedemaecker et al., 2020; Naylor et al., 1999; Tolf, 2017; Williams, 2017).

The hospitals are not familiar with the term OSS but rather with the umbrella term policies and procedures. The terms policies and procedures were, therefore, used during the interviews. One of the pilot participants suggested that the quantitative results were confusing and, therefore, was a visual reference tool, called 'Additional Information Before Interview' (Appendix o) provided.

The qualitative interview guide had four sections, with the questions in nine sub-sections (Appendix P):

Section 1: Introduction

This section was an introduction of the participant, consent, confirmation of confidentiality, and re-introduction of the aim of the study.

Section 2: Relationship between the display of leadership and the implementation of policies and procedures

1. The overall results that the display of leadership has much less impact than the successful implementation of policies and procedures in the hospital were discussed and the reasons for that were identified.
2. Looking specifically at managers, the display of leadership has much less impact than the implementation of policies and procedures. This was discussed, and the reasons for this result were identified
3. Looking specifically at all non-managers, the display of leadership has much less impact than the successful implementation of policies and procedures. This was discussed, and the reasons for this result were identified
4. Looking at clinical employees (managers and non-managers), the result was that the display of leadership has about the same impact as the implementation of policies and

procedures in the hospital. This was discussed, and the reasons for this result were identified

5. Looking at non-clinical employees (managers and non-managers), the result was that the display of leadership has much less impact than the implementation of policies and procedures for these employees. This was discussed, and the reasons for this result were identified.

Section 3: Clarification of some concepts

1. Collaboration in hospital.
2. Decision-making – centralised or decentralised.
3. Change implementation – quick change or planned scheduled change.

Section 4: COVID-19 pandemic and the impact on leadership and implementation of policies and procedures in the hospital

Personal interviewing (one-on-one) and telephonic interviewing are the two main methods for in-depth interviews (Farooq, 2015). Although personal face-to-face interviewing has traditionally been used most, telephonic interviewing is rapidly gaining acceptance with the increased utilisation of cell phones as first-line interview tools (Farooq, 2015). The qualitative study was conducted in September and October 2020 during the COVID-19 pandemic (Worldometers.info, 2021) when South Africa was under lockdown level 1. Due to social distancing and the geographically dispersed nature of the sample, it was convenient to do telephonic interviews of 45-60 minutes. Specific focus was placed on the informed consent to participate in the study and consent to have the interview recorded, as guided by Farooq (2015).

5.5.3 Pilot study

A pilot study is a small scale study to test the research protocols and the data collection instrument and process (Kraemer & Blasey, 2016). A pilot study is an important step to improve the efficiency and quality of the main study, test the recruitment and consent process, and the structure and content of the interview guide (In, 2017).

The qualitative pilot study was done in two phases. A similar recruitment process and recruitment criteria were used for the pilot study as for the main study. The first phase was two pilot interviews, after which some changes were made to the process and the structure of the interview guide. A third pilot interview followed to confirm if the anticipated results were

achieved. After the third pilot interview, it was decided that the process and interview guide were optimal. The following changes were made after the first two pilot interviews:

- The background explanation was added to Section 1 of the interview guideline.
- An explanation of confidentiality that will apply in the research report was added.
- The background and explanation of the results in sections 2 and 3 were simplified and shortened. As one pilot participant stated: "...the participant doesn't want an explanation of the results. They just want the question that must be answered" (Pilot Participant).
- The 'Additional Information Before Interview' document was added to the process.

The results of the pilot study were excluded from the final dataset of the study.

5.5.4 Data analysis

The most challenging task for qualitative researchers is to analyse the data quickly and rigorously since it is a time-consuming process (Watkins, 2017). The aim of qualitative data analysis is to make sense of the data by segmenting and combining (Creswell, 2014), and finding patterns (Peersman, 2014) that will specifically provide answers to the research questions (Creswell & Plano Clark, 2017). Because the researcher is the main instrument for data collection, the analysis starts when the researcher begins collecting the data (Collis & Hussey, 2013). The goal of the analysis is to discover, describe and systematise the observations that were made during the data collection process (Weis & Willems, 2017); however, because the data is often so rich, the researcher could decide to ignore certain aspects of the data (Creswell, 2014).

5.5.4.1 Using qualitative analysis software

The data can be analysed and coded manually or by using Qualitative Data Analysis Software (QDAS) for the coding of large volumes of data, specifically visual or written data (Kaefer, Roper, & Sinha, 2015). These programmes do not only assist with the coding of qualitative data but can also perform specific descriptive statistics and graphics, as well as export the data (Onwuegbuzie, 2012). Similarly, quantitative data from statistical software programmes will be exported to a QDAS programme for qualitative analysis (Onwuegbuzie, 2012).

Using software packages for qualitative analysis has the benefit of faster and more efficient data management, handling of larger volumes, reducing complexity, improving methodological

rigour, consistency and analytical transparency, and allowing the researcher to analyse and understand the data better (Kaefer et al., 2015). Some of the criticisms against these packages are the high initial cost, time and effort to learn them, and the result that the researcher trusts too much in the programme and not in their intuition (Kaefer et al., 2015). A QDAS programme makes it easier to search and link codes and themes. However, the researcher remains the most significant part of the data analysis process (Creswell, 2014). The biggest concern for using QDAS software is that it is mechanistic and, therefore, could compromise the interpretative and exploratory nature of the qualitative analysis process (Kaefer et al., 2015). Despite the concerns, is a consensus in the literature that the incorporation of QDAS in research must become an integral part of qualitative research (Kaefer et al., 2015; Peersman, 2014).

ATLAS.ti was selected as the ideal tool for the qualitative analysis of the study. ATLAS.ti is a powerful workbench designed for the qualitative analysis of graphics, large bodies of text, audio and video data. The tool assisted the researcher in arranging, reassembling and managing the analysis of the data creatively and systematically. ATLAS.ti relieves the researcher to only focus on the material, regardless of the field the researcher is in (Atlas.ti, 2020).

5.5.4.2 The qualitative data analysis process

A total of 16 interviews were conducted and transcribed verbatim, and produced a vast body of complex text, as is often found with qualitative research, as described by Schulze and Pinkow (2020). The coding approach followed the guidelines of Saldaña (2015), as detailed below:

Step 1: Initial coding

Reading and re-reading the data to identify basic patterns, meanings and events from participants' words, coding reliably.

Step 2: Axial Coding

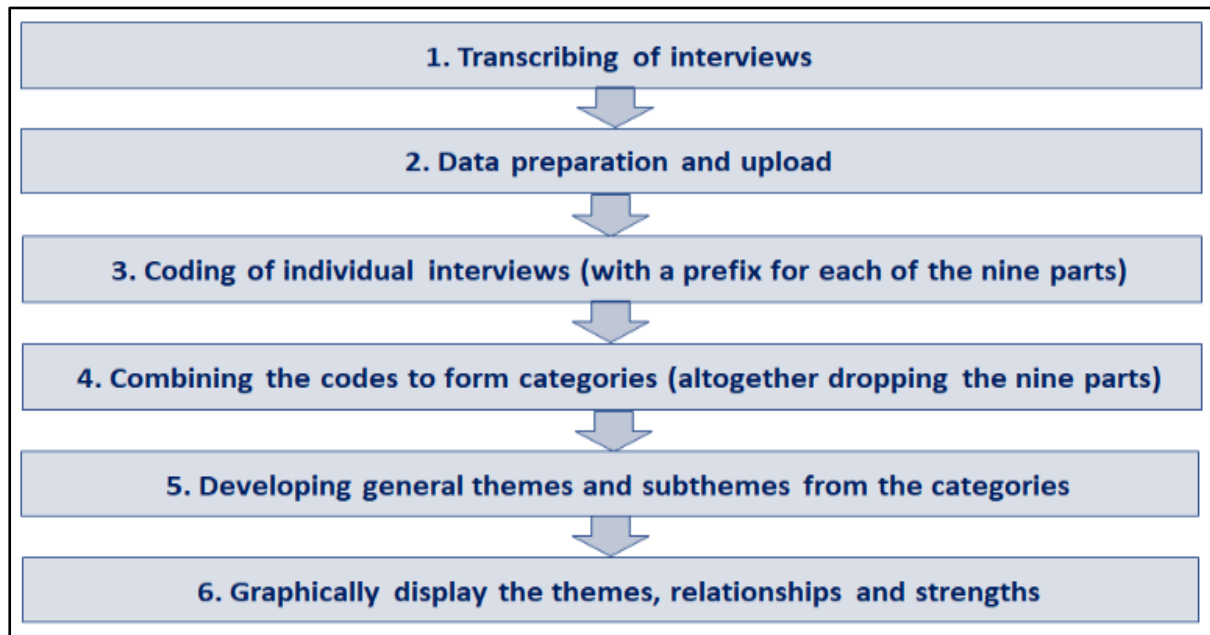
Widely reviewing Step 1 to identify first categories, linking together codes into possible related groupings.

Step 3: Selective coding

Reviewing Steps 1 and 2, refining, grouping and matching categories to develop primary themes related to the research questions (Saldaña, 2015).

The analysis of the qualitative data was a six-step process that is displayed in Figure 5.2.

Figure 5.2 Qualitative analysis process



The steps that were followed in the analysis of the qualitative data can be described as follows:

1. Transcribing of interviews

The qualitative data was prepared by transcribing the interviews to verbatim text and rechecking the text to ensure correctness (Creswell & Plano Clark, 2017). The software programme Otter.ai was used to upload the recordings since it has an automatic transcription function (Otter.ai, 2020). Some changes were made to the transcriptions where Otter.ai could not recognise the participants' accent or where words were used that does not form part of the English language. In the transcriptions, the nine sections relating to the interview guide were clearly marked.

2. Data preparation and upload

The interviews were anonymised to protect the identity of participants (Weis & Willems, 2017) but also categorised per hospital group, as well as clinical/non-clinical, manager/non-manager and head office. The transcribed data was formatted and uploaded to the qualitative data analysis software programme Atlas.ti (Atlas.ti, 2020), with sufficient daily back-ups from this point onwards.

3. Coding of individual interviews

The data was explored in Atlas.ti by reading through it, gathering a general understanding, and adding notes, as suggested by Creswell and Plano Clark (2011). All notes were labelled with a prefix relating to the specific section of the interview guide. Mayring (2000) testified that coding criteria in a study are developed from the research questions and theoretical background, while the categories develop inductively by reading the material, checking and refining the categories against the initial criteria. Coding was done by allowing the codes to emerge from the data. Therefore, no predetermined codes were used, as discussed by Creswell (2014). The initial coding, analysis and interpretation of the interviews were on an individual basis, sentence by sentence, as supported by Weis and Willems (2017), which is the process to group the evidence and label the ideas of the participants to reflect all the perspectives, as described by Creswell and Plano Clark (2017).

4. Combining all the interview codes into categories

Categories are similar data arranged in a specific place, enabling the researcher to identify and explain this category of data (Morse, 2008). The initial categories were based on the nine parts of the interview guideline, and a deductive process was followed, as suggested by Weis and Willems (2017). The categories were then defined, compared and contrasted, as part of the qualitative process described by Morse (2008). All the codes were combined with the result that all data of the study were spread across the nine parts. As the analysis developed, were overlapping codes combined, forming new categories, resulting in the dropping of the original nine parts, as per the interview guideline.

5. Finding general themes within the groups

This theme is the essential 'essence' that is evident in the data; it can also be described as the topic that the story is about (Morse, 2008). Further analysis of the categories revealed apparent and specific themes and sub-themes that applied to the categories that were previously developed, while the theoretical foundation of the study was considered throughout, as suggested by (Weis & Willems, 2017).

6. Graphically display the themes, relationships, and strengths

A strategy to understand the study's results is to visually display the data's representations (Shepherd & Suddaby, 2017). A context chart was created that displayed the categories and themes with an indication of the network of relationships that occurred and the relative strength

of the relationships considering the frequency of the categories, as suggested by Onwuegbuzie and Byers (2014).

Applying the above-described process resulted in the development of categories and themes aligned with the research questions and the study's qualitative phase's research outcomes.

5.5.5 Trustworthiness

Scientific rigour confirms the integrity of the research (Watkins, 2017) and is tested by evaluating the trustworthiness of qualitative research (Krefting, 1991). Trustworthiness is determined by credibility (truth value), applicability, consistency, and neutrality (Krefting, 1991).

i) Credibility (truth value)

This measures how confident the researcher is that the findings are truthful based on the research design, the context in which the research occurred, and the received information (Krefting, 1991). A study is regarded as credible when the individuals that participated in the study can identify their contribution when they assess the findings (Hammarberg et al., 2016). Credibility is mainly achieved through the process of triangulation (which means answering them in more than one way), reflection (where the researcher reflects on the findings) and a substantial explanation of the process that was followed when the data was assessed (Hammarberg et al., 2016). Credibility will be established when participants can identify their contributions, as well as disclosing throughout the study that no sponsorships or corporate contributions were received. Furthermore, was credibility achieved through triangulation when the researcher evaluated the constructs and concepts from several specific angles. The sequence of the interview guideline and the process were designed to increase the credibility of the study.

ii) Transferability

This is also called generalisability and measures the extent to which the findings of a study can be transferred to another person or situation. Therefore, when individuals that were not part of the study evaluate the findings, they must find the results meaningful and applicable to their own experience (Hammarberg et al., 2016). Applicability is the ability to generalise the results to the larger population from where the sample originated. This is similar to external validity as measured in quantitative research (Krefting, 1991). An alternative view on transferability states that, since any qualitative study has a specific researcher in a particular environment with specific respondents, the study can never be transferred to another

environment (Krefting, 1991). For this study, the first view of transferability is supported, which has been achieved since the researcher has written up sufficient descriptive data to allow for a comparison study.

iii) Dependability

Also labelled as 'procedural reliability' (Weis & Willems, 2017) or consistency, means that other researchers in the same situation with the same data should get similar results. However, it is understood that in qualitative research, the same data will not give the same results (Hammarberg et al., 2016). Dependability is a variation that can be tracked to identified sources (Guba, 1981, as cited in Krefting, 1991) with insights of the researcher, participant fatigue or changes in the participant's life situation (Krefting, 1991). Dependability is determined when knowledgeable colleagues peer review the conclusions and confirm the themes and interpretations (Hammarberg et al., 2016). For this study, peer-review of the themes were utilised, and consistency was strengthened by strictly applying the standards and procedures set out in this chapter.

iv) Neutrality

This refers to the elimination of researcher bias in the procedure and results. In other words, as to whether the findings are only a result of the participants' contributions with no other preferences and perspectives (Krefting, 1991). The researcher has the ability to be responsive and adaptive to the data and be prone to bias (Merriam & Tisdell, 2015). Researchers need to disclose their gender, culture, and history to shape their interpretation (Creswell, 2014). In this study, the researcher is a female registered nurse with additional qualifications in Intensive Care Nursing. However, she is not currently employed by any private hospital in South Africa and, therefore, has no bias towards a specific hospital group. For this study, bias was limited by relying on proven CL and OSS and not entering interviews and the analysis process with any preconceived ideas about the expected outcome.

5.6 DEMOGRAPHIC PROFILE OF PARTICIPANTS

infection The demographic profile of the quantitative and qualitative samples will be discussed separately.

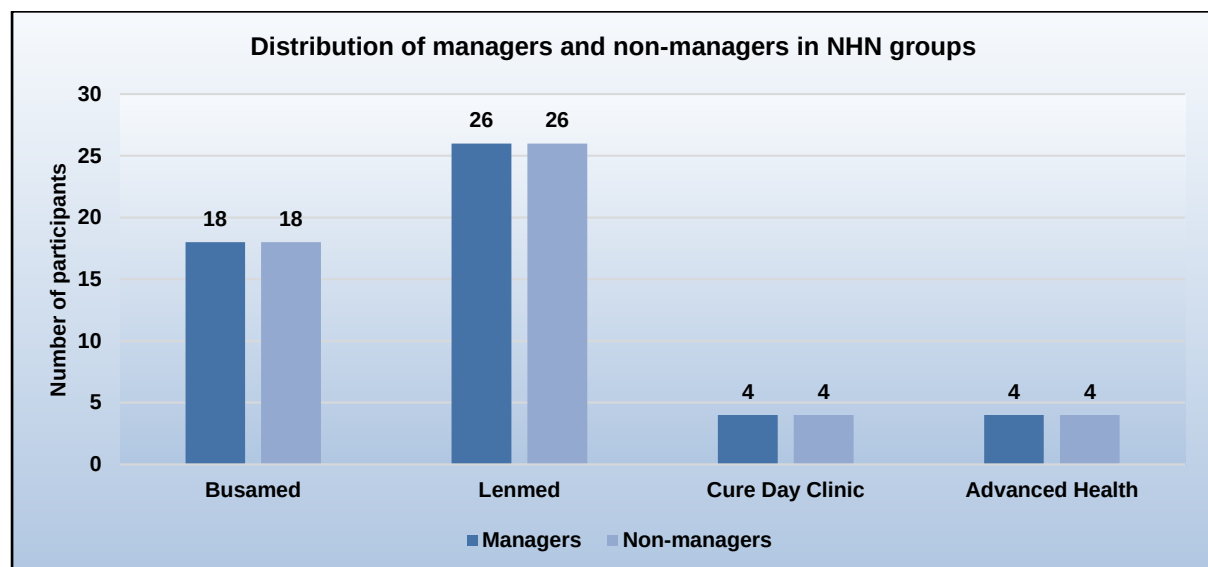
5.6.1 Quantitative study: Demographic profile

The sample size of the quantitative study was 378. This sample consisted of 189 managers and 189 non-managers, as per the explanation in Section 5.4.1, spread per hospital group according to the industry's number of beds. The same number of managers and non-

managers per hospital group completed the survey. The groups that have more industry beds have a more extensive representation in the overall sample.

The NHN facilities considered for the study consisted of 155 hospitals (excluding sub-acute, psychiatric and step-down). The hospital groups from NHN that participated is displayed in Figure 5.3.

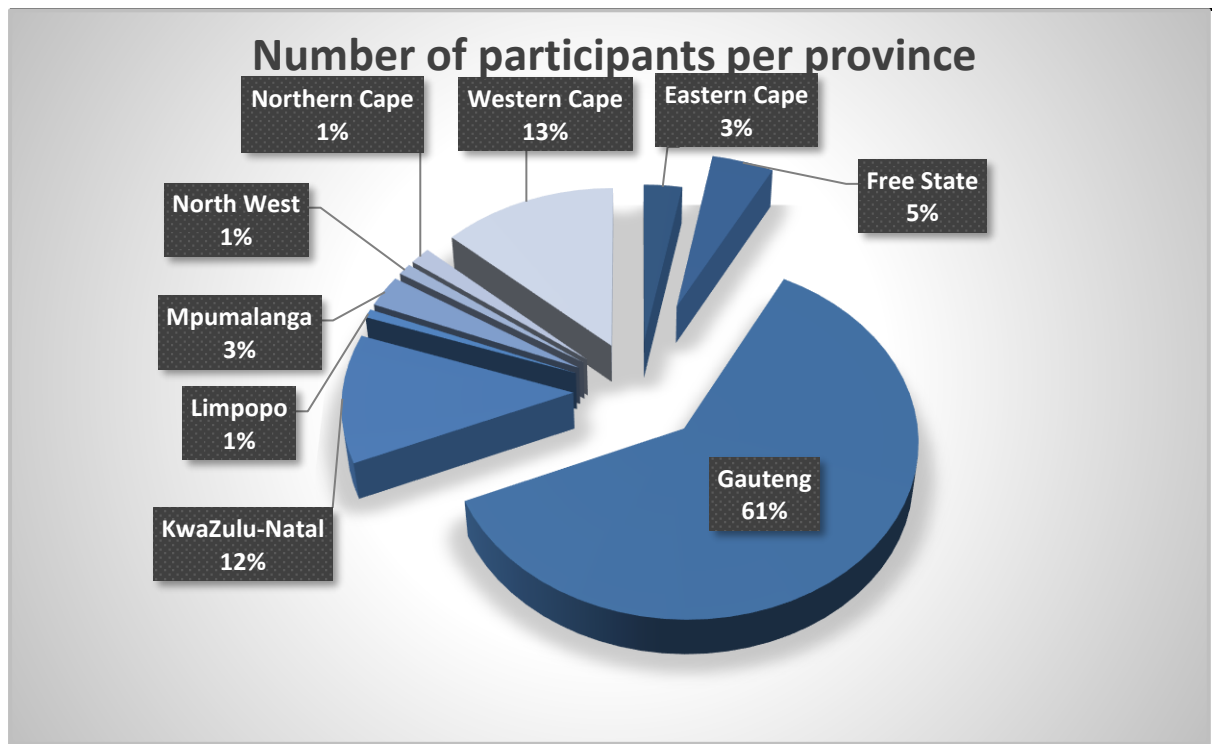
Figure 5.3: Distribution of managers and non-managers in the National Hospital Network groups



All the participating NHN hospitals had the same number of managers and non-managers in the NHN sample, calculated according to the bed distribution of these specific groups within the total NHN sample.

The distribution per province is displayed in Figure 5.4.

Figure 5.4: Number of participants per province



The Gauteng province contributed 61% of the sample, the Western Cape province 13%, followed by KwaZulu-Natal with 12%. This distribution could be explained because most of the hospitals that were part of the direct sample were Gauteng hospitals. Two of the three groups that formed part of the LinkedIn sample has a much larger representation in Gauteng.

The total sample contained skilled and highly skilled employees from clinical and non-clinical positions across the hospital. The following broad categories were applied to the data:

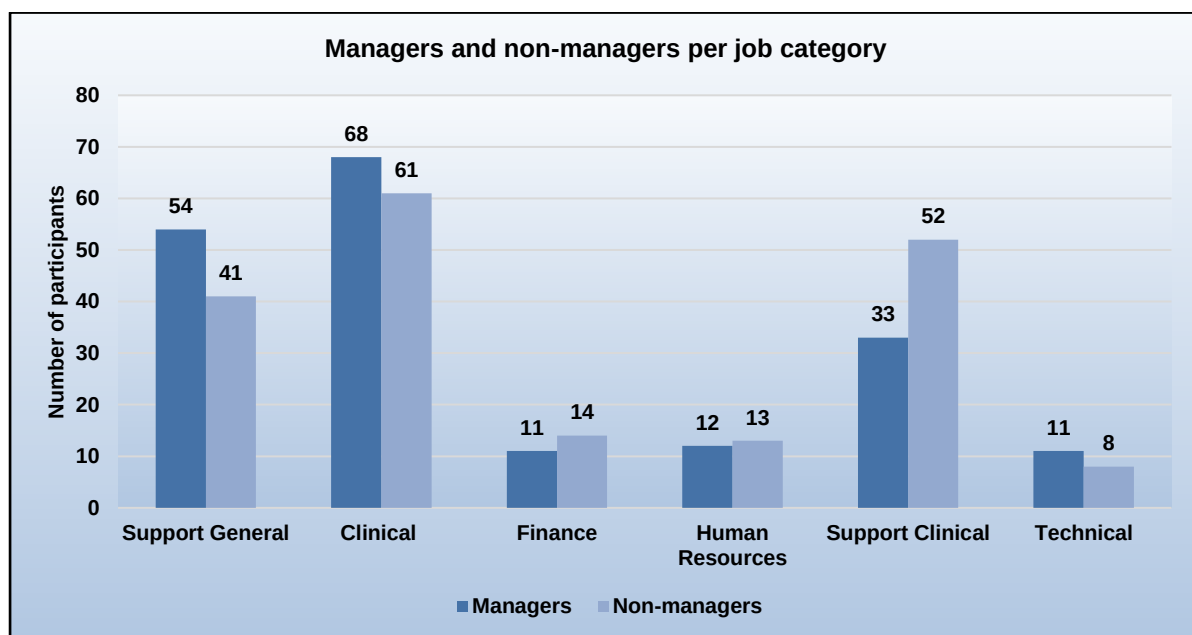
- **Non-clinical:**
 - **Support General:** This category included all support functions, for example, marketing, supply chain, reception, hospital manager and auditor.
 - **Finance:** This category includes everyone in a financial function, for example, finance and admin manager, credit controller and accountant
 - **Human Resources:** This category includes everyone that directly works with employees, for example, HR assistant, payroll officer and HR manager.
 - **Technical:** This category includes all technical functions, for example, clinical engineer, technical manager, maintenance manager and senior technician

- **Clinical:**

- **Clinical:** This category includes everyone that directly works with patients, for example, unit manager, registered nurse, regional nurse manager and enrolled nurse.
- **Clinical support:** This includes everyone that support the clinical employees, for example, control, pharmacist, nurse educator and case manager.

The distribution of managers and non-managers for the different job categories are displayed in Figure 5.5.

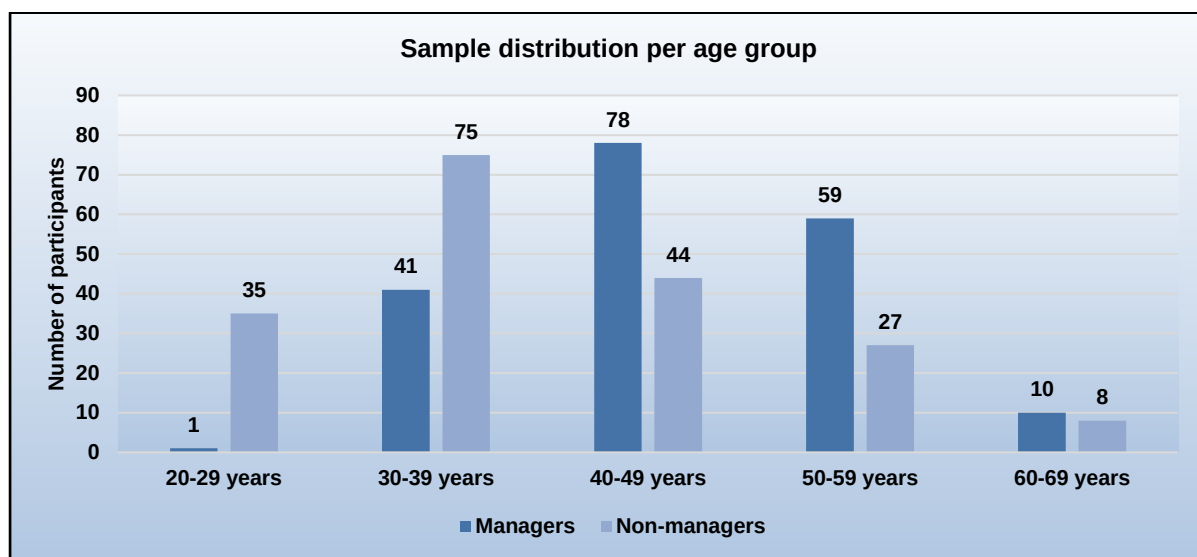
Figure 5.5: Managers and non-managers per job category



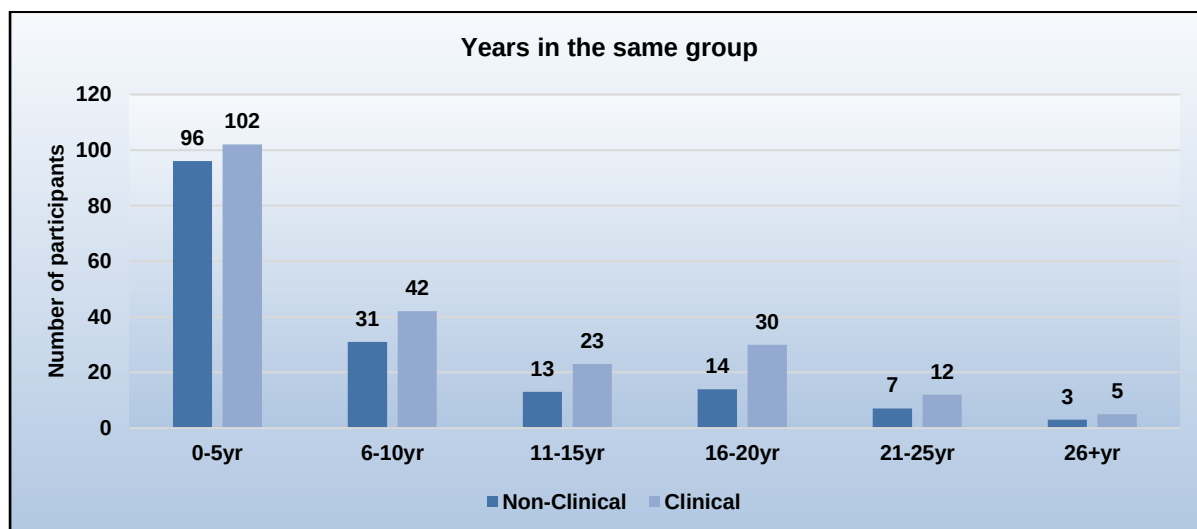
Although the total number of managers and non-managers in the study was 189 each, some differentiation between the different job categories is evident, as per Figure 5.5. The number of clinical participants was 214, and the number of non-clinical participants was 164.

According to 'The economic footprint of private hospital groups in South Africa' report (Econex, 2017), 82% of private hospitals' employees are female. This study's gender distribution is aligned with the report with 288 (76%) female and 90 (24%) male participants.

The age distribution of the study is displayed in Figure 5.6.

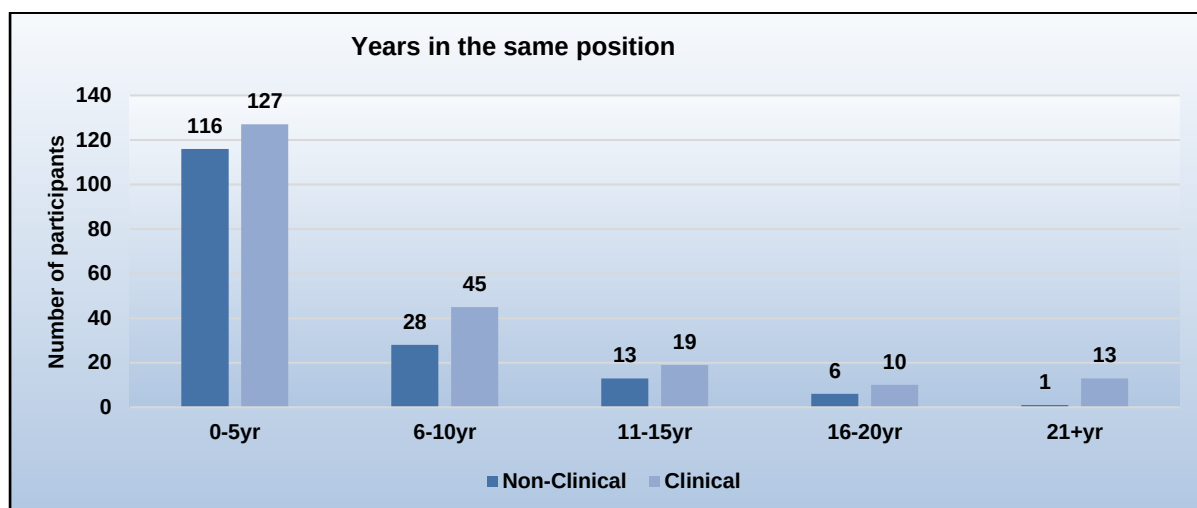
Figure 5.6: Sample distribution per age group

The largest number of participants were between the ages of 30–59, with most managers being 40–49 years old and most non-managers being 30–39 years old. An interesting trend was noticed looking at the number of years participants worked for the group. Figure 5.7 displays how long the participants have been working in the same group.

Figure 5.7: Years in the same group

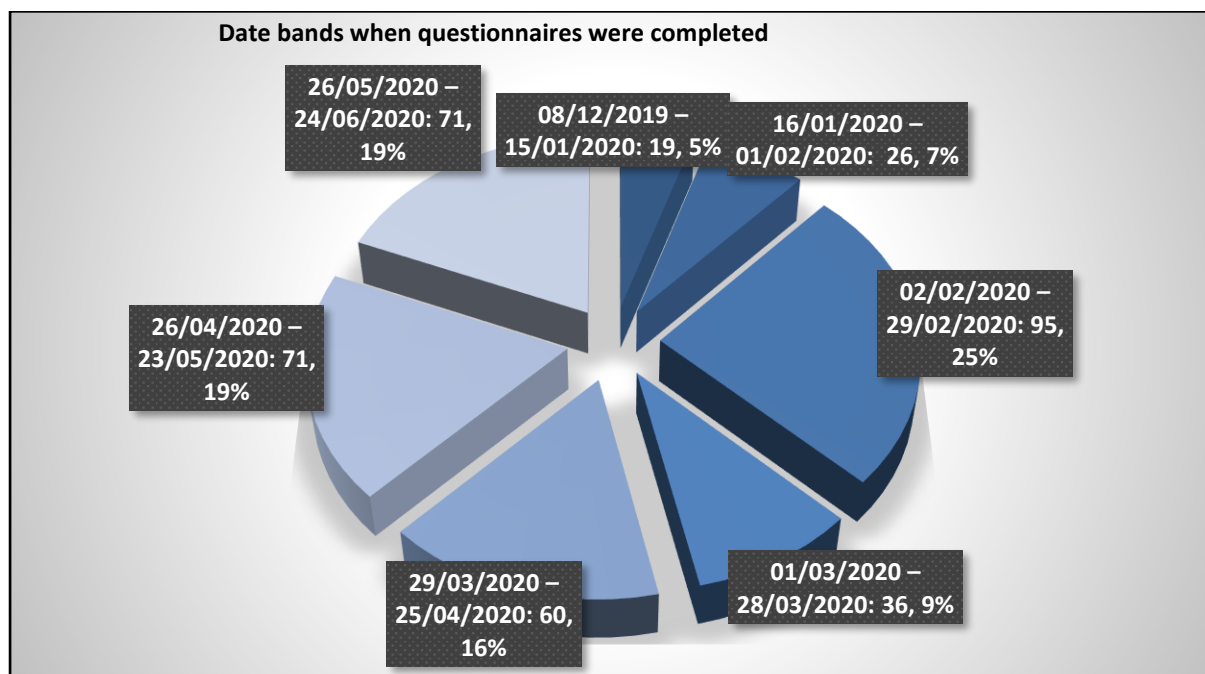
Fourteen of the non-clinical participants and 30 of the clinical participants worked in the same group for 16–20 years. 27% of the total sample have been with the same group for more than ten years. Looking at the average job tenure in South Africa of 47 months (3 years and 11 months) (SA News, 2016), hospital employees stay at the same employer for much longer.

Figure 5.8 displays the number of years the participants have been in their position when they completed the survey.

Figure 5.8: Years in the same position

It is interesting to note that 62 of the total sample has been in the same job role for ten years or longer. Of this group of 62, 36 are managers that have been in their position for longer than ten years, and four of this group has been fulfilling the same job role for more than 21 years.

The data collection for the quantitative phase of the study was conducted over several months from 08/12/2019 – 24/06/2020, and the date bands are displayed in Figure 5.9.

Figure 5.9: Date bands when surveys were completed

The first case of the COVID-19 pandemic in South Africa was reported on 5 March 2020. By 29 February 2020, 37% of the surveys had been completed. Roughly 16% of the survey were completed during lockdown level five from 26 March 2020 – 30 April 2020, and roughly 19%

were completed during lockdown level 4 from 1 May 2020 – 31 May 2020 (South African Government, 2020). The balance was completed during lockdown level three, from 1 June 2020 to 17 August 2020.

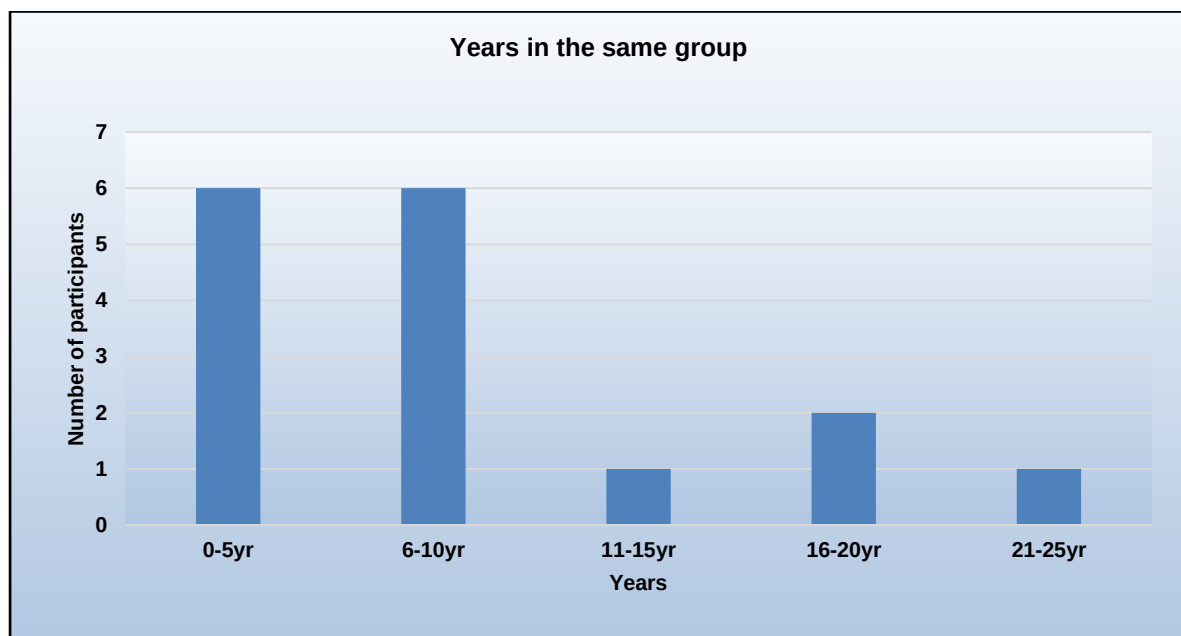
The sample of the quantitative study became the population for the qualitative study.

5.6.2 Qualitative study: Demographic profile

The population of the qualitative study was a sample of 378 participants that completed surveys in the quantitative study. A purposeful selection of 16 participants was made that presented all four hospital groups evenly, as well as the categories of managers, non-managers, clinical and non-clinical evenly, as per Table 5.4.

This sample consisted of 11 female and five male participants. Furthermore, the sample consisted of 13 participants who worked in hospitals and three from the head office. The number of participants per province was eight from Gauteng, four from the Western Cape, two from KwaZulu-Natal, and one each from the Eastern Cape and Mpumalanga. Five participants came from each of the age groups: 30-39, 40-49, and 50-59, with only one participant from the age group 20-29 years old. The number of years the sample participants have been employed in the same group is displayed in Figure 5.10.

Figure 5.10: Years in the same group



It is interesting to note that 12 participants were employed for ten years or less in the same group, while the remaining number of participants were employed for longer than ten years in

the same group. The number of years the qualitative sample has been employed in the same position has been displayed in Figure 5.11.

Figure 5.11: Years in the same position



Most of the participants, who agreed to form part of the qualitative study sample, had been in that position for five years or less, with three participants being in that role between six and ten years.

Looking at the demographic analysis, as described above, the sample that was used for the quantitative and qualitative phases of this study was a true reflection of the demographics of the industry, from both a clinical and non-clinical perspective, as well as in terms of perspectives on leadership, age and gender. Therefore, can the results of the quantitative and qualitative studies confidently be generalised to the private hospital industry in South Africa?

5.7 TRIANGULATION

Triangulation is a concept that comes from mathematical sciences but that has been applied in sociology (Hales, 2010). Triangulation is the process when data is applied to a variety of sources to study a specific social phenomenon (Hales, 2010). Denzin (2017) identified four types so triangulation, namely:

1. Data triangulation is when several data sources are used in one study.
2. Investigator triangulation is when more than one researcher is investigating a particular phenomenon in a study.

3. Theory triangulation is when multiple theories are applied to form an interpretation of the results.
4. Methodological triangulation is when multiple methods are applied in one study (Denzin, 1970, as cited by Hales, 2010).

Triangulation is used to improve how results are analysed and applied. Several types of triangulation were achieved in this study, as will be indicated in the respective sections.

5.8 GENERAL PRINCIPLES

Ethics discussions in research are about considering the rightness or wrongness of the actions performed during the research concerning all the people that were touched by the research (Miles and Huberman, 1994, as cited in Tracy, 2010). A discussion on the ethical guidelines applied during a study should be part of the description of any study (Anderson, 2017). Procedural, situational, relational and exiting ethics will be discussed, as applied in this study, to both the quantitative and qualitative phases (Tracy, 2010).

All research participants must give informed consent before the research commences. The informed consent document confirms to the participants that their rights will be protected during data collection (Creswell, 2014), indicating the research approach, the role of the participant, and the direct and indirect benefits for participating (Peersman, 2014). This consent document also indicates the risks the participant will be taking by participating (Creswell, 2014). In both phases, the participant received the details that they consented to in the Participant Information document via email and gave informed consent electronically. For the qualitative phase, informed consent was also voice recorded.

Part of procedural ethics is to ensure no harm was done to participants with maximum benefit to them (Tracy, 2010). This entails strict protection of participants' identity in the data provided and in the manner in which the data is reported (Creswell, 2014). Furthermore, no harm implies the data collected is stored in a safe, password-protected environment with no risk to the participant that the data can leak (Tracy, 2010). In this study, the confidentiality of all participants was protected. During the qualitative phase, participants were advised that sensitive information would be shared so that the participants could not be identified. Anonymity could not apply, as the participants of the quantitative phase formed the qualitative sample. All the information gathered during the study was stored in a password-protected location in the cloud, on the researcher's computer, and in a safe. Only the researcher had access to the participant's personal information.

Situational ethics considers if the means justify the result, ensuring that the research is always for the good of all. Relational ethics are that the researcher must continuously be aware of the participant and the community's relationship to ensure all interactions are with respect, dignity, compassion, and affection. Exiting ethics relates to sharing the data after data collection, ensuring it is truthful and accurately presented (Tracy, 2010). During this research, the principles of situational ethics, relational ethics and exiting ethics was applied throughout the data collection, compiling and sharing of the report.

5.9 METHODOLOGY FOR INTEGRATION OF THE RESULTS

Mixed methods research applies qualitative and quantitative strengths by providing an innovative solution for addressing current healthcare issues (Fetters, Curry, & Creswell, 2013). The integration of research in a mixed-methods study has to be at all levels, and the integrated result must be greater than the individual parts (Fetters & Freshwater, 2015).

The overarching theory underpinning this study is Autopoiesis Theory (Varela et al., 1974) which implies organisations are self-producing, self-organising, and existing in an environment with a particular relationship with the environment (Czarniawska, 2017). Autopoiesis suggest that organisations live for self-preservation. Therefore, a study with the underpinning theory of Autopoiesis must identify what the problem (quantitative) is, why does it exist (qualitative), and how can it be fixed (integration). The Theory of Autopoiesis is the first point of integration. The Complexity Theory (Kallemeyn et al., 2020), Chaos Theory (Lorenz, 1972), Cynefin framework (Snowden & Boone, 2007) and Systems Theory (Seddon, 2002) all are equally appropriate to this study, as explained throughout this document.

Integration was achieved at research design since an explanatory sequential design was selected, resulting in the researcher first collecting and analysing data from the quantitative phase, which informed the sample and data collection for the qualitative phase, as explained by Creswell (2014). A case study framework was followed with the collection of detailed data during the quantitative and qualitative phases to develop a better understanding of the case (constructs) investigated (Fetters et al., 2013). An integrated conceptual model was developed when the conceptual model of CL (Figure 2.6), adapted from the theoretical principles of CL (Uhl-Bien & Arena, 2018), fully aligned with the conceptual model (Figure 2.11). This integration allowed for closer direct comparison and integration of entrepreneurial leadership with agile OSS and operational leadership with lean OSS. This model integration resulted in extensive structural equation modelling comparing the constructs and concepts in the quantitative data and in-depth analysis in the qualitative phase explaining the quantitative results. The integration answered the research question of what the solution was.

Integration occurred at the methodology phase by connecting when the quantitative study sample formed the qualitative study population, connecting the two phases through the sampling framework, as explained by Fetters et al. (2013). Additional integration occurred when the quantitative study results informed the interview guideline (data collection approach) of the qualitative study (Creswell et al., 2018; Fetters et al., 2013).

The integration of the data during the discussion, interpretation and reporting were be done in different ways. The data were integrated through narrative, following the contiguous approach where the quantitative results were presented first, followed by the qualitative results, ending with integration through joint display using visual displays of the insights, integration and conclusions that were achieved, as discussed by (Fetters et al., 2013). Finally, the 'Fit' for data integration achieved through expansion occurred when the quantitative data explored the relationship between HDL and HOSS, measuring if it meets the criteria for CL and OSS. The final integration happened when the last research questions were answered, explaining how the current situation could be changed (Fetters et al., 2013).

5.10 CONCLUSION

This study's research into CL and OSS in private hospitals in South Africa entails research within a complex industry under severe strain. The methodology selected and applied to this research had to be robust enough to achieve the objectives of this study.

The research paradigm that was selected was a pragmatic approach that supported mixed methods, resulting in the blending and integration of the quantitative and qualitative studies. The motivation for this research was borne from the anticipated legislative changes in healthcare, pressures for change, increased cost pressures and the general complexity of the industry. For the quantitative phase of the study, a post-positivist view was adopted. For the qualitative phase, a constructivist view, with the integration of the two phases in the study's conclusion. The research design was an explanatory sequential design with the quantitative study (survey) as Phase 1, the qualitative study (case study design) as Phase 2, and the integration as Phase 3. The data from phases one and two were integrated through connecting when the results of Phase 1 informed the sample and questions of Phase 2.

For Phase 1, the quantitative study, the sample was calculated using the number of skilled and highly skilled employees in the private hospital industry in South Africa, together with a weighted average aligned with the number of industry beds per hospital group. Accordingly, the total required sample was 378 participants, with 189 managers and 189 non-managers equally distributed according to the number of industry beds per group. Employees from the

three larger groups participated, and employees from the NHN group of hospitals, which is regarded as the fourth-largest group in the industry. For the sample, a distinction was made between managers and non-managers and clinical and non-clinical employees. The smaller, independent group of NHN hospitals allowed the researcher access to their employees. The three larger hospital groups refused permission from the researcher, which led to two sampling strategies that had to be followed. Approximately a quarter of the participants came from NHN hospitals, with the hospitals providing the contact details to contact them directly, while the balance of participants had to be sourced through LinkedIn for the other three large hospital groups. A total of 44% of the surveys that were distributed were successfully completed.

The survey was an online survey compiled by adapting questions from a variety of CL and OSS questionnaires, while the questions of the survey were aligned with the variable constructs of the conceptual model of CL and OSS, as was applied in the study design. A pilot study was performed, and some changes were made following the pilot.

The data analysis approach had to consider reliability considerations because of the large number of elements and sub-elements that formed the constructs of CL and OSS. It was decided during the development and planning of the study that traditional measures for internal consistency would not apply, as the items were regarded as causal indicators (indices). A discussion on the validity measures concluded the methodological discussion of Phase 1.

The qualitative study sample involved 16 participants from the quantitative study that have been selected because of their specific comments in the last open-ended question of the quantitative questionnaire and that were considered suitable to answer the qualitative questions purposefully. They were also represented in the four groups and the four different categories of participants. The quantitative results informed the qualitative research interview guideline. Since the data collection for this study occurred during the peak of the COVID-19 pandemic, an additional question was added that did not form part of the initial quantitative study. This question enquired what the impact of the COVID-19 pandemic was on the HDL and HOSS, as experienced by the participants. A pilot study was performed, and some changes were made to the interview guideline following the pilot study and the addition of a reference document for participants to use during the interview. The data analysis approach was discussed and assisted by the Atlas.ti software for data analysis. The qualitative methodology discussion was concluded with a discussion on the trustworthiness guidelines that applied to this study.

The third part of the methodology discussion expanded on the demographic profile of the quantitative and qualitative sample and the principles of triangulation that was applied

throughout the study, followed by a discussion on the general ethical principles that applied. The methodological section was concluded with a discussion on the methodology for integration that was applied in this study to ensure the integrated result had more value than the results from the first two phases individually.

In chapter 6, the results of the study will be presented, with a discussion of the quantitative results, followed by a discussion on the qualitative findings, and concluding with a discussion of the integrated results. For the quantitative analysis, the participants' demographic profile will be discussed, followed by the principal component analysis, descriptive statistics, ANOVA, Pearson's correlation, and structural equation modelling. The experience of collecting the data from LinkedIn will be discussed separately. This will be followed by a discussion of the qualitative results, highlighting the themes applicable to the specific qualitative questions. The results chapter will be concluded with a discussion of the integrated results, indicating that the integrated result is much more powerful than the two studies' individual results.

CHAPTER 6: RESULTS AND FINDINGS

In this chapter, the quantitative results will be presented first, followed by the qualitative findings, and concluding with the study's integration outcome.

6.1 INTRODUCTION

The business world currently exists in a VUCA environment (Baran & Woznyj, 2020). Healthcare has been identified as one of the most complex, diverse and fragmented industries (Belrhiti et al., 2018; Faulkner & Nicholson, 2020). Due to all the healthcare challenges, a traditional approach with traditional linear models will not be sufficient (Horvat & Filipovic, 2018), as complexity is needed to deal with complexity (Uhl-Bien & Arena, 2018).

CL is an adaptive leadership framework focusing on helping organisations and people to adapt to change through collaboration (Uhl-Bien et al., 2020). Complexity Leadership (CL) is proposed as the leadership framework for business adaptability to be applied in private hospitals in South Africa to help hospitals deal with complexity. Operational Systems and Structures (OSS) is the group name applied in this study for combining agile, lean and leagile as a suggested approach to improving and implementing operational processes for private hospitals that function in a complex environment. The private hospital industry is not familiar with the term OSS. However, policies and procedures are more familiar and used during interaction with hospital employees.

The purpose of this study was to critically examine whether private hospitals in South Africa are positioned for adaptability considering CL and OSS (agile, lean and leagile). Therefore, this research's objective was to investigate the relationship between the hospital displayed leadership (HDL) and hospital operational systems and structures (HOSS), identify whether it is aligned to the framework of CL and OSS, understand why the result occurred, and recommend what can be done to enhance the alignment of these factors for private hospitals adaptability. An additional objective was to understand the impact that the COVID-19 pandemic had on the HDL and HOSS.

In the write-up of the research report, the quantitative results were discussed first, followed by the qualitative results and concluded with a discussion on the integration (Leech, 2012).

6.2 QUANTITATIVE STUDY RESULTS

In this presentation of the quantitative results, the aspects of the participants' demographic profile that specifically impacted the results will be discussed first, followed by the principal

component analysis of the HDL and HOSS. Next will follow the descriptive statistics of the validated HDL and HOSS components, followed by Pearson's correlation of the HDL and HOSS. Structural equation modelling (SEM) was performed to determine the relationships between HDL and the principles of CL, the relationship between HOSS and the principles of OSS, the strength and direction of the relationship between HDL and HOSS. The differences in results for managers and non-managers were identified, and the differences between clinical and non-clinical employees. Finally, the relationship between the entrepreneurial HDL and agile HOSS were measured, and the operational HDL and lean HOSS.

The pertinent demographic aspects of the quantitative participant profile will now be discussed.

6.2.1 Demographic profile of participants

For the quantitative phase, 378 skilled and highly skilled employees completed an online survey between 8 December 2019 and 24 June 2020. The sample of 378 had an equal distribution between managers (as per the definition in Section 5.4.1) and non-managers. The sample represented the four larger private hospital groups in South Africa with the weighting calculated, as explained in Section 5.4.1. Within the total sample, six job groups were identified (explained in Section 5.6.1), which resulted in 214 clinical participants (57%) and 164 non-clinical participants (43%). Fifty-two per cent (52%) of the participants worked in their current group for between 0-5 years, with the interesting result that 19 participants have been in the same group for 21-25 years, and 8 participants have been in the same group for more than 26 years. Of the total sample, 64% has been in the current position between 0-5 years, with 16 participants that have been in the same job role for 16-20 years and 14 participants (13 clinical) who have been in the same job role for 21 years or longer. Comparing this to the average job tenure in South Africa of 3 years and 11 months (SA News, 2016), this is significant.

The COVID-19 pandemic hit South Africa in 2020, and a national lockdown commenced on 27 March 2020. More details on COVID-19 in Section 4.10. From 8 December 2020 to 29 February 2020, 37% of the surveys were completed. Although national lockdown was only announced on 27 March 2020, the hospitals already experienced COVID-19 challenges from the beginning of March 2020 (Section 4.10).

The principal component analysis, descriptive statistics, Pearson's correlation and Structural Equation Modelling of the quantitative data will now be presented.

6.2.2 Preparation of quantitative data

Certain assumptions applied to the data manipulation and analysis process. No missing data occurred since the survey forced all data fields to be completed. Healthcare research and typically, research among nurses often attract low response rates (VanGeest & Johnson, 2011, as cited by Stokes et al., 2019)). Table 6.1 presents a summary of the survey statistics.

Table 6.1: Quantitative survey statistics

<u>Process Statistics</u>	LinkedIn	Direct	Total	%
Questionnaires links sent	791	393	1184	
Email received to opt-out before start	32	11	43	3.6%
Not responded	356	190	546	46%
Started the questionnaire but did not complete it	69	20	89	7.5%
Completed questionnaire	333	185	518	43.7%
Percentage that engaged the questionnaire	51%	52%	51%	
% completed	42%	47%	44%	
<u>Completed Survey Statistics</u>				
Completed questionnaires that did not meet qualifying criteria	7	7	14	2.7%
% of completed questionnaires that were outliers	10	14	24	4.6%
Good questionnaires	316	164	480	92.6%
Used for study	280	98	378	72.9%

Table 6.1 shows that 43% of the survey invitations that were sent out were completed. However, 7.3% of the completed surveys could not be used. No statistically significant difference occurred between the percentage of LinkedIn participants and the percentage of direct sample participants that received a survey and completed the questionnaire. Of the usable surveys, 72.9% (378) were used for the analysis since the distribution of the participants in the sample was done according to the weighting of beds per hospital group in the industry (Section 5.4.1). The additional good questionnaires all came from the direct sample hospitals. Because the industry weighting per industry beds were used, it would have skewed the sample if all good questionnaires were used. Please refer to section 5.4.1 for an explanation of the sampling approach that was used.

6.2.3 Principal component analysis

A principal component analysis (PCA) was used as the selected approach for element confirmation. PCA simplifies complex high-dimensional data without losing the trends and patterns within the data (Lever, Krzywinski, & Altman, 2017). PCA reduces the data to lower dimensions called principal components to summarise the data into several components (Lever et al., 2017). The PCA was conducted on all the items of each sub-element, identifying the uni-dimensionality of the sub-elements of CL and OSS that was applied in the evaluation of the HDL and HOSS. A summary of the principal component analysis of HDL and HOSS is provided in separate tables.

6.2.3.1 *Principal component analysis of hospital displayed leadership*

Looking at the conceptual model of CL, as it has been applied in this study (Figure 2.6), the following representation is applied in the analysis of HDL:

- Entrepreneurial leadership was presented by *exploration, endogenous entrepreneurship, decentralised decision-making, and dynamic capabilities*.
- Operational leadership was presented by *exploitation, operating core, centralised decision-making, and dynamic capabilities*.
- CL, as an overall construct, was presented by *trust & transparency, collaboration (CL) and continuous improvement (CL)*.
- Enabling leadership was presented by the sub-elements of *ambidexterity, absorptive capacity, temporary decentralisation, and adaptive capacity*.

The PCA of HDL was done by performing the Kaiser-Meyer-Olkin (KMO) measure of Sampling Adequacy, as well as Bartlett's Test of Sphericity for each of the eleven elements and sub-elements, as well as for the concept enabling leadership to determine the appropriateness of the PCA, whereafter identifying a component (s) ("Factor") were based on the eigenvalues larger than one criterion. Table 6.2 contains a summary of the principal component analysis of the HDL, including the percentage variance explained by the factor and the loadings of each item onto their respective elements.

Table 6.2: Principal component analysis of the HDL

Element	Item Description	KMO	Bartlett's Test p value	% Variance explained	Component Loadings
Exploration		.500	.000	68.55	
11.1: A: The group/hospital engages employees with initiatives that involve new products, services, processes or markets.					.828
11.9: A: The group/hospital implemented several initiatives that required new skills and knowledge from the employees, e.g. new technologies or processes.					.828
Exploitation		.500	.000	80.57	
11.17: A: The group/hospital often focuses on improving the existing products/services that are offered to internal customers e.g. improving the ward admission process.					.898
12.9: B: The group/hospital has a strong focus on further developing the existing skills, knowledge and technology.					.898
Endogenous Entrepreneurship		.500	.006	56.99	
11.10: A: The hospital/group generally does not regularly add new products and services to its current range, as clients are generally satisfied with what is offered. (REV)					.755
11.2: A: The group/hospital has a strong focus on proactively developing/enhancing new products/services/processes ahead of its competitors, e.g. new internal communication processes					.755
Operating Core		.500	.731	50.89	
12.1: B: The group/hospital has a strong focus to streamline the current internal departmental processes.					.713
12.5: B: Several of the day-to-day processes are still taking long, e.g. the end-to-end process when patients go for radiology interventions. (REV)					.712
Decentralised		.500	.000	71.49	
11.11: A: Teams are allowed to find appropriate solutions for complex problems without instruction from senior management /leadership.					.845
11.3: A: The group/hospital has a culture where all employees is encouraged to contribute to the decision-making process.					.845
Centralised		.500	.000	68.85	
12.11: B: The leadership team often request input of employees members for decision-making purposes. (REV)					.830
12.2: B: Authority and decision-making are mainly situated in the senior management team.					.830

Element	Item Description	KMO	Bartlett's Test p value	% Variance explained	Component Loadings
Dynamic Capabilities		.500	.000	73.84	
	11.5: A: Management is focused on improving current products/services by realignment with global best practices, e.g. enhanced maternity programme or stock control process.				.859
	12.13: B: The hospital/group uses analysed data, collected from suppliers and patients, for strategic decision-making.				.859
Operational Capabilities		.500	.000	79.83	
	11.13: A: The group/hospital ensures the different departments/teams are operationally aligned to ensure the smooth running of processes.				.893
	12.8: B: The hospital/group leadership is successful in solving operational problems quickly and efficiently.				.893
Trust and Transparency		.691	.000	70.90	
	11.14: A: There is a high level of trust amongst employees in the group.				.862
	11.6: A: The group/hospital management is transparent and open regarding future plans.				.868
	12.15: B: Employees are encouraged to build a network with employees from other hospital facilities within the same group.				.794
Collaboration CL		.525	.000	53.33	
	11.15: A: Employees at all levels are encouraged to build relationships with employees from other hospital groups, e.g. by joining industry forums.				.837
	11.7: A: Different departments work independently from one another with very little collaboration. (REV)				.400
	12.15: B: Employees are encouraged to build a network with employees from other hospital facilities within the same group.				.860
Continuous Improvement CL		.497	.000	51.43	
	11.16: A: The group/hospital is focused on upskilling all employees.				.858
	11.8: A: There are sufficient resources (time, employees) in the division to release employees for training purposes.				.770
	12.16: B: Employees is encouraged to develop the knowledge of the team informally, without input from the training department.				.464

Element	Item Description	KMO	Bartlett's Test p value	% Variance explained	Component Loadings
Enabling Leadership		.765	.000	60.07	
	Ambidexterity: 12.4: B: The hospital/group is maintaining a dual focus between improving current services/products and finding new creative solutions.				.749
	Absorptive Capacity: 12.10: B: The group adopt newly developed services/products to improve profitability.				.782
	Temporary Decentralisation: 12.6: B: Depending on the situation, the group/hospital allows joint decision-making between leaders and teams.				.769
	Adaptive Capabilities: 12.17: B: The hospital/group is focussed on changing internal processes / services / products in reaction to changes in the healthcare market, e.g. an online mobile application				.756

As displayed in Table 6.2, the Kaiser-Meyer-Olkin (KMO) measure of Sampling Adequacy was .5 for all the two-item elements and above the recommended threshold of .5 for the other elements, except for *continuous improvement CL*. Although a KMO value of 0.5 is not considered as good, it is definitely still acceptable (Kaiser, 1974). The Bartlett's Test of Sphericity was statistically significant ($p < .05$) for nine of the eleven elements and sub-elements, as well as for the concept of *enabling leadership* (Field, 2013). A factor with only two items will generally contribute to a small KMO. Two item factor KMO results will always be equal to 0.5 as the KMO measures the strength of the partial correlation (how the factors explain each other) between the variables (Kaiser, 1974). For the sub-element, *efficiency focus*, Bartlett's Test was .731, which was statistically non-significant. However, the KMO value was .5, which meets the recommended threshold criteria. For the element, *continuous improvement CL*, the KMO value was .487, which was slightly below the threshold value of .5. However, Bartlett's Test of Sphericity was below the significance level of $< .05$, which was aligned with the recommended criteria. As one of the criteria was met in each case, it was decided to conduct PCA on these two elements as well. It was deemed satisfactory to continue as the aim of the PCA was purely data reduction in order to establish if the items can be used as a composite index (Streiner, 2003). Therefore, the conclusion was that principal component analysis was appropriate for each of the eleven elements and the construct of *enabling leadership*. One component ("Factor") was identified for each element, sub-element and the concept of enabling leadership, based on the eigenvalues larger than 1 criterion. The variance explained ranged between 50.89% and 80.57% and was considered acceptable. Items

11.10A, 12.5B, 12.11B and 11.7A were reverse scored. The wording stated is the wording of the original question.

6.2.3.2 *Principal component analysis of the implementation of hospital operational systems and structures*

Looking at the conceptual model of OSS, as it has been applied in this study (Figure 2.11), the following representation is applied in the analysis of the implementation of HOSS:

- Agile was presented by unpredictable projection; short-life cycle; service orientation; production variety focus; and quick change;
- Lean was presented by predictable projection; long-life cycle; cost (eliminate waste) orientation; a production uniformity focus; and planned, scheduled change;
- OSS was presented by supply chain; collaboration OSS; and continuous improvement OSS; and
- Leagile was presented by the predictability-, life cycle-, production-, and change decoupling point, as well as integrative orientation.

The PCA of the implementation of HOSS was done by performing the Kaiser-Meyer-Olkin (KMO) measure of Sampling Adequacy, as well as Bartlett's Test of Sphericity for each of the eleven elements and sub-elements, as well as for the concept Leagile (Decoupling point) to determine the appropriateness of the PCA, whereafter identifying a component (s) ("Factor") were based on the eigenvalues larger than one criterion.

Table 6.3 contains a summary of the principal component analysis of the implementation of HOSS, including the percentage variance explained by the factor and the loadings of each item onto their respective elements.

Table 6.3: Principal component analysis of the implementation of HOSS

Construct	Item Description	KMO	Bartlett's Test p value	% Variance explained	Component Loadings
Unpredictable Projection		.500	.000	75.07	
13.1: C: The group/hospital business processes are designed to respond to resources' demand variations, e.g. fluctuation in the number of theatres needed at any given time.					.866
13.14: C: The group/hospital can easily reassign resources (employees, assets, theatre time, equipment) when a need arises, without impacting the quality of other services negatively					.866
Predictable Projection		.500	.000	66.06	
14.10: D: Protocols on hospital processes and activities are defined upfront, with little flexibility allowed.					.813
14.5: D: The group/hospital runs on tight, known and predictable schedules.					.813

Construct	Item Description	KMO	Bartlett's Test p value	% Variance explained	Component Loadings
Short Life Cycle		.500	.000	69.85	
	13.2: C: New technologies and services are often adopted and implemented.				.834
	14.11: D: All employees suggestions are investigated through an extensive process before possible implementation.				.834
Long Life Cycle		.500	.000	70.70	
	13.10: C: Departments that service patients use the latest available technologies.				.841
	14.6: D: Detail planning is done before any change interventions are implemented.				.841
Service Orientation		.500	.031	55.54	
	13.16: C: Patient service expectation is the driving force of change interventions within the hospital.				.745
	14.12: D: Processes are end-user needs-driven, e.g. a surgeon can decide on the instruments he will use shortly before the surgery.				.745
Cost (Eliminate Waste) Orientation		.500	.000	74.28	
	13.11: C: Business processes and steps are evaluated regularly to enhance effectiveness, e.g. reducing unnecessary paperwork.				.862
	14.7: D: The flow of patients through the hospital has been optimised to minimise the waste of time and resources.				.862
Production Variety Focus		.500	.000	62.60	
	13.4: C: The hospital/group is focussed on offering standard products/processes in different ways, e.g. preventative care offering.				.791
	14.13: D: Limited changes to an agreed solution are allowed if it does not impact the planned expected outcome.				.791
Production Uniformity Focus		.500	.000	66.60	
	13.17: C: Group/hospital processes are planned in detail, and only a very limited variation is allowed during execution.				.816
	14.8: D: Clients/patients have to follow the agreed group/hospital processes.				.816
Quick Change		.500	.000	68.89	
	13.13: C: The group/hospital monitors and effectively responds to business opportunities in the external environment, e.g. a general shortage of beds in other hospitals.				.830
	14.1: D: The group/hospital prefers to implement new solutions for a complex problem in small steps, and not all at once.				.830

Construct	Item Description	KMO	Bartlett's Test p value	% Variance explained	Component Loadings
Planned Scheduled Change		.500	.159	53.63	
	14.14: D: Stock level management, ordering, control, and distribution are not a paper-based manual process. (REV)				.732
	14.9: D: Departments are open to suggestions to change agreed business processes, e.g. flexible rounds of a doctor. (REV)				.732
Supply Chain		.564	.000	44.77	
	13.6: C: Seasonal healthcare demand has an impact on stock level management, e.g. the higher demand for certain medicines in winter.				.725
	14.15: D: Departments/teams share medicines or equipment when a need arises				.684
	14.2: D: Stock levels are managed with an automated inventory management system between the group/hospital and medical suppliers.				.591
Collaboration IM		.637	.000	55.00	
	13.7: C: Employees is generally encouraged to share experiences with colleagues from other hospital groups, regarding day-to-day challenges they face.				.746
	14.16: D: Regular informal development opportunities exist where individual team members (not only leaders) are allowed to present a talk on a relevant topic to other team				.733
	14.3: D: Departments/teams assist one another to minimise the impact of employees shortages, without management intervention.				.745
Continuous Improvement IM		.627	.000	57.37	
	13.8: C: Junior employees is allowed to attend industry training days.				.772
	14.17: D: The hospital/group offer different technologies/medicines to choose from to execute similar procedures.				.691
	14.4: D: Employees representatives from all levels are part of an internal forum, intending to improve organisational methodologies.				.805
Leagile - Decoupling Point		.806	.000	55.40	
	Predictability Decoupling Point: 13.9: C: In this group/hospital, there is a good balance between the levels of care the patients need, and the nursing employees on duty.				.753
	Life Cycle Decoupling Point: 13.15: C: New technologies are introduced regularly, parallel with proven older technologies.				.819
	Integrative Orientation: 13.3: C: In comparison to other hospitals/facilities, clients/patients are getting excellent service at a lower cost.				.674
	Production Decoupling Point: 13.12: C: The group/hospital is successful in combining proven clinical care methods with modern technology, e.g. the implementation of the electronic health records.				.702
	Change Decoupling Point: 13.5: C: The group/hospital does comprehensive planning with projects, coupled with the quick implementation of processes.				.765

As displayed in Table 6.3, the Kaiser-Meyer-Olkin (KMO) measure of Sampling Adequacy was .5 for all the two-item elements and above the recommended threshold of .5 for the other elements. The Bartlett's Test of Sphericity was statistically significant ($p < .05$) for twelve of the thirteen elements and sub-elements, as well as for the concept *leagile (decoupling point)* (Field, 2013). A factor with only two items will generally contribute to a small KMO. For the sub-element, *planned, scheduled change*, Bartlett's Test was .159, which was above the acceptable threshold. However, the KMO value was .5, which meets the recommended threshold criteria. The conclusion was that principal component analysis was appropriate for each of the eleven elements and the construct of *leagile (decoupling point)*. One component ("Factor") was identified for each of the elements, sub-elements and the concept of *leagile (decoupling point)*, based on the eigenvalues larger than 1 criterion. The variance explained ranged between 44.77% and 75.07% and was considered acceptable. Items 14.14D and 14.9D were reverse scored. The wording stated is the wording of the original question.

6.2.4 Descriptive analysis

Descriptive analysis is the quantification of the quantitative data, referencing the sample and population (Thompson, 2006). Descriptive analysis is performed before more advanced inferential statistics follow (Creswell, 2014). The following descriptive statistics were calculated:

- Mean is the most commonly used method for central tendency by adding all the scores together and dividing it by the total number of scores (Flannelly, Flannelly, & Jankowski, 2020). Non-statistical readers often assume, when the mean is stated in business research or other research methodology handbooks, that certain tests can be applied to Likert scale data and that they can use these tests for their per item analysis and they unknowingly apply non-applicable tests (Carifio & Perla, 2008).
- Median is the score in the middle of all scores, with 50% of the scores above the median and 50% below the median (Flannelly et al., 2020)
- Standard deviation indicates the data dispersion of a normal distribution, and for a confidence level of 95%, a standard deviation of between -2 and +2 is acceptable (Lee, In, & Lee, 2015).
- Skewness is a measurement of normality, assessing the asymmetry of the data, and a value of between -2 and +2 is an acceptable value (Kim, 2013).

- Kurtosis is a measurement of normality evaluating the peakedness of the distribution, and a value between -2 and +2 is an acceptable value (Kim, 2013).

6.2.4.1 Descriptive statistics for hospital displayed leadership

Descriptive statistics were performed on all the data obtained from the leadership survey, which measured the HDL against the principles of CL. Table 6.4 displays the descriptive statistics for HDL.

Table 6.4: Descriptive statistics for the HDL

		Exploration	Exploitation	Endogenous Entrepreneurship	Operating Core	Decentralisation	Centralisation	Dynamic Capabilities	Operational Capabilities	Trust & Transparency	Collaboration CL	Continuous Improvement CL	Enabling Leadership
N	Valid	378	378	378	378	378	378	378	378	378	378	378	378
	Mean	4.13	4.26	4.20	3.65	3.48	4.15	4.41	3.99	3.60	3.43	3.64	4.07
	Median	4.00	4.50	4.00	3.50	3.50	4.00	4.50	4.00	3.67	3.33	3.67	4.20
	Std. Deviation	1.18	1.14	1.01	0.92	1.26	1.14	1.09	1.25	1.26	1.08	1.05	0.96
	Skewness	-0.33	-0.39	-0.14	-0.09	-0.14	-0.12	-0.45	-0.23	-0.16	0.06	-0.09	-0.25
	Kurtosis	-0.58	-0.61	-0.44	-0.01	-0.66	-0.59	-0.25	-0.62	-0.79	-0.44	-0.54	-0.66
	Minimum	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.40
	Maximum	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00

The mean values ranged between 3.43 for *collaboration CL* and 4.41 for *dynamic capabilities*, which was an indication that the data averages were closely related (Flannelly et al., 2020). No tests were applied, and the mean was only used exploratively to indicate the trend of responses. It is acknowledged that only a tendency towards a scale point can apply and that a neutral response can be indicating either a tendency towards a neutral response or equal numbers on either side of the neutral point (Carifio & Perla, 2008). The standard deviation values ranged between 0.92 for *operating core* and 1.26 for both *decentralisation* and *trust & transparency*, which was an indication that the data dispersion along a normal distribution curve was acceptable (Lee et al., 2015). The skewness values ranged between -0.09 for both *operating core* and *continuous improvement* and 0.06 for *collaboration CL*, which was an indication that the symmetry of the data was satisfactory (Kim, 2013). The values for the

kurtosis of the data ranged between -0.79 for *trust & transparency* and -0.01 for *operating core*, which was an indication that the peakedness of the data was acceptable for the assumption of normality (Kim, 2013). All the descriptive statistics of the leadership survey was sufficient for the data analysis to continue to the next level.

6.2.4.2 Descriptive statistics for the implementation of hospital operational systems and structures

Descriptive statistics were performed on all the data obtained from the OSS, which measured HOSS against the principles of OSS. Table 6.5 displays the descriptive statistics for HOSS.

Table 6.5: Descriptive statistics for the implementation of HOSS

		Unpredictable Projection	Predictable Projection	Short Life Cycle	Long Life Cycle	Service Orientation	Eliminate waste Orientation	Production Variety Focus	Production Uniformity Focus	Quick Change	Planned Scheduled Change	Integrated Supply Chain	Collaboration OSS	Continuous Improvement OSS	Leagile - Decoupling Point
N	Valid	378	378	378	378	378	378	378	378	378	378	378	378	378	378
	Mean	4.12	4.13	3.89	4.10	4.35	3.91	4.07	4.31	4.00	3.38	4.36	3.27	2.52	3.93
	Median	4.00	4.00	4.00	4.00	4.50	4.00	4.00	4.50	4.00	3.50	4.33	3.33	2.67	4.00
	Std. Deviation	1.11	1.00	1.11	1.11	0.95	1.22	0.93	0.89	1.07	1.01	0.89	0.93	0.74	1.02
	Skewness	-0.32	-0.24	-0.27	-0.38	-0.21	-0.24	-0.22	-0.26	-0.24	-0.13	-0.23	0.10	-0.09	-0.38
	Kurtosis	-0.39	-0.37	-0.35	-0.27	-0.34	-0.71	-0.31	-0.14	-0.14	-0.11	-0.55	-0.13	-0.43	-0.44
	Minimum	1.00	1.00	1.00	1.00	1.00	1.00	1.50	2.00	1.00	1.00	1.67	1.00	0.67	1.20
	Maximum	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	4.00	6.00

Besides the lowest mean value for *continuous improvement*, which was 2.52, the mean values ranged for all the other items were between 3.27 collaboration OSS and 4.36 for *integrated supply chain*, which was an indication that the data averages were closely related (Flannelly et al., 2020). The standard deviation values ranged between 0.74 for *continuous improvement OSS* and 1.22 for *eliminate waste orientation*, which was an indication that the data dispersion along a normal distribution curve was acceptable (Lee et al., 2015). The skewness values ranged between -0.38 for *long-life cycle* and -0.10 *collaboration OSS*, which was an indication that the symmetry of the data was satisfactory (Kim, 2013). The values for the kurtosis of the data ranged between -0.71 for *eliminate waste orientation* and -0.11 for *planned, scheduled*

change, which was an indication that the peakedness of the data was acceptable for the assumption of normality (Kim, 2013). All the descriptive statistics of the HOSS data was sufficient for the data analysis to continue to the next level.

6.2.4.3 Univariate Analysis of Variance Test for hospital displayed leadership and hospital operational systems and structures

The Univariate Analysis of Variance (ANOVA) test was performed on the HDL and HOSS between the four hospital groups. ANOVA is a test to compare the mean values if there are more than two groups in the sample.

The following hypotheses were stated regarding HDL.

Null hypothesis:

There is no difference between the experience of employees of the different hospital groups with reference to HDL.

Alternate hypothesis:

There is a difference between the experience of employees of the different hospital groups with reference to HDL.

The ANOVA for the HDL between the hospital groups in the sample was performed, and the result indicated that the HDL means between the four groups differed statistically significant at the 1% level with $p=.007$. Multiple comparison tests were done between the four groups, which indicated a statistically significant difference between the one bigger hospital group in comparison with the other three groups. The significance values for HDL of this one larger group compared to the other three were .034, .055 and .007., which means there was a statistically significant difference at the five, ten and one percentile respectively between the means of the one group compared to the other three. This implies that the participants in the one group were more in agreement with their answers than the participants of the other three groups. The significance values for the pairwise comparisons were not statistically significant at .928 for Group 1 with 4, .897 for Group 2 with 4, and 1.0 for groups 1 with 2.

Therefore, the conclusion can be made that the size of a group does not determine whether the employees agree on the HDL, as the one larger group has many different results than the other three groups in the study. The alternate hypothesis was identified as true, namely: that there is a difference between the experience of employees of the different hospital groups with reference to HDL. Keeping in mind that 72% of the sample has been with their current employer less than ten years, and 52% less than five years, indicates that due to the industry size (only 21 935 skilled and highly skilled employees in 2019) (Econex, 2017), significant

movement occurs across the groups which result in the same HDL culture applied across groups, regardless of size.

The following hypotheses were stated regarding HOSS.

Null hypothesis: There is no difference between the experience of employees of the different hospital groups with reference to HOSS.

Alternate hypothesis: There is a difference between the experience of employees of the different hospital groups with reference to HOSS.

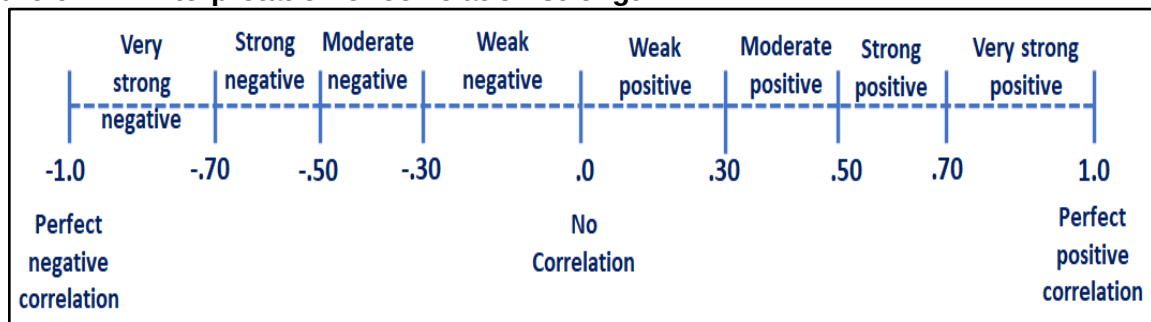
The ANOVA for the implementation of HOSS between the hospital groups in the sample was performed, and the result only indicated a statistically significant difference at the 10% level with $p=.089$. When multiple comparison tests were performed, it suggested that all the groups had similar results. The large group that differs from the other three groups with statistically significant HDL results did not display the same difference in the HOSS. The values of the groups ranged between .983 and .09. Therefore, the conclusion was made that the way participants experienced the HOSS was similar across the different groups, which implied that the approach to HOSS is an industry phenomenon with little differentiation between the groups. Group size thus did not have a statistically significant impact as a differentiator in the way employees experience the HOSS. Null hypothesis: There is no difference between the experience of employees of the different hospital groups with reference to HOSS.

6.2.5 Pearson's correlation

A correlation is a method used to measure the degree of relationship between two variables (Coolidge, 2020). A Pearson's correlation describes the strength and direction of a linear relationship between two variables and is, therefore, classified as a bivariate statistic. It can be applied when both variables are interval-scaled. A value of +1 indicates a perfect positive correlation, and a value of -1 indicates a perfect negative correlation (Thompson, 2006). The Pearson correlation is valid for summated Likert scales (Carifio & Perla, 2008) and applied to establish the relationship between the newly formed variables. Furthermore, Pearson correlation is robust against deviations from normality (Havlicek & Peterson, 1976).

Figure 6.1 display the interpretation of the correlation values for Pearson's correlation.

Figure 6.1: Interpretation of correlation strength



(Adapted from Coolidge (2020).)

Figure 6.1 explains how the values will be interpreted in the following section.

6.2.5.1 *Pearson's correlation for hospital displayed leadership*

Pearson's correlation coefficient was computed to evaluate the linear relationship between the components of CL and HDL. Table 6.8 provides an overview of Pearson's correlation for HDL.

Table 6.6: Pearson's correlation values for the components of HDL

		Exploration	Exploitation	Endogenous Entrepreneurship	Operating Core	Decentralisation	Centralisation	Dynamic Capabilities	Operational Capabilities	Trust & Transparency	Collaboration CL	Continuous Improvement CL	Enabling Leadership
Exploration	Pearson Correlation	1											
Exploitation	Pearson Correlation	.670 [*]	1										
Endogenous Entrepreneurship	Pearson Correlation	.609 [*]	.508 [*]	1									
Operating Core	Pearson Correlation	.412 [*]	.485 [*]	.380 [*]	1								
Decentralisation	Pearson Correlation	.637 [*]	.624 [*]	.410 [*]	.390 [*]	1							
Centralisation	Pearson Correlation	.425 [*]	.460 [*]	.303 [*]	.318 [*]	.603 [*]	1						
Dynamic Capabilities	Pearson Correlation	.611 [*]	.676 [*]	.517 [*]	.462 [*]	.531 [*]	.404 [*]	1					
Operational Capabilities	Pearson Correlation	.587 [*]	.734 [*]	.435 [*]	.470 [*]	.595 [*]	.431 [*]	.595 [*]	1				
Trust & Transparency	Pearson Correlation	.610 [*]	.659 [*]	.444 [*]	.449 [*]	.685 [*]	.566 [*]	.605 [*]	.693 [*]	1			
Collaboration CL	Pearson Correlation	.266 [*]	.346 [*]	.094	.098	.281 [*]	.221 [*]	.217 [*]	.185 [*]	.244 [*]	1		
Continuous Improvement CL	Pearson Correlation	.583 [*]	.674 [*]	.318 [*]	.379 [*]	.599 [*]	.447 [*]	.509 [*]	.605 [*]	.637 [*]	.345 [*]	1	
Enabling Leadership	Pearson Correlation	.655 [*]	.791 [*]	.528 [*]	.465 [*]	.645 [*]	.487 [*]	.705 [*]	.675 [*]	.673 [*]	.353 [*]	.629 [*]	1
** Correlation is significant at the .01 level (2-tailed)													

The correlation coefficients that exist between all the factors were statistically significant at one per cent ($p < .01$ level (2-tailed)) except for the correlation between *collaboration CL* and *endogenous entrepreneurship*, which was significant at the 10% level ($p = .068$), as well as the correlation between *collaboration CL* and *operating core* which was significant at the 10% level ($p = .056$).

Three very strong positive correlations (value $\geq .7$) (displayed in green) were observed between *operational capabilities* and *exploitation*, which was expected, as both are sub-elements of operational leadership (Uhl-Bien & Arena, 2018). Additionally, very strong positive correlations were displayed between *enabling leadership* and *exploitation*, as well as *enabling leadership* and dynamic capabilities. *Enabling leadership* is the adaptive space that enables change, and the very strong correlation with *exploitation* (sub-element of operational

leadership) and *dynamic capabilities* (sub-element of entrepreneurial leadership) is aligned with the conceptual model of CL (Uhl-Bien & Arena, 2018).

There were 29 cases of strong, positive correlations (value $\geq .5$ and $< .7$) (displayed in blue) and 16 moderate correlations (values $\geq .3$ and $< .5$) (displayed in yellow) observed.

Five weak positive correlations (value $< .3$) (displayed in grey) were noted with the element *collaboration* and the following elements/sub-elements: *exploration*, *decentralisation*, *dynamic capabilities*, *operational capabilities*, and *trust & transparency*. No correlation was evidenced between *collaboration* CL and *endogenous entrepreneurship*, as well as with *operating core*. This result of *collaboration* contradicts the literature on CL, which describes CL as leaders that foster *collaboration*, together with individual performance (Uhl-Bien & Arena, 2018).

All correlations with the sub-element *centralisation* were negative (displayed in pink). Because centralisation is part of CL, weak or moderate positive correlations with other items of HDL would have been expected rather than negative correlations. The correlation between *centralisation* and *decentralisation* was strong negative (values between $-.5$ and $-.7$), as well as the correlation between *centralisation* and *trust & transparency* with the correlation between *centralisation* and *exploration*, *exploitation*, *endogenous entrepreneurship*, *operating core*, *dynamic capabilities*, *operational capabilities*, *continuous improvement* CL and *enabling leadership* were moderate negative (values $-.3$ and $-.5$). The correlation between centralisation and collaboration was weak negative with a value $> -.3$. This result of *centralisation* having a negative correlation with all aspects of the leadership that was displayed contradicts the literature that state that organisational adaptability can be achieved through the simultaneous leveraging of an organic (*decentralised*) approach for *exploration* and a mechanistic (*centralised*) approach to achieving *exploitation* (Uhl-Bien & Arena, 2018).

For organisational adaptability, CL is needed, which is the balanced display of entrepreneurial leadership, operational leadership and adaptive leadership (Uhl-Bien & Arena, 2018). This balance can only be achieved if balance exists between all the elements and sub-elements that comprises the construct of CL, which was not observed with Pearson's correlation of HDL.

6.2.5.2 Pearson's correlation for the implementation of hospital operational systems and structures

Pearson's correlation coefficient was computed to evaluate the linear relationship between the components of OSS and HOSS. Table 6.7 provides an overview of the Pearson's correlation for OSS.

Table 6.7: Pearson's correlation values for the components of OSS

		Unpredictable Projection	Predictable Projection	Short Life Cycle	Long Life Cycle	Service Orientation	Eliminate Waste Orientation	Production Variety Focus	Production Uniformity Focus	Quick change	Planned Scheduled Change	Integrated Supply Chain	Collaboration IM	Continuous Improvement IM	Leagile – Decoupling Point
Unpredictable Projection	Pearson Correlation	1													
Predictable Projection	Pearson Correlation	.326	1												
Short Life C	Pearson Correlation	.658	.304	1											
Long Life C	Pearson Correlation	.675	.357	.721	1										
Service Orientation	Pearson Correlation	.382	.246	.391	.455	1									
Eliminate waste Orientation	Pearson Correlation	.652	.360	.652	.755	.405	1								
Production Variety Focus	Pearson Correlation	.518	.371	.590	.527	.438	.530	1							
Production Uniformity Focus	Pearson Correlation	.424	.522	.409	.505	.371	.504	.508	1						
Quick change	Pearson Correlation	.564	.257	.627	.617	.358	.568	.486	.416	1					
Planned Scheduled Change	Pearson Correlation	.374	.215	.358	.369	.193	.377	.201	.180	.296	1				
Integrated Supply Chain	Pearson Correlation	.442	.333	.403	.440	.393	.409	.385	.382	.435	.293	1			
Collaboration IM	Pearson Correlation	.524	.230	.559	.549	.274	.550	.407	.305	.518	.255	.388	1		
Continuous Improvement IM	Pearson Correlation	.573	.262	.639	.622	.452	.564	.506	.405	.545	.302	.437	.667	1	
Leagile - Decoupling Point	Pearson Correlation	.697	.269	.740	.788	.444	.748	.592	.452	.666	.386	.424	.641	.656	1
**. Correlation is significant at the .01 level (2-tailed).															

The correlation coefficients that exist between all the factors were statistically significant at one per cent ($p < .01$ level (2-tailed)).

There were five very strong positive correlations (value $> .7$) (displayed in green). The first of such correlations were between the *short-life cycle* and *long-life cycle*, which was a surprise as, according to the literature, a product can have either a *short or long-life cycle* (Kopp, 2020). A very strong positive correlation was identified between *eliminate waste (cost) orientation* and *long-life cycle*, which was expected, as both sub-elements form part of lean (Akmal et al., 2020). The last very strong positive correlations were identified between *leagile (decoupling*

point) and *short-life cycle*, *long-life cycle*, and *eliminate waste (cost) orientation*. These very strong positive correlations were expected since *leagile* is the decoupling point (adaptive space) between implementing agile and lean (Mishra et al., 2018).

There were 33 cases of strong, positive correlations (value values $\geq .5$ and $< .7$) (displayed in blue) and 34 moderate positive correlations (values $\geq .3$ and $< .5$) (displayed in yellow).

Six weak positive correlations (value $< .3$) (displayed in grey) exist. These correlations were between *predictable projection* and *service orientation*, *quick change*, *collaboration OSS*, *continuous improvement OSS* and *leagile (decoupling point)*. *Service orientation* and *quick change* are concepts of agile. Therefore, weak correlations could be expected since *predictable demand* is a concept of lean (Naylor et al., 1999). *Collaboration OSS* and *continuous improvement OSS* are elements that span all three OSS and, therefore, showed a weak relationship not aligned with the literature (Felipe et al., 2017; Mishra et al., 2018; Ungureanu et al., 2018). *Leagile* is the decoupling point between *predictable demand* and *unpredictable demand* and, therefore, represented a weak correlation between *leagile* and *predictable demand*, which did not align with the literature (Aktan & Akyuz, 2017). The relationship between *service orientation* and *collaboration OSS* was also positively weak. *Service orientation* is a concept of agile (Mishra et al., 2018), whereas *collaboration* is a concept spanning lean and agile (De Raedemaecker et al., 2020; Tolf, 2017) and, therefore, the weak correlation with *service orientation* was not expected.

All correlations with the sub-element *planned scheduled change* was negative (displayed in pink). *Planned scheduled change* has a moderate negative correlation (values $\leq -.3$ and $> -.5$) with *unpredictable projection*, *short-life cycle*, *long-life cycle*, *eliminate waste orientation*, *continuous improvement OSS* and *leagile (decoupling point)*. *Planned scheduled change* has a weak negative correlation (value $> -.3$) with *predictable projection*, *service orientation*, *production variety focus*, *production uniformity focus*, *quick change*, *integrated supply chain* and *collaboration OSS*. This contradicts the lean literature since *predictable scheduled change*, also called smooth demand or level scheduling, is an essential part of the principles of lean management (Naylor et al., 1999). A weak correlation between *planned, scheduled change* and the sub-elements of agile (*unpredictable projection*, *short-life cycle*, *service orientation*, *production variety focus*, *quick change*) could have been expected since the two concepts have the same foundational beliefs, although they are very different (De Raedemaecker et al., 2020). A positive correlation between *planned, scheduled change* and the other lean elements (*predictable projection*, *long life cycle*, *eliminate cost/waste orientation*, *production uniformity focus*) (Adebanjo et al., 2016; De Raedemaecker et al.,

2020; Williams, 2017) has been expected. This negative correlation, therefore, contradicts all the current literature on OSS.

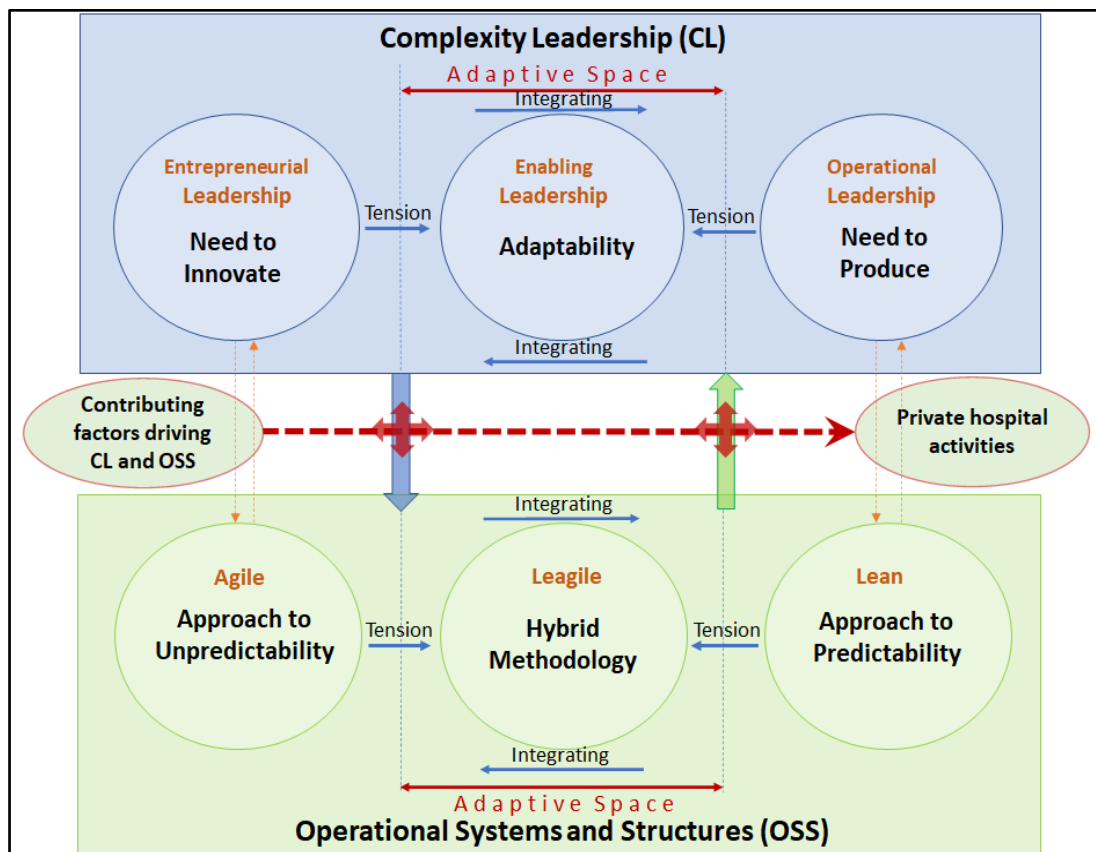
For an effective and successful approach of businesses functioning in a VUCA world, OSS is needed, which is the balanced display of agile, lean and leagile (De Raedemaecker et al., 2020). This balance can only be achieved if balance exists between all the elements and sub-elements that comprise OSS's construct, which was not observed with Pearson's correlation of the HOSS.

6.2.6 Structural equation modelling

Structural equation modelling (SEM) is a multivariate technique that is a combination of path analysis and factor analysis (Kline 2015, as cited by Sharif, Mostafiz, & Guptan, 2018). SEM can, therefore, be used simultaneously to examine the relationships between latent (not directly measured) and observed (directly measured) variables (Sharif et al., 2018). The estimation method that was used is the maximum likelihood, and the tool that was used for the SEM was AMOS v26, which is included in the SPSS software (Field, 2013; SPSS, 2020). No model respecification was needed (Kenny, 2011). The goodness-of-fit indices were analysed to determine whether the proposed model emulates the sample matrix (Hair, Black, Babin, & Anderson, 2014).

The conceptual framework informs the analysis that will be conducted to examine the observed and latent relationships. The conceptual framework of this study is displayed in Figure 6.2.

Figure 6.2: Overall conceptual framework



For an explanation of Figure 6.2, please refer to Section 2.4. The following prominent relationships, as displayed in the conceptual framework, has been addressed in the research questions and will be examined as part of the structural equation modelling.

- RQ1 What is the relationship between the HDL and the principles of CL, and the relationship between the HOSS and OSS principles, as defined in this study, in private hospitals in South Africa?
- RQ2 What is the difference between the impact of HDL on HOSS and the impact of HOSS on HDL in private hospitals in South Africa?
- RQ3 Is there a difference in the relationship between managers and non-managers towards HDL and HOSS in private hospitals in South Africa?
- RQ4 Is there a difference in the relationship between clinical and non-clinical employees towards HDL and HOSS in private hospitals in South Africa?

The SEM that applied to the answering of these questions will now be discussed.

6.2.6.1 The structural equation model to answer RQ1, RQ2, RQ3 and RQ4

The structural equation modelling that was performed for answering RQ1, RQ2, RQ3 and RQ4 is displayed in Figure 6.3.

Figure 6.3: Structural equation modelling to evaluate the HDL and HOSS

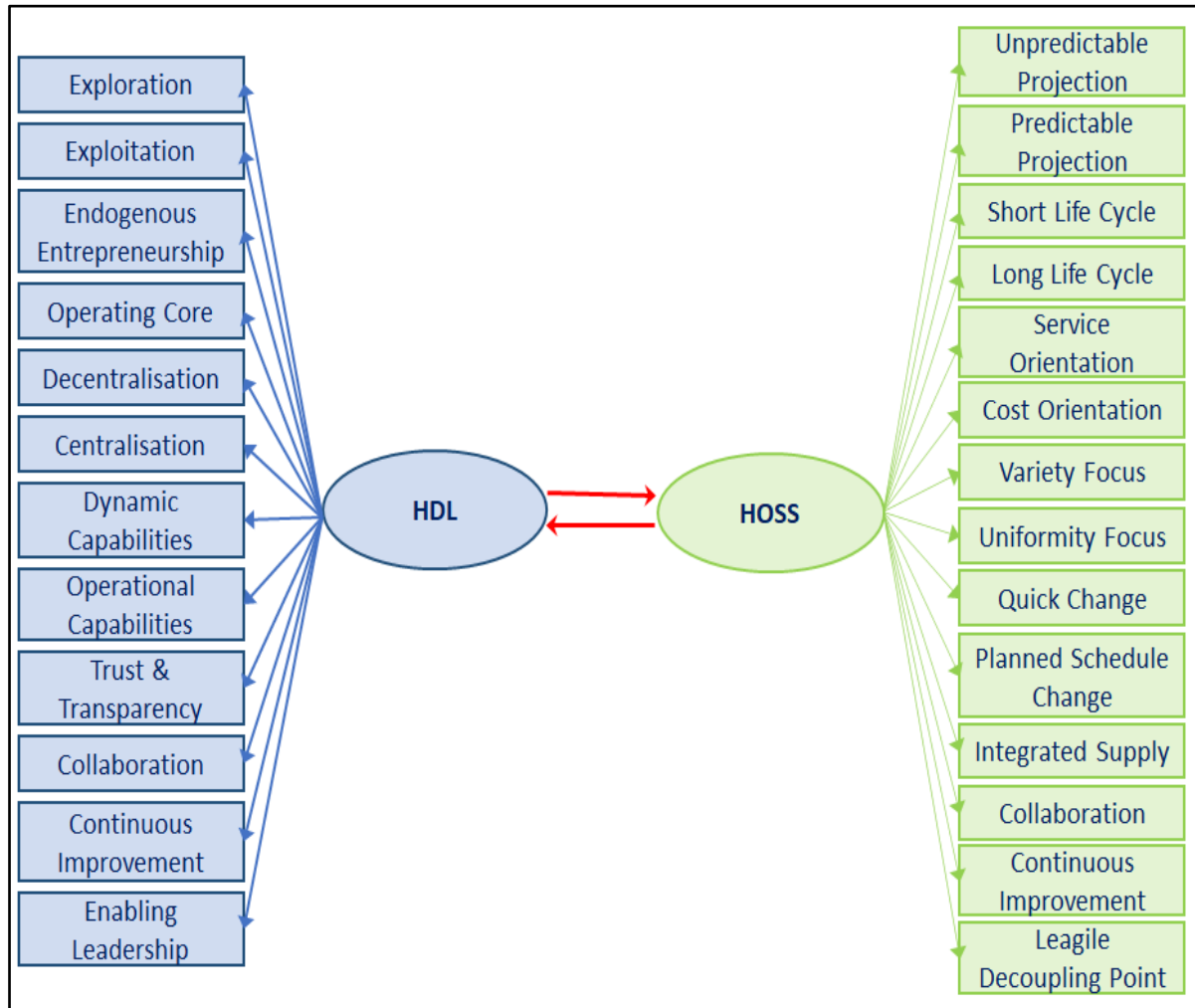


Figure 6.3 displays the reciprocal feedback loop between the HDL and HOSS. CL is presented by eleven elements and sub-elements, and OSS is presented by thirteen elements and sub-elements. Enabling leadership (CL) and leagile (OSS) was considered reflective constructs. This reflective relationship is displayed as two separate relationships. To answer RQ1, the researcher had to determine the relationship between HDL and the principles of CL, as well as the relationship between HOSS and the principles of OSS. RQ2 was answered by evaluating the impact of the relationship between HDL and HOSS. RQ3 was answered by evaluating whether there was a difference in the relationship of managers and non-managers

towards HDL and HOSS. RQ4 was answered by assessing whether there was a difference in the relationship between clinical and non-clinical employees towards HDL and HOSS.

6.2.6.2 Goodness-of-fit indices for RQ1, RQ2, RQ3 and RQ4

When performing an SEM, the fit of the data to a hypothesised model is evaluated by applying certain globally accepted fit indices (Lai & Green, 2016). The goodness-of-fit indices were calculated for the model, and the values are displayed in Table 6.8.

Table 6.8: Goodness-of-fit indices for HDL and HOSS

	CMIN (X ²)	df	P	CMIN/df	RMSEA	CFI	TLI	IFI	SRMR
CL vs IM (model 1)	593.576	296	.000	2.005	.079	.896	.886	.897	.058
CL vs IM (model 2)	659.771	294	.000	2.244	.076	.903	.893	.904	.061
Indicate acceptable fit	-	-	-	≤3 or ≤5	≤ .080	≥ .900	≥ .900	≥ .900	≤ .080

The model displayed in Figure 6.3 indicated fit according to certain fit indices (SRMR, RMSEA, normal chi-square) but only close-to-fit according to other critical fit indices (CFI, TLI, IFI). Models are evaluated and can be modified to improve the fit between the model and the data and improve the link between the study's theoretical framework and the presented data model (Hayduk, 1990). Improvement on SEM can be achieved through (1) deleting some items (observed variables) that have loadings smaller than .5, (2) deleting paths that are not statistically significant, and (3) assessing modification indices to identify additional covariances but this need to be theoretically justified (Hair et al., 2014). No loadings of the study were below .5, and the two paths were both critical. Therefore, modification indices were considered, and one modification (adding a covariance between Predictable projection and Uniformity focus) was added to the model and can be justified theoretically (Hair et al., 2014). Predictable projection and Uniformity focus are both sub-elements of lean with a focus on limiting variety and flexibility (Tolf, 2017).

When the modified SEM model was applied to the HDL and HOSS data, the goodness-of-fit supported the model. It is acceptable to use a model, even if the RMSEA and CFI are inconsistent, as these indices assess the design from different perspectives (Lai & Green, 2016). The RMSEA (.076), CFI (.903), IFI (.904), TLI (.893), CMIN/df (2.224), and SRMR (0.061) are all regarded as acceptable for the model values (Hair et al., 2014); therefore, the data is considered an acceptable fit to the model.

The standardised regression weights applying to RQ1, RQ2, RQ3 and RQ4 will now be discussed to determine in which way the data answers the questions.

6.2.6.3 Analysis of RQ1

RQ1 What is the relationship between the HDL and the principles of CL, and the relationship between the HOSS and OSS principles, as defined in this study, in private hospitals in South Africa?

Table 6.9 displays the relative strength and direction of the estimated relationships of the elements, sub-elements, and concept of CL (Figure 2.6) in relation to HDL.

Table 6.9: Standardised regression weights measuring the relationship between the principles of CL and HDL

Element and sub-elements		Measured construct	Estimate	P-value
Exploration	<---	HDL	,793	***
Exploitation	<---	HDL	,874	***
Endogenous Entrepreneurship	<---	HDL	,647	***
Operating Core	<---	HDL	,568	***
Decentralisation	<---	HDL	,789	***
Centralisation	<---	HDL	-,529	***
Dynamic Capabilities	<---	HDL	,764	***
Operational Capabilities	<---	HDL	,814	A
Trust & Transparency	<---	HDL	,809	***
Collaboration CL	<---	HDL	,364	***
Continuous Improvement CL	<---	HDL	,736	***
Enabling Leadership	<---	HDL	,910	***
*** Significance at .1% level of significance (p-value<.001)				
A No p-value as the value was modified				

All the relationships reported in Table 6.9, besides one, are highly statistically significant at the .1% level with $p < .001$. No p-value is an indication of the path that was constrained in this model.

Table 6.9 displays the relative strength and direction of the relationship between the elements and sub-elements of CL on the HDL. *Exploration, exploitation, decentralisation, dynamic capabilities, operational capabilities, trust & transparency, and continuous improvement* all have a very strong positive relative relationship (values $\geq .7$) (displayed in green) with the HDL.

Endogenous entrepreneurship and *operating core* have a strong positive relative relationship (values $\geq .5$ and $< .7$) (displayed in blue) with the HDL. Both these results are aligned with the literature since these sub-elements are foundational in the theoretical model of CL (Uhl-Bien & Arena, 2018). The element of *collaboration CL* has a moderate positive relative relationship with the HDL (values between $.3$ and $.5$) (displayed in yellow). Although the relationship is moderate, researchers would regard it as a relationship if it is $\geq .3$ or $\leq -.3$ (Coolidge, 2020). *Collaboration CL* is an essential part of CL; thus, a stronger relationship between *collaboration CL* and the HDL was expected (Abbatiello et al., 2018; PMSolutions, 2018; Uhl-Bien & Arena, 2018). *Centralisation* has been evidenced to have a strong negative relative relationship (displayed in pink) with the HDL with a value of $-.529$. This contradicts the literature which indicates that *centralisation*, as a sub-element of operational leadership, is an integral part of the display of CL, keeping in mind that CL can only be achieved if a balance exists between the concepts of entrepreneurial leadership, operational leadership and enabling leadership (Balu, 2018; Hazy et al., 2007; Uhl-Bien, 2020a; Uhl-Bien & Arena, 2017). The more *centralisation* there exists in the hospital, the less that the HDL will resemble CL. Enabling leadership which is where the adaptive space exists between entrepreneurial leadership and operational leadership, has the highest correlation with HDL with a value of $.910$, which is expected, and which confirms the correctness of the conceptual model of the study (Figure 2.6).

Considering that the relative relationship between centralisation and the HDL is not aligned with the theoretical model of CL, as well as that collaboration displays only a moderate value in the relationship with HDL (Uhl-Bien & Arena, 2018) (Figure 2.5). This resulted in the conclusion that there is not a strong relationship between HDL and the principles of CL, as illustrated in the conceptual model of this study (Figure 2.6).

Table 6.10 displays the relative strength and direction of the estimated relationships between the elements, sub-elements, and concept of OSS in relation to the HOSS.

Table 6.10: Standardised regression weights measuring the relationship between the principles of OSS and HOSS

Elements and sub-elements		Measured construct	Estimates	P-value
Unpredictable projection	<---	HOSS	,731	***
Predictable Projection	<---	HOSS	,430	***
Short Life Cycle	<---	HOSS	,830	***
Long Life Cycle	<---	HOSS	,846	***
Service Orientation	<---	HOSS	,470	***
Eliminate Waste (Cost) Orientation	<---	HOSS	,803	***
Production Variety Focus	<---	HOSS	,591	***
Production Uniformity Focus	<---	HOSS	,503	***
Quick Change	<---	HOSS	,730	***
Planned Scheduled Change	<---	HOSS	-,443	***
Integrated Supply Chain	<---	HOSS	,539	***
Collaboration IM	<---	HOSS	,746	***
Continuous Improvement IM	<---	HOSS	,817	***
Leagile – Decoupling Point	<---	HOSS	,854	A
*** Significance at .1% level of significance (p-value<.001)				
A No p-value as the value was modified				

All the relationships reported in Table 6.10, besides one, are highly statistically significant at the .1% level with $p < .001$. No p-value is an indication of the path that was constrained in this model.

Unpredictable projection, *short-life cycle*, *long life cycle*, *eliminate waste (cost) orientation*, *quick change*, *collaboration OSS*, and *continuous improvement OSS* all have a very strong positive relative relationship (values $\geq .7$) (displayed in green) with the HOSS. This is aligned with the literature since these sub-elements are all foundational in agile and lean (Aktan & Akyuz, 2017; Mishra et al., 2018; Naylor et al., 1999; Tolf, 2017). *Production variety focus*, *production uniformity focus*, and *integrated supply chain* have a strong positive relative relationship (values $\geq .5$ and $< .7$) (displayed in blue) with the HOSS. This is aligned with the literature since these sub-elements are foundational to the concepts of agile and lean (Mishra et al., 2018; Seddon & Caulkin, 2007; Wang, 2018). The element of *predictable projection* and *service orientation* has a moderate positive relative relationship with the HOSS (values $\geq .3$ and $< .5$) (displayed in yellow). Although the relationship is moderate, researchers regard it as a relationship if it is $\geq .3$ or $\leq -.3$ (Coolidge, 2020). Both these elements are essential parts of OSS. Thus, a stronger relationship between *predictable projection* and *service orientation* with

the HOSS would have been expected (Aktan & Akyuz, 2017; Tolf, 2017). *Planned scheduled change* has been evidenced to have a moderate negative relative relationship (displayed in pink) with the HOSS with a value of -0,443. This contradicts the literature which indicates that *planned, scheduled change*, which is a foundational concept of lean (Naylor et al., 1999; Ramadan et al., 2020), is an integral part of OSS, keeping in mind that OSS can only be achieved if a balance exists between the concepts of agile, lean and leagile (De Raedemaeker et al., 2020; Tolf, 2017; Williams, 2017). The more *planned, scheduled change* occurs in the hospital, the less chance there is for the overall successful implementation of OSS. *Leagile (decoupling point)* is the point where the adaptive space exists between agile and lean, and leagile has the highest correlation with the HOSS with a value of .854, which is expected. This confirms the correctness of the conceptual model of the study (Figure 2.11).

Considering the fact that the relative relationship between *planned, scheduled change* and the HOSS is not aligned with the theoretical model of lean (Aktan & Akyuz, 2017) and agile (Naylor et al., 1999; Ramadan et al., 2020), result in the conclusion that there is not a strong relationship between HOSS and the principles of OSS, as illustrated in the conceptual model of the study (Figure 2.11).

The answer to RQ1 is, therefore, that there is not a positive relationship between all the items and sub-items of CL and the HDL. There is also not a positive relationship between all the items and sub-items of OSS and the HOSS.

6.2.6.4 Analysis of RQ2

RQ2: What is the difference between the impact of HDL on HOSS and the impact of HOSS on HDL in private hospitals in South Africa?

To understand what can be done to transform HDL and HOSS, it is essential to understand what the relative relationship of HDL on HOSS is and of HOSS on HDL. Table 6.11 displays the relative strength and direction of these two relationships.

Table 6.11: Standardised regression weights measuring the reflective relationship between HDL and HOSS

Impacted construct		Measured construct	Estimate	P-value
HOSS	<---	HDL	.483	***
HDL	<---	HOSS	.713	***
*** Significance at 0.1% level of significance (p-value<0.001)				

All the relationships reported in Table 6.11 are highly statistically significant at the 0,1% level with $p < 0,001$.

Table 6.11 displays the relative strength and direction of the relationship of HDL on HOSS moderate strength of .483 (displayed in yellow). The relative strength and relationship of HOSS on HDL is very strong, with a value of .713 (displayed in green). The result is, therefore, that the relationship of HOSS on HDL is significantly stronger than the relationship of HDL on HOSS. No literature has been found that specifically compared the strength and direction of the relationship of HDL on HOSS and HOSS on HDL. However, the IQ Business report stated that the commitment of leadership is integral for the successful implementation of change (IQBusiness, 2018). Environments that need adaptability need new ways of leading (Uhl-Bien & Arena, 2017). Creating organisational change for adaptability is primarily a leadership challenge that will guide the organisation to adaptability and long-term survival (Schulze & Pinkow, 2020). The hospital must shift its approach from continuity and a focus on operations to discontinuity and adaptive capabilities (Tolf et al., 2015).

The answer to RQ2 is, therefore, that the impact of the relationship of the HDL on HOSS is significantly less than the impact of HOSS on HDL. The hospital group size is not a differentiator for the impact experienced (Section 6.2.4.3)

6.2.6.5 Analysis of RQ3

RQ3 Is there a difference in the relationship between managers and non-managers towards HDL and HOSS in private hospitals in South Africa?

In this section, the goodness-of-fit statistics were first assessed for managers and non-managers, followed by evaluating the standardised regression weights for both samples of 189 managers and non-managers towards HDL and HOSS. Manager and non-manager were tested as a moderator variable. A comprehensive discussion on the sample selection is in Section 5.4.1.

Table 6.12 displays the goodness-of-fit statistics for the relationship between the HDL and HOSS of managers and non-managers.

Table 6.12: Goodness-of-fit statistics for the relationship between HDL and HOSS of managers and non-managers

Model	CMIN (X^2)	df	P	CMIN/df	RMSEA	CFI	TLI	IFI	SRMR
Managers	464.906	294	.000	2.200	.080	.898	.887	.899	.055
Non-managers	589.072	294	.000	2.004	.073	.907	.897	.907	-
Indicate acceptable fit	-	-	-	≤ 3 or ≤ 5	$\leq .08$	$\geq .90$	$\geq .90$	$\geq .90$	$\leq .08$

With reference to Table 6.12, the SEM model, as displayed in Figure 6.3, was applied to the HDL and HOSS for the two sub-samples, and the indices values are displayed above. The RMSEA (.080 and .073), (.898 and .907), TLI (.887 and .897), IFI (.899 and .907), and CMIN/df (2.200 and 2.004) are all an indication of acceptable fit to the model (Hair et al., 2014; Lai & Green, 2016).

The standardised regression weights towards the HDL and HOSS are displayed for each of the samples in Table 6.13

Table 6.13: Standardised regression weights towards the HDL and HOSS for managers and non-managers

Element and sub-elements			Estimate managers	Estimate non-managers
HDL				
Exploration	<---	HDL	.809	.739
Exploitation	<---	HDL	.885	.868
Endogenous Entrepreneurship	<---	HDL	.654	.525
Operating Core	<---	HDL	.576	.565
Decentralisation	<---	HDL	.719	.750
Centralisation	<---	HDL	-.462	-.609
Dynamic Capabilities	<---	HDL	.821	.721
Operational Capabilities	<---	HDL	.801	.803
Trust & Transparency	<---	HDL	.803	.781
Collaboration CL	<---	HDL	.265	.408
Continuous Improvement CL	<---	HDL	.723	.748
Enabling Leadership	<---	HDL	.908	.847
HOSS				
Unpredictable projection	<---	HOSS	.767	.813
Predictable Projection	<---	HOSS	.394	.364
Short Life Cycle	<---	HOSS	.858	.813
Long Life Cycle	<---	HOSS	.855	.876
Service Orientation	<---	HOSS	.554	.468
Eliminate Waste (Cost) Orientation	<---	HOSS	.794	.835
Production Variety Focus	<---	HOSS	.712	.616
Production Uniformity Focus	<---	HOSS	.541	.562
Quick Change	<---	HOSS	.750	.702
Planned Scheduled Change	<---	HOSS	-.469	-.404
Integrated Supply Chain	<---	HOSS	.504	.536
Collaboration IM	<---	HOSS	.685	.659
Continuous Improvement IM	<---	HOSS	.714	.789
Leagile – Decoupling Point	<---	HOSS	.886	.902
HDL and HOSS				
HOSS	<---	HDL	.623	.524
HDL	<---	HOSS	.722	.615

All the relationships reported in

Table 6.13 were highly statistically significant at the .1% level with $p < .001$. The relationships of operational capabilities and leagile (decoupling point) have no p-value, which indicates the path that was constrained in this model.

Both managers and non-managers regarded the relationship between the HDL and the following factors to be very strong positive (values $\geq .7$) (displayed in green): *exploration, exploitation, decentralisation, dynamic capabilities, operational capabilities, trust & transparency, continuous improvement* and *enabling leadership*. Both managers and non-managers regarded the relationship between the HDL and the following factors to be strong positive (values $\geq .5$ and $< .7$) (displayed in blue): *endogenous entrepreneurship* and *operating core*. Managers regarded the relationship of *collaboration* with the HDL as weakly positive (displayed in grey) at a value of .265, whereas non-managers regarded it as a moderate positive relationship (displayed in yellow) with a value of .408. All the above are closely related to the conceptual model for CL applied in this study (Figure 2.6). Both managers and non-managers regarded the sub-element of *centralisation* to have a negative relationship (displayed in pink) with HDL. However, managers regarded it as moderately negative with a value of -.462, and non-managers regarded it as strong negative with a value of -.609. *Centralisation* having a negative relationship with HDL contradicts the current literature since *centralisation* is a foundational sub-element of operational leadership which forms CL (Uhl-Bien & Arena, 2018)

Both managers and non-managers regarded the relationship between the HOSS and the following factors to be very strong positive (values $\geq .7$) (displayed in green): *unpredictable projection, short-life cycle, long life cycle, eliminate waste (cost) orientation, quick change, continuous improvement OSS* and *leagile (decoupling point)*. Both managers and non-managers regarded the relationship between HOSS and the following factors to be strong positive (values $\geq .5$ and $< .7$) (displayed in blue): *production uniformity focus, integrated supply chain* and *collaboration OSS*. Both managers and non-managers regarded the relationship between HOSS and *predictable projection* to be moderately positive (values $\geq .3$ and $< .5$) (displayed in yellow). Looking at the relationship between HOSS and *service orientation*, managers regarded it as a strong positive relationship at .554, and non-managers regarded it as a moderate positive relationship at .468. Looking at the relationship between HOSS and *production variety focus*, managers regarded it as a very strong positive relationship at .712, and non-managers regarded it as a strong positive relationship at .616. All the above relationships are aligned with the principles of lean and agile since they are displayed in the conceptual model of OSS for this study (Aktan & Akyuz, 2017; Tolf, 2017; Wikner et al., 2017). Both managers and non-managers regarded the sub-element of *planned, scheduled change*

to have a moderate negative relationship (displayed in pink) with HOSS with a value of $-.469$ for managers and $-.404$ for non-managers. This negative relationship is not aligned with the literature since planned, scheduled change is an integral part of lean (Ramadan et al., 2020) which forms part of the conceptual model for OSS in the study.

Managers regarded the positive relationship between HOSS on HDL as significantly stronger at $.722$ than the positive relationship of HDL on HOSS at $.623$. Non-managers regarded both relationships as strong positive. However, the relationship of HOSS on HDL is stronger than the relationship of the HDL on HOSS. Being a manager, therefore, had a stronger moderating effect on the relationship between HDL and HOSS than being a non-manager.

The answer to RQ3 is, therefore, that both managers and non-managers regarded the impact of the relationship of HOSS on HDL as stronger than HDL on HOSS. However, the values of the relationship for managers were significantly stronger than the values for non-managers.

6.2.6.6 Analysis of RQ4

RQ4 Is there a difference in the relationship between clinical and non-clinical employees towards HDL and HOSS in private hospitals in South Africa?

In this section, the goodness-of-fit statistics were first assessed for clinical and non-clinical employees, followed by evaluating the standardised regression weights for both samples of clinical and non-clinical employees towards HDL and HOSS. Clinical and non-clinical were tested as a moderator variable. A comprehensive discussion on the sample selection is in Section 5.4.1.

Table 6.14 displays the goodness-of-fit statistics for measuring the difference in the relationship between HDL and HOSS for clinical and non-clinical participants.

Table 6.14: Goodness-of-fit statistics for measuring the difference in the relationship between clinical and non-clinical employees towards HDL and HOSS

Model	CMIN (X^2)	df	P	CMIN/df	RMSEA	CFI	TLI	IFI	SRMR
Clinical	659.771	294	.000	2.244	.076	.903	.893	.904	.061
Non-clinical	580.828	294	.000	1.976	.077	.900	.889	.901	.058
Indicate acceptable fit	-	-	-	≤ 3 or ≤ 5	$\leq .08$	$\geq .90$	$\geq .90$	$\geq .90$	$\leq .08$

Referencing Table 6.14, the modified SEM model was applied to HDL and HOSS for the two sub-samples, and the indices values are displayed above. The RMSEA ($.076$ and $.077$), CFI

(.903 and .900), TLI (.893 and .889), IFI (.904 and .901), and CMIN/df (2.244 and 1.976) are indicated an acceptable fit (Hair et al., 2014; Lai & Green, 2016).

The standardised regression weights for measuring the difference in the relationship of managers and non-managers towards HDL and HOSS are displayed in Table 6.15.

Table 6.15: Standardised regression weights measuring the difference in the relationship of clinical and non-clinical employees towards HDL and HOSS

Element and sub-elements			Estimate clinical	Estimate non-clinical
HDL				
Exploration	<---	HDL	.758	.798
Exploitation	<---	HDL	.878	.873
Endogenous Entrepreneurship	<---	HDL	.546	.647
Operating Core	<---	HDL	.564	.567
Decentralisation	<---	HDL	.688	.792
Centralisation	<---	HDL	-.554	-.529
Dynamic Capabilities	<---	HDL	.781	.763
Operational Capabilities	<---	HDL	.789	.813
Trust & Transparency	<---	HDL	.780	.809
Collaboration CL	<---	HDL	.316	.361
Continuous Improvement CL	<---	HDL	.734	.737
Enabling Leadership	<---	HDL	.866	.909
HOSS				
Unpredictable projection	<---	HOSS	.821	.733
Predictable Projection	<---	HOSS	.370	.429
Short Life Cycle	<---	HOSS	.831	.832
Long Life Cycle	<---	HOSS	.871	.850
Service Orientation	<---	HOSS	.541	.468
Eliminate Waste (Cost) Orientation	<---	HOSS	.822	.805
Production Variety Focus	<---	HOSS	.704	.589
Production Uniformity Focus	<---	HOSS	.573	.507
Quick Change	<---	HOSS	.719	.731
Planned Scheduled Change	<---	HOSS	-.432	-.447
Integrated Supply Chain	<---	HOSS	.528	.535
Collaboration IM	<---	HOSS	.636	.732
Continuous Improvement IM	<---	HOSS	.719	.807
Leagile – Decoupling Point	<---	HOSS	.921	.854
HDL and HOSS				
HOSS	<---	HDL	.617	.488
HDL	<---	HOSS	.640	.715

All the relationships reported in Table 6.15 were highly statistically significant at the .1% level with $p < .001$. The relationships of operational capabilities and leagile (decoupling point) have no p-value, which indicates the path that was constrained in this model.

Both clinical and non-clinical employees regarded the relationship between HDL and the following factors as very strong positive (values $\geq .7$) (displayed in green): *exploration*, *exploitation*, *dynamic capabilities*, *operational capabilities*, *trust & transparency*, *continuous improvement* and *enabling leadership*. Both clinical and non-clinical employees regarded the relationship between HDL and the following factors as strongly positive (values $\geq .5$ and $< .7$) (displayed in blue): *endogenous entrepreneurship* and *operating core*. Both clinical and non-clinical employees regarded the relationship between HDL and *collaboration CL* as moderately positive (values $\geq .3$ and $< .5$) (displayed in yellow). Clinical employees regarded the relationship between *decentralisation* and HDL as strong positive at .688, whereas non-clinical employees regarded it as very strong positive at .792. All the above are closely related to the conceptual model for the implementation of OSS (Figure 2.11). Both clinical and non-clinical employees regarded the sub-element of *centralisation* as a strong negative relationship with the HDL at .554 and .529, respectively (displayed in pink). *Centralisation* having a negative relationship with the HDL contradicts the current literature since *centralisation* is a foundational sub-element of operational leadership that forms CL (Uhl-Bien & Arena, 2018).

Both clinical and non-clinical employees regarded the relationship between the HOSS and the following factors to be very strong positive (displayed in green): *unpredictable projection*, *short-life cycle*, *long life cycle*, *eliminate waste (cost) orientation*, *quick change*, *continuous improvement OSS* and *leagile (decoupling point)* with values $\geq .7$. Both clinical and non-clinical employees regarded the relationship between HOSS and the following factors to be strong positive (values $\geq .5$ and $< .7$) (displayed in blue): *production uniformity focus and integrated supply chain* and *collaboration OSS*. Both clinical and non-clinical employees regarded the relationship between HOSS and *predictable projection* to be moderately positive (values $\geq .3$ and $< .5$) (displayed in yellow). Looking at the relationship between HOSS and *service orientation*, clinical employees regarded it as a strong positive relationship at .541 and non-clinical regarded it as a moderate positive relationship at .468. Looking at the relationship between HOSS and *production variety focus*, clinical employees regarded it as a very strong positive relationship at .704, and non-clinical employees regarded it as a strong positive relationship at .589. Furthermore, clinical employees regarded the relationship between *collaboration OSS* with HOSS as strong with a value of .636, and non-clinical employees regarded this relationship as very strong at .732. All the above relationships are aligned with

the principles of lean and agile since they are displayed in the conceptual model of OSS for this study (Aktan & Akyuz, 2017; Tolf, 2017; Wikner et al., 2017). Both clinical and non-clinical employees, however, regarded the sub-element of *planned, scheduled change* to have a moderate negative relationship (displayed in pink) with HOSS with a value of $-.432$ for managers and $-.447$ for non-managers. This negative relationship is not aligned with the literature since planned, scheduled change is an integral part of lean (Ramadan et al., 2020) which forms part of the conceptual model for OSS, as described in this study.

Looking at the overall relationship between the HDL and HOSS for both groups, clinical employees display about the same positive strength for the relationship of HDL with HOSS (.617) and the relationship of HOSS with HDL (.640). Non-clinical employees, however, regarded the positive relationship of HOSS with HDL as much stronger (.715) than the strength of the positive relationship between the HDL on HOSS (.488). Clinical vs non-clinical is, therefore, a strong moderating variable because the correlation between HDL and HOSS is very different between clinical and non-clinical staff.

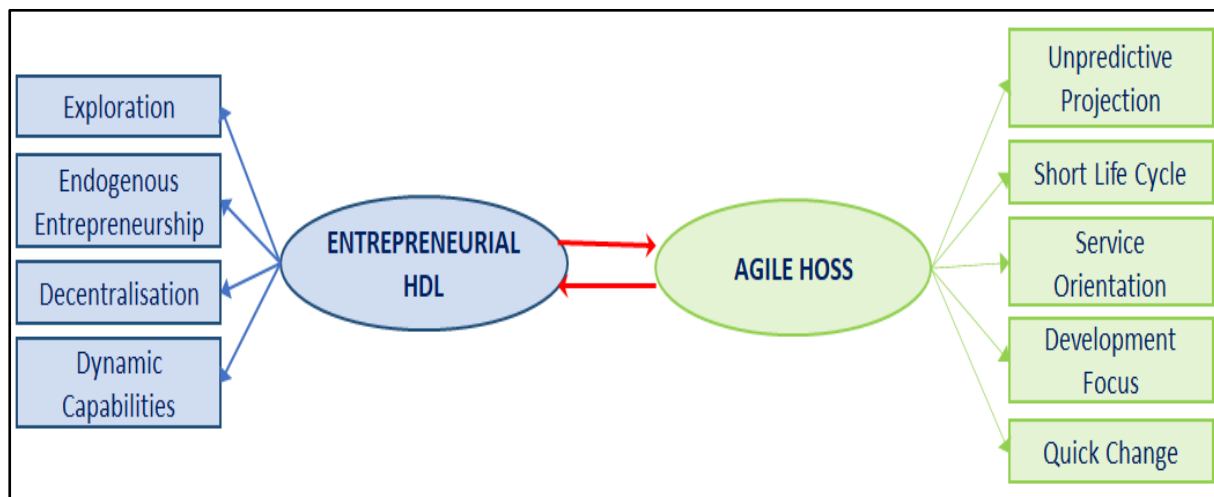
Therefore, the answer to RQ4 is that clinical employees regarded the impact of the relationship of HOSS on HDL about the same as the impact of HDL on HOSS. However, the non-clinical employees regarded the impact of HOSS on HDL as significantly stronger than the impact of the relationship of HDL on HOSS.

6.2.6.7 Additional SEM to confirm the relationships in the overall conceptual model

Referencing the overall conceptual framework of the study (Figure 2.13), it is suggested that a relationship exists between entrepreneurial leadership (part of CL) and agile (part of OSS), as well as the relationship between operational leadership (part of CL) and lean (part of OSS). As part of the validation of the overall conceptual model of the study, two additional SEMs were performed to test the direction and strength of these suggested relationships.

i) Relationship between entrepreneurial Hospital Displayed Leadership and agile Hospital Operational Systems and Structures

The SEM that was done to test the direction and relationship between entrepreneurial HDL and agile HOSS is displayed in Figure 6.4.

Figure 6.4: Relationship between entrepreneurial HDL and agile HOSS

In this section, the goodness-of-fit statistics were assessed for entrepreneurial HDL and agile HOSS, followed by evaluating the standardised regression weights for these concepts. The total sample of 378 was applied in this section.

Table 6.16 displays the goodness-of-fit statistics for the relationship between entrepreneurial HDL and agile HOSS.

Table 6.16: Goodness-of-fit statistics for the relationship between entrepreneurial HDL and agile HOSS

Model	CMIN (X ²)	df	P	CMIN/df	RMSEA	CFI	TLI	IFI	SRMR
Model 1	59.677	26	.000	2.295	.059	.979	.971	.979	.033
Indicate acceptable fit	-	-	-	≤3 or ≤5	≤.08	≥.90	≥.90	≥.90	≤.08

The SEM model, as depicted in Figure 6.4, was applied to the display of entrepreneurial HDL and agile HOSS. The RMSEA (.059); CFI (.979); TLI (.971); IFI (.979); CMIN/df (2.295); and SRMR (.033) indicated acceptable fit, as shown in Table 6.16 (Hair et al., 2014).

The standardised regression weights for measuring entrepreneurial HDL and agile HOSS are displayed in Table 6.17.

Table 6.17: Standardised regression weights for the relationship between entrepreneurial HDL and agile HOSS

Sub-elements			Estimate	P-value
Entrepreneurial HDL				
Exploration	<--	Entrepreneurial HDL	.845	A
Endogenous Entrepreneurship	<--	Entrepreneurial HDL	.658	***
Decentralisation	<--	Entrepreneurial HDL	.710	***
Dynamic Capabilities	<--	Entrepreneurial HDL	.770	***
Agile HOSS				
Unpredictable projection	<--	Agile HOSS	.776	A
Short Life Cycle	<--	Agile HOSS	.859	***
Service Orientation	<--	Agile HOSS	.491	***
Production Variety Focus	<--	Agile HOSS	.673	***
Quick Change	<--	Agile HOSS	.728	***
Entrepreneurial HDL and Agile HOSS				
Agile HOSS	<--	Entrepreneurial HDL	.486	***
Entrepreneurial HDL	<--	Agile HOSS	.656	***
*** Significance at .1% level of significance (p-value<.001)				
A No p-value as the value was modified				

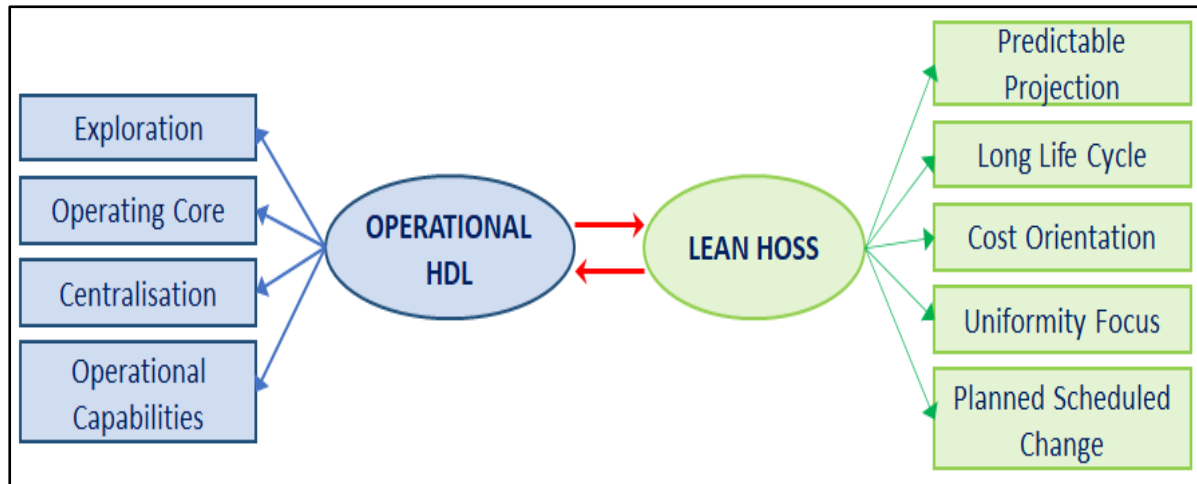
All the relationships reported in Table 6.17 were highly statistically significant at the .1% level with $p < .001$, except the relationships of exploration and unpredictable projection which path that was constrained in this model.

Eight of the nine sub-elements have a very strong positive relationship (values $\geq .7$) (displayed in green) or strong positive relationship (values $\geq .5$ and $< .7$) (displayed in blue) with either the display of entrepreneurial HDL or agile HOSS. The sub-element of *service orientation* has a moderate positive relationship (values $\geq .3$ and $< .5$) (displayed in yellow) with the implementation of agile HOSS. Overall, the display of entrepreneurial HDL has a moderate positive relationship with the implementation of agile HOSS (.486), and the implementation of agile HOSS have a strong positive relationship with the display of entrepreneurial HDL (.656). It can, therefore, be confirmed that the concept of entrepreneurial HDL and agile HOSS displayed in the overall conceptual model of this study has strong positive relationships (Figure 2.13) and is aligned with the literature (Felipe et al., 2017; Mishra et al., 2018; Uhl-Bien & Arena, 2018).

ii) **Relationship between operational hospital displayed leadership and lean hospital operational systems and structures?**

The SEM that was done to test the strength and direction of the relationship between the display of operational HDL and lean HOSS is displayed in Figure 6.5.

Figure 6.5: Relationship between Operational HDL and Lean HOSS



In this section, the goodness-of-fit statistics were assessed for operational HDL and lean HOSS, followed by evaluating the standardised regression weights for these concepts. The total sample of 378 was applied in this section.

Table 6.18 displays the goodness-of-fit statistics for the relationship between operational HDL and lean HOSS.

Table 6.18: Goodness-of-fit statistics for the relationship between operational HDL and lean HOSS

Model	CMIN (X^2)	df	P	CMIN/df	RMSEA	CFI	TLI	IFI	SRMR
Model 1	103.971	25	.000	4.159	.092	.948	.925	.948	.055
Indicate acceptable fit	-	-	-	<3 or <5	$\leq .08$	$\geq .90$	$\geq .90$	$\geq .90$	$< .08$

The SEM model, as depicted in Figure 6.5, was applied to the display of operational HDL and lean HOSS. The values of the SRMR (.055), CFI (.948), TLI (.925) and IFI (.948) all indicated acceptable fit, as shown in Table 6.18. The RMSEA (.092) does not fit the model ($\leq .08$). However, according to Lai and Green (2016), it is accepted for this SEM model. The CMIN/df (4.159) is acceptable to the model as the value < 5 (Hair et al., 2014).

The standardised regression weights for measuring the display of operational HDL and lean HOSS are displayed in Table 6.19.

Table 6.19: Standardised regression weights for the relationship between operational HDL and lean HOSS

Sub-elements			Estimate	P-value
Operational HDL				
Exploitation	<---	Operational HDL	,865	***
Operating Core	<---	Operational HDL	,599	***
Centralisation	<---	Operational HDL	-,499	***
Operational Capabilities	<---	Operational HDL	,838	A
Lean HOSS				
Predictable Projection	<---	Lean HOSS	,418	A
Long Life Cycle	<---	Lean HOSS	,882	***
Eliminate Waste (Cost) Orientation	<---	Lean HOSS	,851	***
Production Uniformity Focus	<---	Lean HOSS	,576	***
Planned Scheduled Change	<---	Lean HOSS	-,442	***
Operational HDL and Lean HOSS				
Lean HOSS	<---	Operational HDL	-,362	,064
Operational HDL	<---	Lean HOSS	,928	***
*** Significance at 0.1% level of significance (p-value<0.001)				
A No p-value as the value was modified				

All the relationships reported in Table 6.19 With reference to Table 6.12, the SEM model, as displayed in Figure 6.3, was applied to the HDL and HOSS for the two sub-samples, and the indices values are displayed above. The RMSEA (.080 and .073), (.898 and .907), TLI (.887 and .897), IFI (.899 and .907), and CMIN/df (2.200 and 2.004) are all an indication of acceptable fit to the model (Hair et al., 2014; Lai & Green, 2016).

The standardised regression weights towards the HDL and HOSS are displayed for each of the samples in Table 6.13

Table 6.13 were highly statistically significant at the 0,1% level with $p < 0,001$, besides the relationships of operational capabilities and predictable projection that has no p-value, which is an indication of the paths that were constrained in this model. Additionally, the p-value for the impact of the display of operational leadership on the implementation of lean methodologies is .064, which means it is statistically significant only at the ten per cent level.

Six of the nine sub-elements have a very strong positive relationship (values $\geq .7$) (displayed in green) or a strong positive relationship (values $\geq .5$ and $< .7$) (displayed in blue) with either the display of operational HDL or lean HOSS. *Predictable projection* had a moderate positive relationship with the implementation of lean HOSS with a value of (.418). All of the relationships between these elements and sub-elements are aligned with the literature on lean (Mishra et al., 2018) and operational leadership (Uhl-Bien & Arena, 2018). The sub-element of centralisation has a moderate (nearly strong) negative relationship with the display of operational HDL with a value of -.499. This contradicts the literature since centralisation is a foundational principle of operational leadership (Uhl-Bien & Arena, 2018). *Planned scheduled change* has a moderate negative relationship with the way lean HOSS is implemented with a value of (-.442) which is not aligned with the literature, since planned, scheduled change, also called level scheduling, is a foundational principle of lean OSS (Naylor et al., 1999).

Overall operational HDL has a moderate negative impact on the implementation of lean HOSS (-.362), and lean HOSS has a very strong positive impact on the operational HDL (.928). This result of how these two concepts, as applied in hospitals, are not aligned with the conceptual model for this study (Figure 2.13) that assumes a positive relationship between operational CL and lean OSS as explained in the conceptual model of the study.

6.2.7 Discussion of the LinkedIn results and process

Using the LinkedIn platform to access the population for a study not related to social media is a novel approach. LinkedIn has been used before for obtaining a sample of surgeons for a medical survey (Lee et al., 2017). However, no guidance could be found on the best way to obtain a sample from LinkedIn.

When a sample is gathered through traditional means, the researcher is endorsed by the facility's leadership, which occurred with the direct sample approach used in this study. The LinkedIn approach's biggest challenge was for the researcher to build credibility and trust with possible participants. The following initiatives were applied to build trust between researcher and participants:

-
- The researcher developed her own website with details of the study (www.karennel.co.za/phd-2).
 - The researcher updated her LinkedIn profile with details of the study.
 - A personalised invitation was sent on LinkedIn with a hyperlink to the website.
 - A personalised LinkedIn message was sent once the connection request was accepted, requesting an email address. This message contained an attachment explaining the study, explaining confidentiality, as well as that none of the hospital groups employed the researcher. This message also contained a link to the website.
 - The website contained a video message from the researcher, explaining the study and inviting the viewer to participate.
 - Once the personalised email address was received, the same study explanation was sent to the participant by email.
 - Once the email address was received, the participant was sent an information document with the link to the survey.
 - Three weekly reminders were sent.
 - If the participant started with the questionnaire but did not finish it, a personalised email was sent, once again confirming confidentiality and that none of the hospitals employed the researcher. This message mostly resulted in the survey being completed.

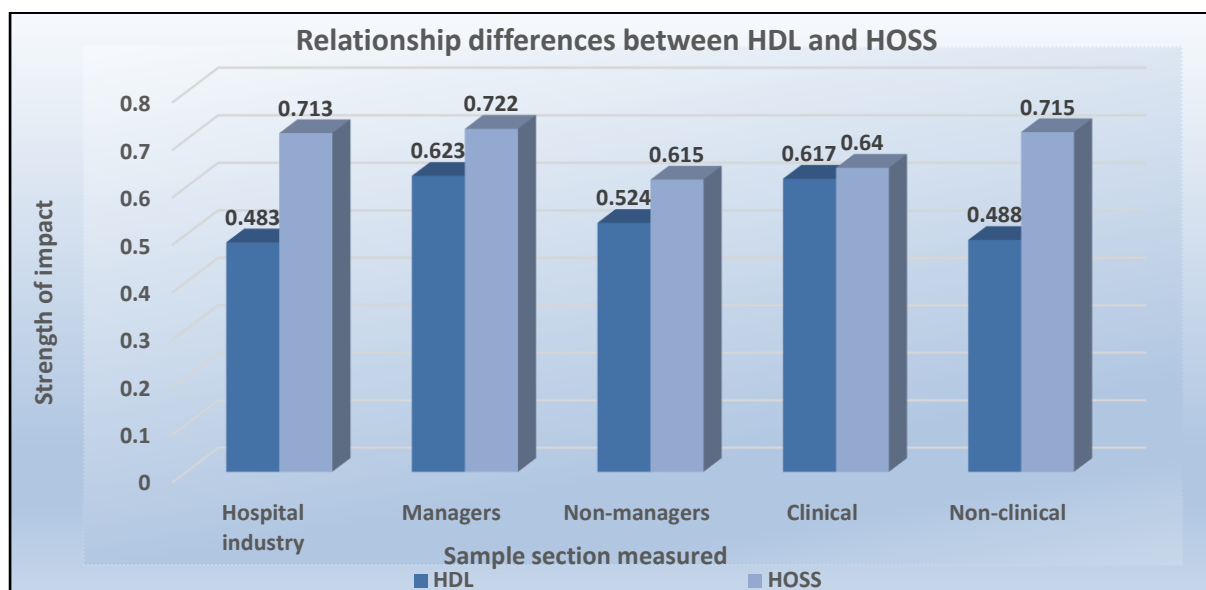
Of the 2 544 LinkedIn invitations that were sent, 982 were accepted. However, 32 respondents opted out before the survey was sent, 159 did not provide their email addresses, and a total of 791 questionnaires were sent. A challenge on LinkedIn was that South African healthcare employees are typically not very technical. Clinical employees are often not sufficiently prepared for new technologies, such as digitisation and artificial intelligence (Allen, 2020). It appears that only technology-savvy healthcare employees will have an active LinkedIn profile. The more traditional, old-school health worker, with only a basic or a small amount of technology and social media skills, will not have a LinkedIn profile. Therefore, they were not accessed for this study sample.

6.2.8 Summary of quantitative results

The descriptive statistics met all the criteria according to globally accepted standards. The ANOVA indicated that for one of the larger groups, the HDL was statistically different from the HDL experienced by employees of the other three groups. The HDL of the smaller groups and two of the larger groups were very similar. However, for all the groups, the employees' experience of HOSS did not differ statistically significantly across the smaller and larger groups. Therefore, group size did not have a statistically significant impact as a differentiator in the way employees experienced HDL of HOSS. The principal component analysis was appropriate for the constructs of HDL and HOSS for all elements and sub-elements.

Pearson's correlation indicated a weak relationship between collaboration and five sub-elements and no correlation between collaboration and two sub-elements. Weak correlations were displayed between predictable projection and five other items, and a weak correlation between service orientation and quick change. All correlations between centralisation and other sub-elements were negative. All correlations between planned, scheduled change and all sub-elements were negative.

With the SEM, all the data met the criteria for goodness-of-fit. The element of collaboration was identified as low or moderate across all HDL models. However, it was high or very high across all HOSS models. The sub-element of centralisation was negative across all HDL models. The sub-element of planned, scheduled change was negative across all HOSS models. These two results are not aligned with the literature. The relationships between HDL and HOSS across the overall study, for managers and non-managers, and clinical and non-clinical, had significant differences across all groups in the sample, as displayed in Figure 6.6.

Figure 6.6: Relationship strength across all sample groups for HDL and HOSS

The differences in the relationship between HDL and HOSS for the different sample groups, as displayed in, will be explored in the qualitative phase of the study, and the significant results summarised above that was not aligned with the literature.

6.3 QUALITATIVE STUDY FINDINGS

This second part of chapter 6 will present the qualitative findings through themes and sub-themes. Examples will be presented of direct quotes from the participants, either confirming or contradicting the findings from the literature, linked back to the results of the research questions.

6.3.1 Demographic profile of participants and related matters

As discussed in Chapter 5, the qualitative sample consisted of a purposeful selection of 16 participants with four participants from each hospital group. Furthermore, the participants were equally distributed between clinical and non-clinical, and managers and non-managers, as displayed in Table 5.4. The participant details are displayed in Table 6.20.

Table 6.20: Sample details per participant

Participant	Location	Gender	Role type	Position type
A	Hospital	f	Clinical	Manager
B	Hospital	m	Non-clinical	Manager
C	Head Office	m	Non-clinical	Non-manager
D	Hospital	m	Non-clinical	Non-manager
E	Hospital	f	Non-clinical	Manager
F	Hospital	f	Clinical	Non-manager
G	Hospital	f	Clinical	Manager
H	Hospital	f	Clinical	Non-manager
I	Hospital	f	Non-clinical	Non-manager
J	Hospital	f	Clinical	Non-manager
K	Hospital	f	Clinical	Non-manager
L	Hospital	f	Clinical	Manager
M	Head Office	m	Non-clinical	Manager
N	Head Office	f	Non-clinical	Manager
O	Hospital	f	Clinical	Manager
P	Hospital	m	Non-clinical	Non-manager

The positions that the participants in this study filled at the time they were interviewed are displayed in Table 6.21.

Table 6.21: Appointed roles of participants

Role type	Position name	Number of participants
Clinical	Unit Manager	3
Non-Clinical	Technical	1
Non-Clinical	Human Resources (HR) Manager	1
Clinical	Nursing Manager	1
Non-Clinical	Information Technology (IT) Manager	1
Non-Clinical	Business Manager	1
Non-Clinical	Recruitment Specialist	1
Non-Clinical	Senior Clinical Engineer	2
Clinical	Pharmacist	1
Clinical	Case Manager	1
Non-Clinical	Administration Supervisor	1
Clinical	Senior Registered Nurse	2
Total		16

The participants in this study came from various roles in the hospital and head office; therefore, the results can be regarded as an accurate reflection of the industry. The researcher purposefully elected not to provide any additional demographic details since several participants communicated a fear of being identified by their employer. Confidentiality was, therefore, an essential requirement for all participants.

The terminologies of OSS (lean, agile, leagile) are unfamiliar in the hospital. The terms policies and procedures are familiar to them and subsequently used in the interviews, but for consistency, the term HOSS will be used in the write-up. The hospital employees are also more familiar with the term cooperation rather than collaboration. Therefore, these two terms were used interchangeably during the interviews, although collaboration and cooperation have different meanings in the academic context. For consistency, will collaboration be used in the write-up of the results.

When non-managers referred to the leadership/management entity, they always referred to the managers they reported to or to senior levels. Middle management (unit managers, head of the department, nursing services manager) took on a manager's role when referencing the team reporting to them. They also took on a non-manager/employee's role when referencing the team to which they report, for example, the general manager or EXCO.

6.3.2 Themes and sub-themes

The qualitative design was case study research (Padgett, 2016; Watkins, 2017). An inductive approach was followed since the data was aggregated, and the underlying assumptions from the data were allowed to emerge (Vaismoradi & Snelgrove, 2019). The results of the quantitative phase, as displayed in

Figure 6.6 and described in section 6.2.8, were used to inform the questions that were used in the interviews with the aim to understand the drivers for the quantitative results. After completing the interviews, the data was transcribed, prepared, and quotes from participants were highlighted and analysed. Rich results emerged, and initially, many codes were identified that were simplified to form 362 codes. These codes were grouped into broad categories for the researcher to have a clear understanding of the emerging data. Furthermore, the categories developed into major themes and sub-themes, with sub-themes being categories that the researcher identified. The sub-themes helps describe the findings, often called themes-within-themes, explicitly answering the three qualitative research questions (Saldaña, 2015).

6.3.3 Discussion of RQ5

RQ5 Understanding what the drivers are that contributed to the quantitative results?

During the data analysis, three themes emerged specifically relating to RQ5, and each of these themes had some sub-themes related to them, as displayed in Figure 6.7.

Figure 6.7: Themes and sub-themes relating to RQ5

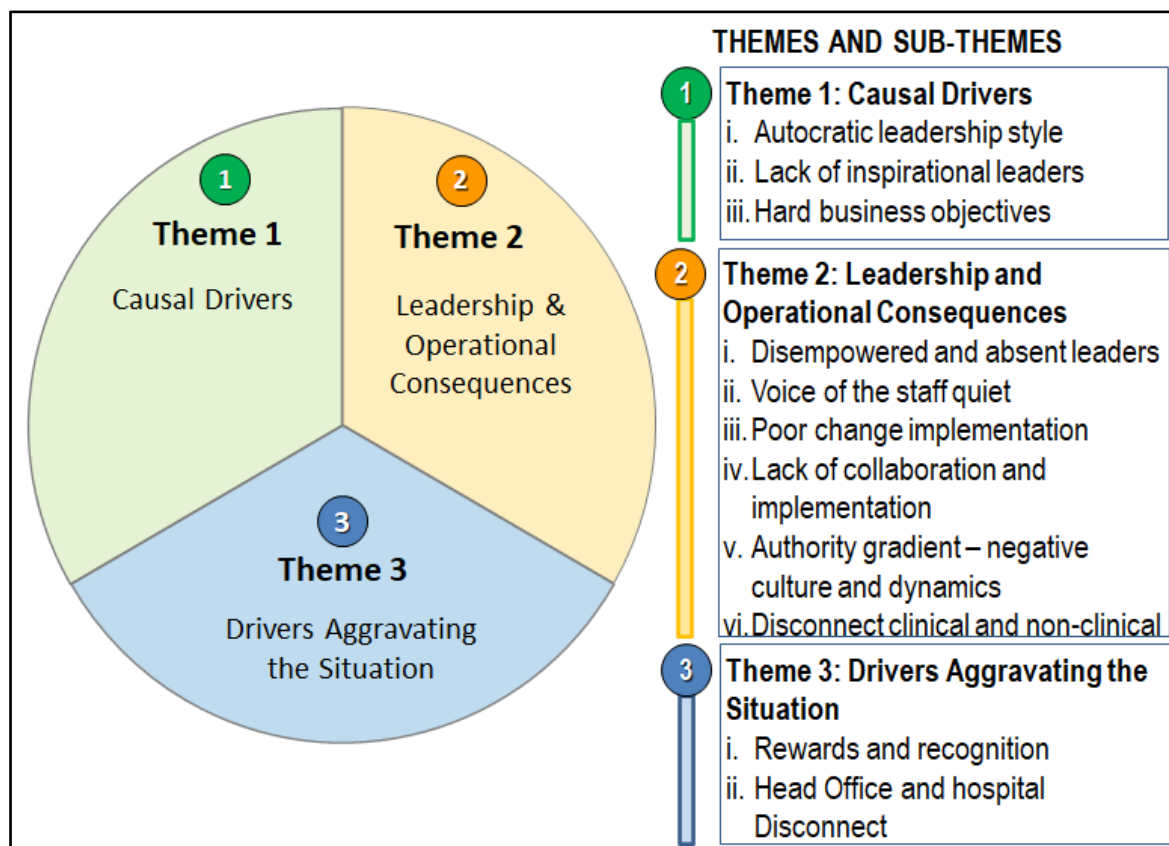
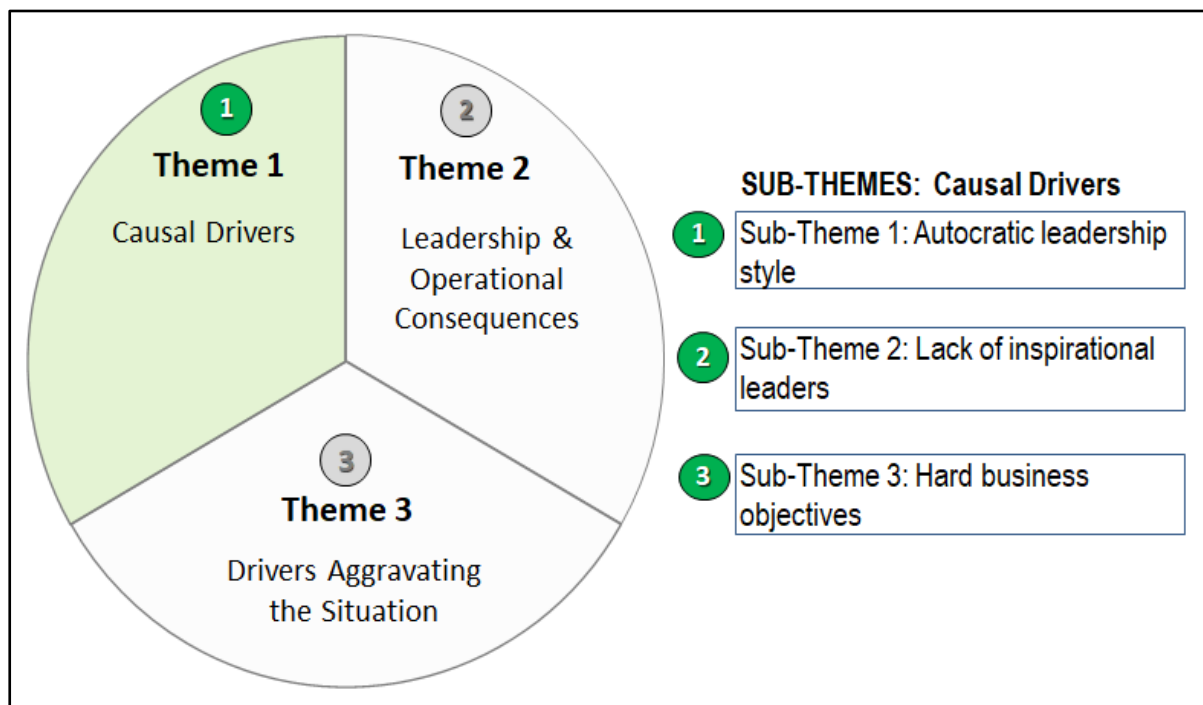


Figure 6.7 displays the three main themes and sub-themes related to RQ5. Although the semi-structured interview guide had eight sections answering RQ5, the combination of all the drivers explains the quantitative results.

6.3.3.1 Theme 1: The causal drivers causing the situation

Three sub-themes that were identified as drivers that resulted in the current situation of HDL and HOSS are displayed in Figure 6.8.

Figure 6.8: Theme 1: Causal factors



Each sub-theme will now be discussed separately.

Sub-theme 1.1: Autocratic hierarchical leadership style

Participants reported that the hospital groups' overall leadership approach was autocratic, hierarchical leadership since it is more important to be in charge than to lead. One participant reported that: "...[the] culture of the industry is hierarchical with limited opportunities to display leadership or provide input but rather to follow instructions" (Participant L).

The decisions of the head office are forcefully applied, and alternative views and input are not tolerated. Participants stated that managers give orders to team members without explanations. It is a command-and-control culture, as stated: "...in the hospital [where] I'm working, [the culture is] my way or the highway, and no one wants to listen and give a damn"

(Participant D) [and] “...[t]here is no bottom-up communication at all, rather top-down only” (Participant G).

Formalised top-down procedures and structures will benefit an organisation and achieve short-term success but prevent an organisation from attaining long-term agility with change and innovation (Felipe et al., 2017).

Although small changes occurred in the groups, the business approach has remained unchanged: “...in my 20 years, since 2000, it just seems to me there is no change. The group is a company that is not dynamic and does not want to change” (Participant D).

The head office micro-manages and favours certain hospitals and play hospitals in the group off against each other. Participants mentioned that only managers that will comply and not rock the boat would be employed. A common approach of organisations is to deal with complex environments by implementing order, discipline and hierarchical solutions. The perceived ideal approach to deal with complexity is to beat complexity with complexity (Boisot & McKelvey, 2011).

Participants stated that everything starts with the general and nursing services manager. For instance: “Leadership at the hospital level is determined with mainly the hospital manager and the way he/[she] manages the EXCO members” (Participant B) [and] “Unfortunately, a lot of people in my hospital have no regard for our hospital manager and our matron” (Participant D).

Several of the middle managers from a number of the hospital groups said that there are often bad relationships in the EXCO team. If the EXCO team members do not care for one another, the hospital employees will not care.

Sub-theme 1.2: Not enough inspiring leaders

Participants agreed that managers do not understand the importance of leadership, do not listen and speak to employees, and, therefore, employees do not know where they stand. Some participants stated that strong leadership is needed to implement HOSS, which contradicts other participants debating that leadership is not required if the implemented HOSS are well-established, namely: “...[if] somebody higher up tells you to do it, and you understand the consequences of it to be part of your job...you don't need leadership” (Participant M).

Managers do not display strong leadership. Therefore, employees lost faith in management. Participants reported that managers do not support employees, do not care for employees, and thus the hospital is not a happy workplace.

Managers mentioned that they received substantial training but were not allowed to apply the leadership principles that they learnt in training in the workplace, as it was not compatible with the leadership approach of the hospital general manager.

“[The hospital manager] limits all display of positive leadership...only hierarchical and autocratic display of leadership...does not help you go for leadership training if you cannot display it...the training is [then] useless” (Participant L).

Everyone agreed that the hospitals do not have enough inspiring leaders. However, change starts at the top with the general manager and nursing services manager. These roles impacted the EXCO and the culture of the hospital. Managers stated that clinical (and other) managers are selected because of their years of experience and age, not because they are excellent leaders. In other words, *“...then they say you've been a nurse for ten years...you ought to be a unit manager” (Participant O).*

Managers are indecisive, do not give guidance, do not lead and are absent. Managers are needed that understand the impact they have if they lead a team. They should then: *“...look at people with better leadership skills” (Participant D).* Inspirational managers are under so much pressure that they cannot find the time to display leadership; as one participant stated: *“...no time or space [is given] to develop or display leadership” (Participant L).*

The view of several participants was that the culture in the hospital was that management can be replaced easily. The current management wants to solve the challenges by forcing more rules and discipline on the employees, resulting in real (not appointed) leaders remaining hidden because they cannot lead.

Sub-theme 1.3: *Hard business objectives*

The participants in this study maintained that the primary focus of the hospital is that of making money and saving costs, not caring for the sick. General managers are rewarded for the number of patients in beds and not for the quality of care, since: *“...hospital managers are always chasing bums in beds” (Participant G).*

Often instructions are financial instructions without management realising the consequences. There are always the minimum employees on a shift, resulting in poor quality care and

constant pressure, “...instructions are sometimes [given] because of financial reasons without keeping in mind how my ward operates and what makes more sense operationally” (Participant A).

All participants agreed on the money focus, with the Administration Department reporting that there was constant pressure for them to collect money. The technical participants stated they do not have enough staff and equipment but need to deliver results. “You go to a management meeting at any hospital, and all they ever talk about is Rands and cents, not about the patient's experience” (Participant G). Non-clinical divisions are only regarded as an expense.

Because of staffing challenges, everyone is tired and negative and suffer from burnout. Therefore, managers only manage and do not provide any leadership. If the tasks are not completed, there is trouble. “...people are so overworked...do a benchmark of how many people are genuinely needed in a specific department...burn-out, you know, negativity and everything that goes with it” (Participant E).

Clinical managers are expected to run their divisions with incorrect acuity so as to ensure that the employees' expenses are lower, resulting in a low and incorrect number of clinical staff in relation to the needs of the patients in the department. “They literally have people in place to pull acuity down” (Participant G).

Patient acuity is defining the severity of the illness of a patient, specifically looking at the psychological and physical status, as well as the intensity of nursing that is needed for the status of the patient, combining the nursing care, corresponding workload and the complexity of care the patient requires (DeCosterd, Brennan, Bavaud, Ballabeni, & Eicher, 2019). Employees and middle management indicated in the interviews that they have little respect for senior management. The employees and middle management experience constant staffing shortages since senior management do not have respect or sympathy for employees, nor an understanding of the challenges on the floor (operational awareness of the practical daily realities).

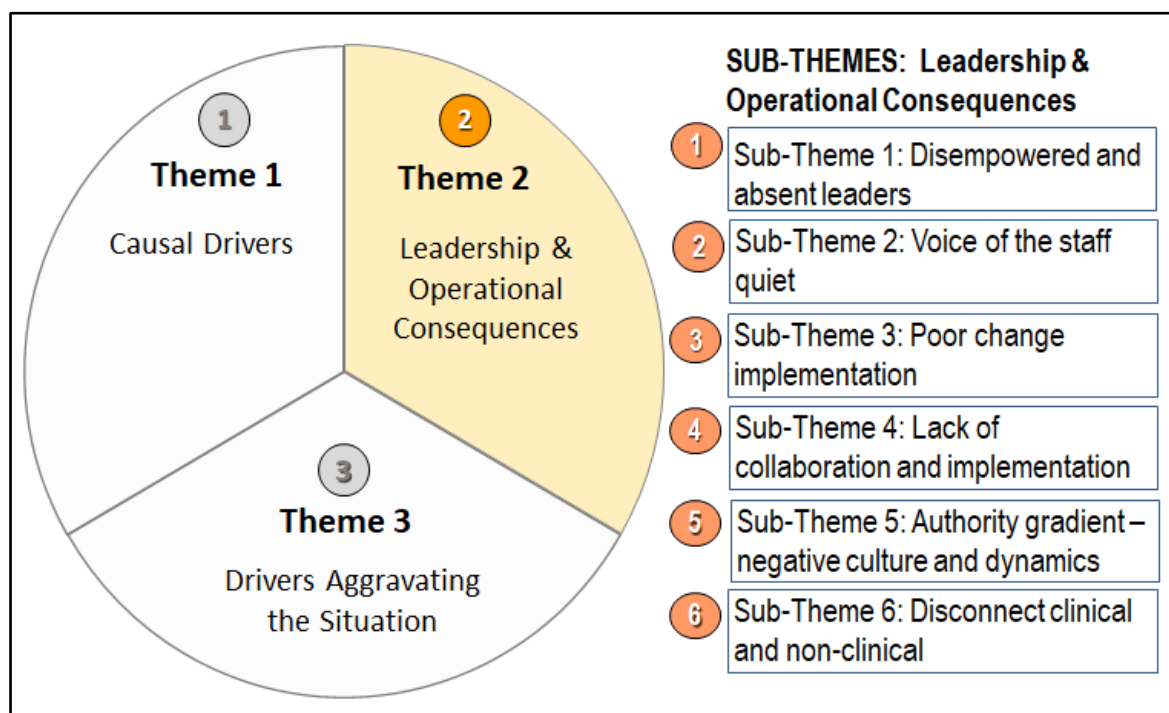
Nursing salaries are poor, and nurses do not feel appreciated. More than one participant mentioned that good nursing care is rewarded only with a cupcake, “...and if somebody does make it better for the patient, then we [management] will acknowledge that person and give him a cupcake” (Participant G). This view is aligned with that of Al Rahbi et al. (2017), who stated that having the opportunity to reward a team with non-financial rewards is an important way for managers to build trust.

Lastly, participants noted that the hard business objectives communicated from the head office, resulting in a constant money focus, the pressure to perform and bring money in. The hospital employees experience non-clinical people from head office to be office-bound and with a lack of understanding about the situation inside hospitals and to be only focused on profits and not on patients or hospital employees.

6.3.3.2 Theme 2: Leadership and operational consequences of the current situation

Six sub-themes were identified as the leadership and operational consequences resulting from the three causal factors listed under Theme 1, as displayed in Figure 6.9.

Figure 6.9: Theme 2: Leadership and operational consequences



Each sub-theme will now be discussed individually.

Sub-theme 2.1: Absent, disempowered leaders

Participants described hospital management as absent with self-interest and are not “on the ground”, not understanding the needs of the team and not getting results. *“You know people [managers] are not leaders – they just sit in their office and point to the people and tell them what to do”* (Participant D).

Absent leaders neglect workplace problems, lack communication skills, do not model appropriate workplace behaviour, avoid decisions, do not reward or punish, do not step in during conflict, never give feedback, abdicate responsibility and does not encourage personal

and professional growth (Campbell, 2020). Several hospital managers and nursing services managers were reported to be absent from the floor, stay in their offices all the time, and not engage their staff as leaders, although they are at work in person: “...employees feel that leadership is absent. They don't see them” (Participant H). Unfortunately, “...if you're an absent leader, then you aren't getting results” (Participant E). More than one participant mentioned that employees only see managers when something goes wrong since managers stay in their ‘safe zone’.

Managers mentioned that often middle and senior management teams are powerless, overpowered by EXCO, not allowed to implement initiatives, and do not have any authority to incentivise their teams. Managers have the challenge and responsibility to enable and position the people and the organisation to successfully engage the changing demands (Uhl-Bien & Arena, 2018). A technical manager reported that the authority of managers and of the disciplinary code is minimal. In other words, the rules overpower leadership. Managers are forced to treat all employees the same and have no freedom to make decisions. It was mentioned that at some hospitals: “...employees [belong to a] supervisory committee where the employees report the managers if they don't follow the letter of the law” (Participant B). This committee reports managers to EXCO since mistakes are not tolerated and managers are not empowered. Nurse managers have more responsibilities than authority (Combrinck, 2018).

Organisations that hold trust as a high-value experience 11 times greater innovation (LRN, 2016), and a lack of trust exists in an environment where there is a fear of poor performance (Obolensky, 2016). Non-clinical departments have a lower priority than nursing and do not feel valued because clinical generates the income, and non-clinical is regarded as an expense. Some non-clinical participants said that if the HOSS are implemented effectively, no management is needed. Accordingly, the low leadership value for non-clinical participants was not a concern for some participants. Clinical participants feel a lower level of non-clinical managers would be acceptable since no emergencies occur in non-clinical departments. Managers are often not selected for their leadership skills. As a consequence, leadership is often a disappointment to employees. A clinical participant commented that: “*The non-clinical people think that to implement a policy is the display of leadership successfully, and this is not [so]*” (Participant L).

Fourteen of the sixteen participants believed that most decisions were centralised and that decentralised or less centralised was not possible in healthcare, since “...this is part of the

industry and culture of hierarchy, and it will not change...Employees accept that is how it is, and they don't question the situation" (Participant L).

Participants stated that management became controllers, aiming only to implement the central decisions. Job satisfaction of team members declines with centralised structures since it results in more disempowered team members (Hartviksen et al., 2019). Clinical and non-clinical managers are negative because they have too many employees to supervise, are tired, and suffer from burnout because of the high employee turnover, staff shortages and lack of interest from management. Clinical participants maintained that clinical managers are appointed because of their age or years of experience and not because they have the best leadership abilities. People are promoted "...because of age...years of experience...you ought to be a unit manager" (Participant O). The result is managers that tick the boxes and don't focus on inspiring the team.

Three participants in specialised roles reported that when centralised decisions were made, they were not consulted and then had to implement an impractical incorrect solution. "*As a specialist in my field...I was never once consulted about anything*" (Participant F) [and] "*...not once, was I asked for any input on any XXX [process name been removed by researcher due to sensitivity to avoid identification of participant] processes*" (Participant H).

Only two participants had the view that it was possible to have decentralised decisions in healthcare. This will be discussed under the recommendations. Hospital management has no control over capital expenditure and other decisions. The head office believes this aligns all decisions with the group strategy, let employees feel safe, protects them from lawsuits, and releases managers to lead. In contrast, the hospitals' participants experienced centralised decision-making as disempowering, often impractical, and making them negative towards implementing something that does not add value. For an organisation to achieve adaptability, leadership needs to simultaneously engage organic decentralised structures to perform exploration and engage mechanistic centralised structures to achieve exploitation with the dynamic decoupling point called temporary decentralisation (Uhl-Bien & Arena, 2018).

Managers do not display inspiring leadership. Therefore, employees instead put their trust in HOSS. Employees experience the managers as absent and not protecting them, not being consistent in their decision-making, displaying favouritism, and showing disrespect for middle management.

Sub-theme 2.2: *The voice of the employees is quiet*

The voice of the employees has been quietened. All participants agreed employees (managers and non-managers) stopped contributing and giving their views and rather wait for instructions since their views were not being heard. The decision-making culture assumes employees do not have a contribution and that they can only implement the HOSS. If any managers make decisions or implement any initiatives, it gets criticised and punished. Good leaders talk to people, but employees and middle managers experience 'keep quiet and get to work', but it was felt by some of the participants that *"...they [nurses] should not be reprimanded because they want to say something"* (Participant J). In addition, participants stated that employees and managers were reprimanded when they had an opinion, especially if that opinion differed from those of the doctor or manager. It was safer to stay quiet, as one participant stated: *"...the minute you are making a decision, ... [they will] criticise you no matter what"* (Participant E).

It was mentioned that employees became incapacitated by paralysis of inaction or afraid to make a decision, since their ideas are disregarded and viewed as stupid, *"...the moment you don't give your employees a chance to give their input, and you take their decision-making skills away from them, you sort of paralyse them"* (Participant A).

There is a lack of service focus across all divisions, coupled with managers and employees who are tired due to employee shortages and the lack of interest from management, with the resulting *"...high employee turnover [due to the] lack of interest from management"* (Participant F). This is in accordance with Green et al. (2017), who stated that organisations with big hierarchical differences would have negative relationships. Accordingly, people will avoid conflict by keeping quiet.

Participants noted that employees in the hospital could potentially be brilliant managers and are shut out because of centralised decision-making. Managers decide, and employees must simply follow the instruction and implement them. Participants stated that the hospital is a very hostile working environment that is not inspirational, very structured and very disempowering. Employees (managers and non-managers) do not feel cared for. Trust and transparency are low, leading to low employee morale. Nursing employees do most of the implementations, but they cannot question the processes or contribute. Employees and managers are often scared of their management but have no alternatives.

Sub-theme 2.3: Poor change implementation

The implementation of HOSS has positive and negative consequences. HOSS provide stability and continuity, protects the employees, can be audited. Therefore, team members much rather trust the agreed HOSS than the managers. Several participants reported that strongly implemented HOSS makes it easier and not disruptive to replace managers. *“If a manager resigns today...next week we’ll have a new person...because the hospital is an oiled machine...a leader[manager] is not an irreplaceable person”* (Participant C).

It was suggested that the management team used instructions from head office as an excuse not to engage employees and explain decisions. HOSS is regarded as the law and a disciplinary tool, forcing managers to be controllers, only focusing on implementing HOSS.

Most of the participants were of the view that many of the hospital changes are planned and scheduled. However, by the time the final implementation occurs, the process is rushed, and then there is no time for discussions or consultations about implementation. As one participant stated: *“...scheduled implementation, where it’s a long-term planning...and then like bang [and] then you have to implement it...it’s a quick implementation”* (Participant K).

Autocratic structures always push for control (Uhl-Bien & Arena, 2017). Some participants indicated that quick changes are often reversed or changed again, which creates further confusion since the instruction would be: *“...crisis change with immediate effect...and then the next thing it changes...feels like there is not a long-term goal”* (Participant H).

The participants were divided on whether a quick change or scheduled change was the best approach. The majority view was that both processes have value, but communication with the employees makes the difference. *“It comes back to communication”* (Participant H) [and there is a need for] *“...more transparency from the corporate level to the hospital level with regards to why they make decisions”* (Participant J).

Poor change implementation of HOSS makes employees negative. Change implementation is self-preservation, resulting in employees focusing more on the paperwork than the patient, namely: *“...employees often nurse their paperwork more than their patient”* (Participant G). *“People are so worried about papers and about paperwork, that we are not looking at our patients ...I am nursing a file”* (Participant J).

Several middle management participants complained about the administrative responsibilities that do not impact patient care but result in the management team having no capacity to lead,

no work-life balance, resulting in negativity that spilt over to others. This view is supported by Combrinck (2018), indicating that work overload impacts negatively on nurses well-being

Participants stated that management assumes that the successful implementation of HOSS means all is well at the hospital, which is not the truth. *“...And if the policies are fulfilled, they [management] assume that everything is going well within the wards environment”* (Participant B). If something goes wrong with the implementation, the employees (not the head office) must find a solution, even if the error originated from the head office plan.

Sub-theme 2.4: *Lack of collaboration and communication*

Participants acknowledged that communication is poor; employees' opinions are not sought or asked; decisions are not explained, or the explanation is that it is a directive from head office. The collaboration in a hospital starts with the general manager and the nursing services manager, their culture, and whether they know their employees and walk through the hospital – all of this *“...depends on the leadership of the hospital manager”* (Participant B).

Arrogance and rivalry between departments and specialised units negatively impact any collaboration. The only contact between departments is the factual handover of patients, with no sharing or attitude of working together in place. Some participants reported that management plays the departments off against one another to create competition, with a divide and conquer approach, *“...they will trade them [the departments] off [against each other]”* (Participant G).

In these specific hospitals, no collaboration between departments existed. When collaboration exists, it is because middle management is building relationships across departments. All participants noted that collaboration between hospitals in the same group is not promoted. Some collaboration does occur with senior employees (general manager and financial manager) meeting monthly at head office to discuss budgets. In addition, collaboration regarding the sharing of pharmacy stock, technical stock, or industrial relations assistance does exist. Some head offices promote collaboration, but *“...the group [head office] often play hospitals off against one another. They call it healthy competition”* (Participant G).

This type of collaboration is mostly due to individual initiatives and not hospital management. The Deloitte Global Human Capital Trends Report states that, in the past two years, the most important trend identified has been the replacing all through organisations of hierarchies with a network of collaborative cross-functional small teams from the C-level, where functional managers collaborate at all levels in groups on specific projects (Abbatiello et al., 2018).

All participants reported that collaboration between hospitals of different groups hardly ever occurs. It was, however, mentioned that participants might not be aware of such collaboration. The groups only collaborate at the macro level when they have negotiations with the South African Department of Health or with medical schemes around funder agreements. However, collaboration does occur between hospitals of different groups, but at the specialist level, for example, within the teams of supply chain, specialist wound care, case management, and specialist pharmacists. Collaboration is not driven by management but by individuals “...lots of the time behind the scenes, you know, we help each other out” (Participant N).

Inter-hospital forums, such as the Case Management Association, do exist. Collaboration between hospitals in different hospital groups is imperative for the sector to exchange new findings in the field and position the field for success (Rahimnia & Moghadasian, 2010).

All participants agreed that collaboration within a hospital and between the same groups' hospitals was important and had to be promoted by the Group. There were, however, mixed views on whether collaboration between groups is important, since the general view was that the competition between groups had more value. Networking inside hospitals is important, since managers must display a high level of collaboration during the adaptive process to improve information sharing and network internally and externally by bringing people together to solve problems, work on projects and break down resistance to change (Uhl-Bien & Arena, 2018). The focus for healthcare providers is not to be standalone entities anymore, but to collaborate with customers, suppliers and even competitors to create networks that add value for all (Tolf, 2017)

Sub-theme 2.5: Authority gradient with negative culture and dynamics

More than one participant mentioned that doctors form part of the centralised decision-making culture. It is not tolerated for employees, including middle management, to question managers or doctors. Examples were provided of nursing employees that questioned doctors and then were disciplined and lost their jobs. Please refer to Section 2.2.6 for more details on the authority gradient. Senior management at the hospital does not protect the nurses and middle management, even if they follow the policies and procedures. The general view is: “*It's easy to replace middle management*” (Participant G).

The doctor is always placed first. Participants stated that doctors are permitted to speak down to employees in a disrespectful way and that this is accepted since management always takes the side of the doctors. In one instance: “...*an ICU nurse was fired because she told the doctor that it was unacceptable to...*” (Participant G).

An employee with a masters degree complained about the way the doctor spoke to her team, and the reply from head office was: “...*she must shut up, we can replace her quickly, but not the doctor*” (Participant G).

This view of participants is aligned with the literature on the topic that indicates that, historically, doctors and specialists all have a steep authority gradient culture (Green et al., 2017). Professional dominance hampers the development of distributed leadership in hospitals (Nzinga et al., 2018), leading to a negative culture and dynamics between employees and managers.

Participants described nurses as having a bad attitude and being unhappy and negative. Clinical participants mentioned that some nurses specialise, whereas non-clinical employees often regard the hospital as a stepping-stone. Employees felt forced to work; work only for their pay, resulting in low employee morale and unhappy employees.

Leadership training does not help if leadership remains hidden and cannot be displayed. Some participants said employees just had to change their attitude. However, others noted the poor attitude is from management being personal, subjective and not inspiring. Employees do not buy into the implementations with the result of a failure. Adaptive organisations need paradoxical leadership, finding a balance between sound analysis and quick decision, decentralised and centralised decision-making, and bureaucracy and innovation (Janssen & van der Voort, 2020).

Several participants noted that the hospital is not ready to work with the new generation of workers and managers that are undisciplined, with high political power and little understanding of actions and their consequences, and felt that: “...*the political power that's been given to the workers must [be] reduce[d]*” (Participant B).

These workers and managers have a culture of working only to get paid and feel that their salaries are low. It is difficult to implement new ideas since they will only do the minimum as stipulated in their job description. These groups often push political agendas, and there are there some managers that are regarded by employees as political appointments and not appointments because of knowledge and skill. Several managers in the sample have the view that the only way to deal with the poor discipline of the new generation of workers is to implement more discipline and more controls. This view contradicts literature that states for an organisation to achieve a balance between exploration (entrepreneurial leadership and agile) and exploitation (operational leadership and lean), a framework of discipline, stretch and trust must exist (O'Reilly III & Tushman, 2013).

Sub-theme 2.6: *Disconnect clinical and non-clinical*

Looking specifically at the clinical group, clinical participants felt that the results displayed the communication and teamwork essential to the dynamics of clinical departments. Teams, where the manager maintains open communication, have high levels of trust internally (Le & Lei, 2018); however, if there is a fear of performance, there is a lack of trust (Obolensky, 2016).

Non-clinical participants mentioned that clinical teams are very negative, since they have too many junior employees to supervise, feel forced to work, have a bad ‘do-not-care’ attitude. They seem to always be unhappy, resulting in a culture where they only work for their salary with low employee morale. The view of some participants was that clinical employees had time to display leadership since their job ends when they go home, whereas non-clinical (specifically administrative employees) often have to take work home “...*if you haven't finished your job, it continues tomorrow...*” (Participant E).

It was interesting to note that the clinical participants had the view the non-clinical teams were problematic, and the non-clinical participants had the view that the clinical teams were problematic. It seemed that no specific group was prepared to take ownership of the specific issues in their group.

Although non-clinical participants were of the view that their areas are managed better, they also mentioned that because there are not enough employees, window-dressing of job cards are done. “*A lot of window dressing is done for the audits...if the auditor walks in there is a full set of files to audit, but it is not a true reflection of the truth*” (Participant B).

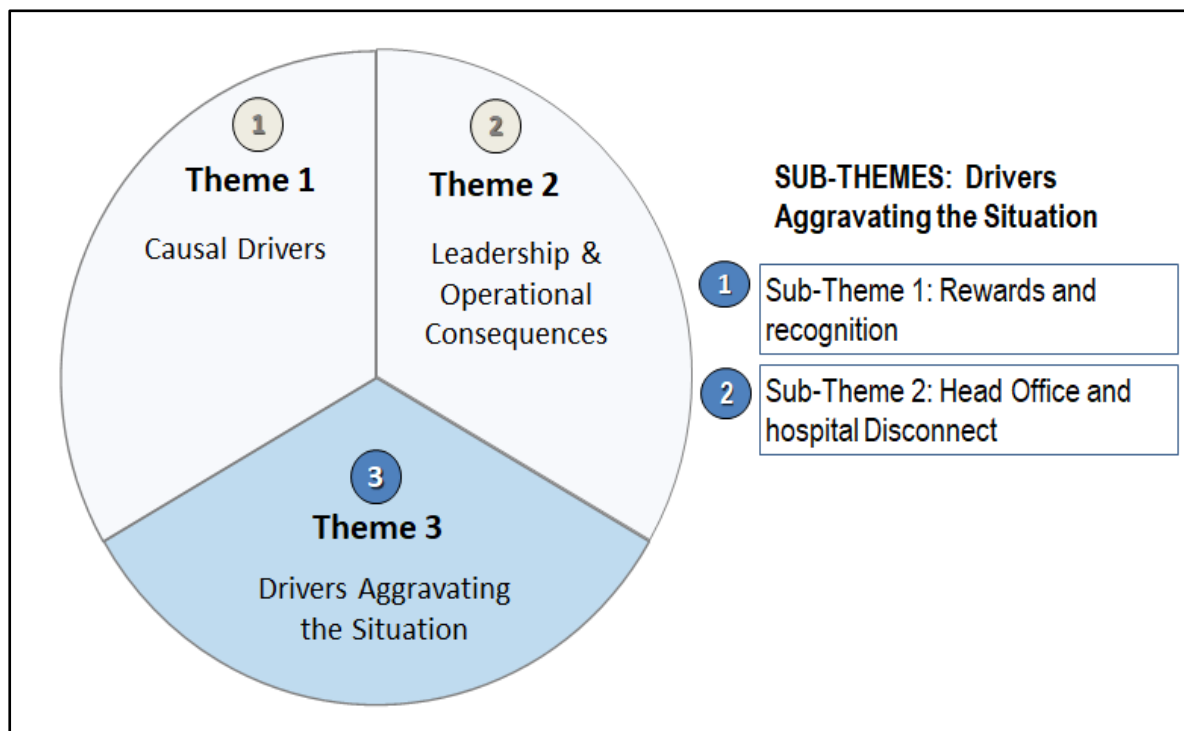
Participants confirmed that the clinical and non-clinical departments are two different entities, often managed as silos with little integration. Communication between these teams are mostly instructions and forced purposeful communication. Participants shared the view that strong leadership is displayed in the clinical teams because of direct patient involvement, since patients and visitors complain easily, whereas non-clinical do not need strong leadership. Clinical departments are driven by policies and procedures and are people-driven, setting the example with teamwork and communication. Non-clinical employees believe the clinical employees have time to display leadership because their job ends when they go home, whereas clinical holds that non-clinical policies and procedures are clear, standardised, easier to implement, and they have no emergencies. Accordingly, no leadership or a lower level of leadership becomes acceptable in these divisions.

Participants from the clinical and non-clinical groups agreed that HDL does not get rewarded. The disconnect between clinical and non-clinical is a big concern for all participants since it is a clear indication of the divide that exists and the silo management styles. It was stated that there is a clear need to: “...*increase the understanding that the two departments [clinical and non-clinical] have of one another*” (Participant C).

6.3.3.3 Theme 3: Drivers aggravating the situation / promotes the decline

The two sub-themes that aggravate the current situation are rewards and recognition and the disconnect between head office and the hospital. These two aggravating factors are displayed in Figure 6.10.

Figure 6.10: Theme 3: Drivers aggravating the situation



Each sub-theme will now be discussed separately.

Sub-theme 3.1: Rewards and recognition

Following the agreed HOSS is the only activity in the hospital that has value and gets rewarded. It was felt that: “...*leadership does not get rewarded at all. Promotion is only for people that had success in policies and procedures*” (Participant L).

The policies are mostly clear, provide certainty to managers and employees and can guide the hospital not to fail an audit. The impact of the HOSS and HDL are different for managers

and non-managers because of the way the general manager and nursing services manager run the hospital, senior management overpowering middle management, lack of authority that managers have, low importance placed on leadership, poor communication, low employee morale, managers not understanding the new generation of workers and the belief that the successful implementation of HOSS is the only action that gets rewarded.

Within the constrained relationship and the differences between the two groups, the one constant is that HOSS is regarded as law. Centralised decision-making increases the command and control within an organisation (Uhl-Bien & Arena, 2018) and occurs when senior management makes all the decisions and lower-end employees merely follow the instructions (Balu, 2018). Employees are therefore rewarded for implementing HOSS but not rewarded for the display of leadership.

Participants agreed that the processes that are applied for rewards and recognition fuel the negative situation. Because it is easier to implement, measure and reward the implementation of HOSS, employees and managers do not get rewarded for the display of good leadership. If HOSS were not followed, the consequences would be severe since errors are not tolerated but punished. Employees, especially middle and senior management, have no work-life balance since they have extensive administrative work that is always taken home since that is what gets rewarded. Nursing employees feel that the nursing salaries are poor, and if they did a good job, they only get rewarded with a cupcake. Therefore, no real rewards exist. Employees are not empowered to believe in themselves and no longer take the initiative. Employees often 'nurse' policies, procedures, and paperwork more than the patient since written proof has more power in court and, therefore, receives more focus in a hospital than the display of leadership. Because the focus is on policies, the window dressing of job cards occurs.

Sub-theme 3.2: Head office and hospital disconnect

A clear disconnect emerged between the view of the head office and the view of the hospital-employed participants on the effect of change. Details of the disconnect are displayed in Table 6.22, where the opinions of hospital employees are directly contrasted with the opinions obtained from head office employees. All well-intended initiatives from the head office are always regarded in a negative light by employees.

Table 6.22: Disconnect between head office and hospital

Head office	Hospital
Always a representative with any new implementation, therefore, the hospital employees are comfortable with all new implementations	Never a representative and they are forced to accept whatever the process from the head office is
Change is planned to ensure there is enough time for the hospital employees to get used to the suggested change	By the time the new implementation gets to the hospital the timelines are always tight, and there is not enough time for change management
Feel the decentralised process is risky for a hospital and therefore does the centralised processes protect all employees	Feel the centralised processes are disempowering and do not allow them to apply their knowledge and more decentralised is better
Has the view the general manager has the final say in how the process of implementation will apply	Has the view that they must implement whether it makes practical or operational sense or is clinically correct or not
Feels management at the hospitals are doing a good job	Feels management at the hospitals are autocratic and absent
Feels there is a natural level of respect between nurses and doctor and that is the reason why nurses display less leadership when a doctor is around	Feels the hospital management supports the doctors to be autocratic and disrespectful and does not support clinical management, even if the doctor was wrong
All procurement is done centrally so the managers at the hospital can focus on leading	Procurement is done centrally because head office want to disempower the hospitals
Decisions are made centrally to ensure it is aligned with the bigger group strategy	Decisions are made centrally as head office do not want to empower the hospitals
There is a clinical team at the head office that evaluate all clinical operational systems and structures before implementation	The head office does not understand the world in the hospital as some suggested operational systems and structures are not clinically correct
Because policies and procedures are implemented things are going well in the hospitals	If policies and procedures are successfully implemented, it does not mean all is well at the hospital
The strict policies and procedures protect the company, keep employees safe and provide direction and certainty	The strict policies disempower employees with the result that they do not contribute at all and not initiative displayed
The group is at the forefront of new developments in the industry	Although small changes happen in the group, nothing of the essentials, for example, leadership approach, changed in the past 20 years.
The leadership dynamics in the group is good	The head office micro-manages the hospitals, have favourites, and plays the hospitals off against one another
	Feels head office only appoint managers that will comply and not rock the boat.
	The head office will be shocked at how bad the relationship is between clinical and non-clinical and how big the disconnect is

It is evident that the disconnect between head office and the hospitals is significant.

RQ5 (Understanding what the drivers are that contributed to the quantitative results?) has highlighted that the quantitative findings are mainly the result of the autocratic, hierarchical leadership style that exists in the hospitals, the lack of inspiring leaders and the hard business objectives that are followed. This result then leads to significant leadership and operational consequences for the hospitals with disempowered, absent leaders, the voice of the employees that are quiet, poor change implementation, a lack of collaboration and communication, a steep authority gradient, and a disconnect between clinical and non-clinical. These aspects are subsequently made worse by the rewards and recognition approach and the disconnect between the head offices and the hospitals of the different groups.

6.3.4 Discussion of RQ6

RQ6 What are the recommendations by employees (managers and non-managers) for possible HDL and HOSS changes in private hospitals in South Africa?

During the data analysis, three themes emerged specifically relating to RQ6, and each of these themes had several sub-themes. The themes and sub-themes related to RQ6 are displayed in Figure 6.11.

Figure 6.11: Themes and sub-themes relating to RQ6

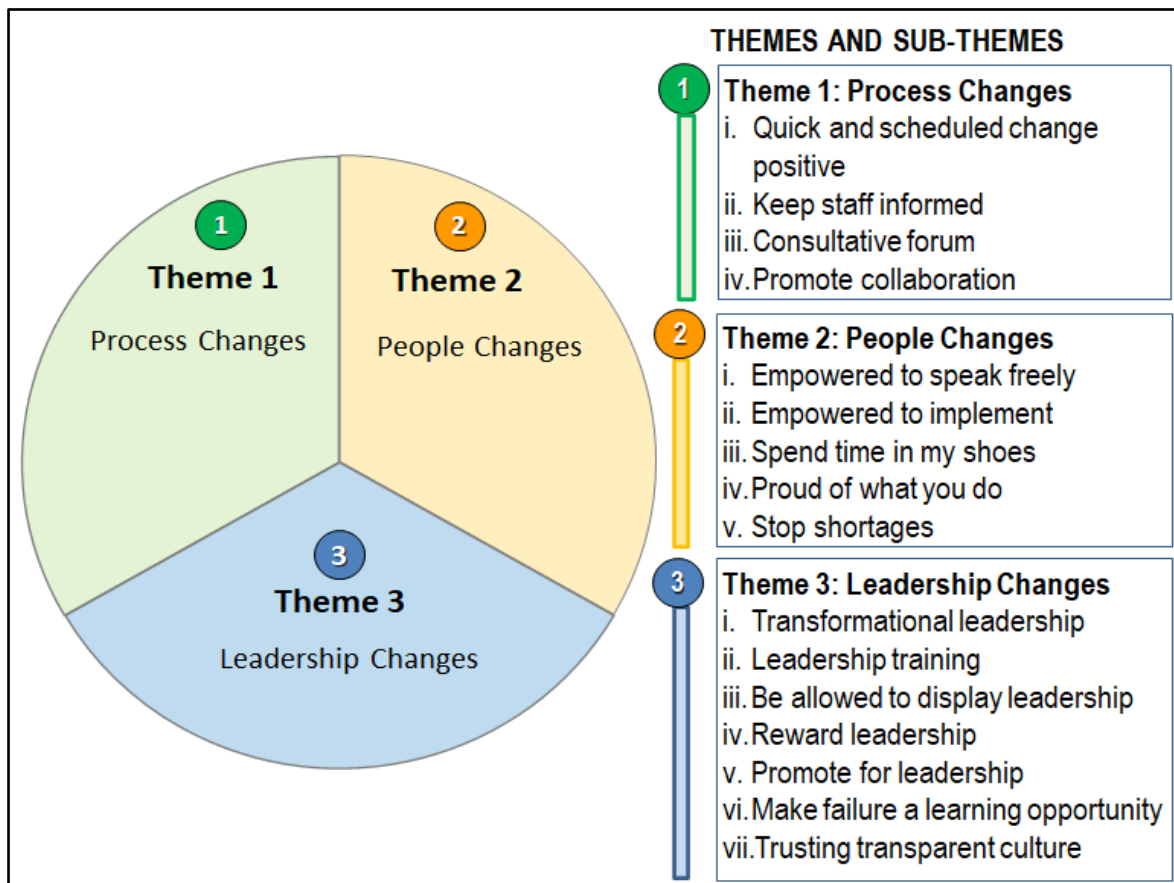


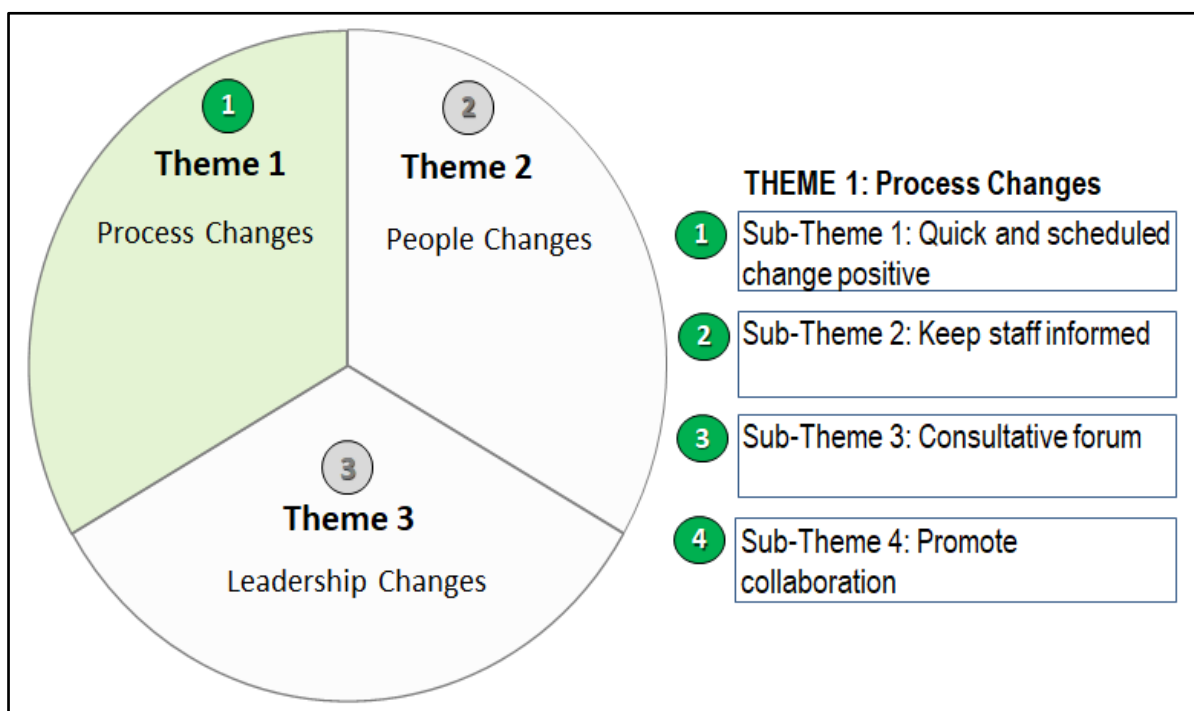
Figure 6.11 displays the three main themes and sub-themes related to RQ6. A combination of all three themes reflects the recommendations of the participants. The three separate themes and sub-themes will now be discussed.

For a hospital to accept change, the readiness of the hospital or department needs to be determined (Vaishnavi & Suresh, 2020). Readiness can be increased by keeping meetings with employees regular, frequently collecting feedback from employees and patients and evaluating the feedback. Additionally, providing employees comprehensive guidance during the execution of processes, building a culture of trust that considers diversity, and maintaining a clear understanding of the policies that impact the employees, especially around job security, also increases readiness (Vaishnavi & Suresh, 2020).

6.3.4.1 Theme 1: Process changes

Four sub-themes were identified as suggested ways in which processes should change in the hospital. The four sub-themes of Theme 1 are displayed in Figure 6.12.

Figure 6.12: Theme 1: Process changes



A decentralised, participatory approach is regarded as risky and is not encouraged in most hospitals. However, there are hospitals where most implementations of policies and procedures are done in a decentralised, participatory manner, whether clinical or non-clinical. The key is to explain to the employees and not force them, namely that: "...leadership

[management] *puts themselves in the shoes of the employees...just by first giving them the reason...*" (Participant P).

Only two participants had the view that it was possible to have decentralised decision-making in healthcare. Both participants agreed there would always be centralised decision-making, but it could be less often if management were committed to changing the way in which they implement change. The participants, therefore, agreed that a combination of quick change and planned scheduled change would be ideal in the hospital.

It takes a secure manager to ask for input and accept comments. These hospitals have a consultative forum with a representative (not the manager) from each department that provides input and filters decisions up or down, with: *"...each department [has] got somebody who represents them at a consultative forum whereby you tell your representative what you think as important, and then your representative will present your view"* (Participant L) [and to] *"...ask their opinion...how [they] think we should go about and each and everyone has a chance to say something... your representative will act on your behalf...sit down with management...then at the end of the session...does not compromise either side"* (Participant P).

The consultative forum must customise the policies and procedures following the input from the employees to have the forum aligned with the hospital culture and structure. A consultative forum creates an adaptive space where positive tension is created between innovative ideas and the business's operations (Schulze & Pinkow, 2020). The adaptive space indicates the degrees of freedom in an organisation to share openly (Arena, 2019).

Participants agreed that employees must understand the reasons for the change. If scheduled change is done correctly, employees will have enough time to ask questions, adapt and have a positive experience. Any plan must have activities that promote employees' readiness, such as regular meetings, feedback sessions and guidance (Vaishnavi & Suresh, 2020). As a participant stated:

"...people get prepared for it...you don't do it overnight. You plan. You introduce them...you get to tell them the reasons why implementation is needed...you bring them into implementation...make them see all those good reasons..." (Participant P).

Participants agreed that the key is, therefore, not the type of change but how employees are engaged. Implementations must instil trust, transparency, and open communication (Le & Lei,

2018; LRN, 2016). If HOSS does not work, managers must display leadership by changing it. Even non-clinical employees need managers to guide them if the policy is not sufficiently detailed or informative. But this could result where: *“...if you lead them leaning on the policies and procedures...you can find yourself in a situation whereby a policy does not exist or is not refined”* (Participant P).

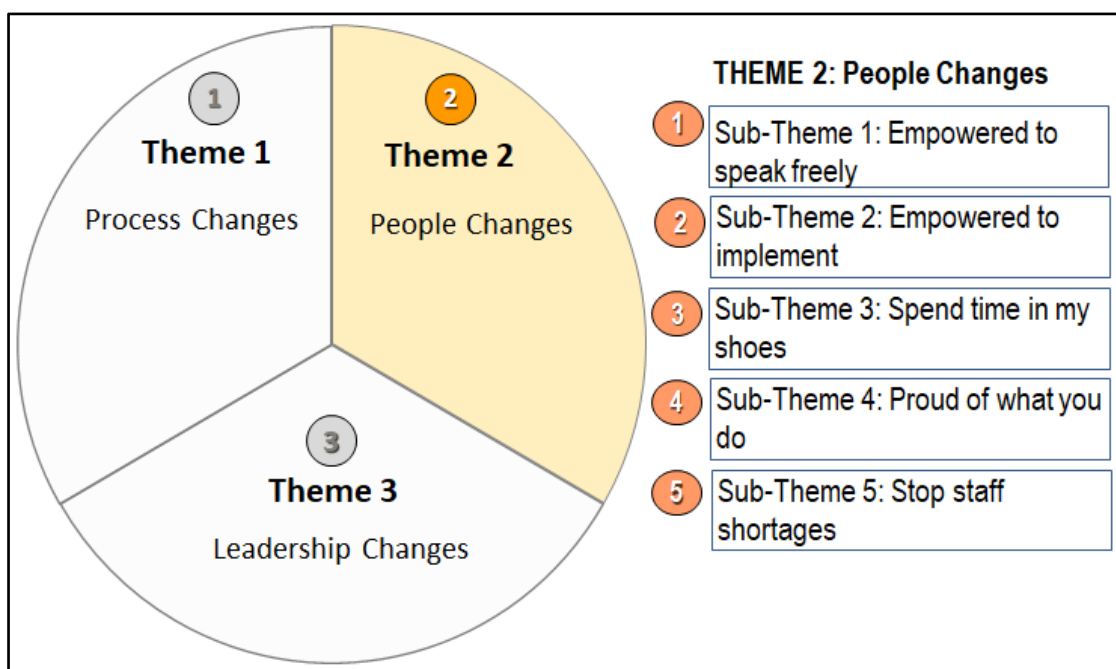
Quick implementations are often a display of better leadership and can lead to more innovation if planned and structured. Transformational leadership that empowers employees leads to increased levels of innovation (Marion et al., 2016)

Networking is vital during the adaptive process to improve information sharing and to network internally and externally by bringing people together to solve problems, work on projects and break down resistance to change (Uhl-Bien & Arena, 2018). The focus for healthcare providers is not to be standalone entities anymore but to collaborate with customers, suppliers and even competitors to create networks that add value for all (Tolf, 2017). Management also needs to promote collaboration within the hospital departments and between hospitals in the Group. Accordingly, *“...hospitals in the same group...the relationship of being in the same company in the region...plays a very big role in accomplishing things”* (Participant P).

6.3.4.2 Theme 2: People changes

The five sub-themes that were identified as the people changes needed in the hospitals are displayed in Figure 6.13.

Figure 6.13: Theme 2: People changes



The suggested people changes are all about empowering employees to achieve their full potential again, since *“...if you've got happy employees...[you] can actually move mountains...you will be successful”* (Participant E).

Leadership styles can inspire teams and have positive results (Campbell, 2020) with transformational leaders that motivate and inspire teams to accept challenges and perform at a high level (Bass & Riggio, 2006). Employees must feel appreciated, supported and receive recognition if they did well in their day-to-day job. Management and employees must have a customer service focus, which means staff shortages needs to be resolved.

If employees have a voice, and if it is heard, they will be less negative. Participants agreed that all employees want to know they have the right to say something, be allowed to do so and that their opinions matter. Employees must always be motivated to give their view, voice their concerns, and know their view has value (Green et al., 2017). If there is a lack of trust, someone presenting a novel idea will be perceived as incompetent, and the idea abruptly dismissed; sharing of ideas will not occur, and all will become silent (Perry-Smith & Mannucci, 2017). So there is an obvious need in hospitals of *“...a culture where nurses are able to speak freely, express their opinions freely...”* (Participant J).

Employees often have poor self-esteem and, therefore, do not begin implementing the policies and procedures until an instruction is received. Management has the ability to empower employees with the purpose of change (Marion et al., 2016). Everyone must get responsibilities and the opportunity to lead.

“...I gave the enrolled nurse assistant a responsibility that is only hers, and she does it well. It makes her proud of that little bit of responsibility I have given her. So, she takes pride in her work. She is now also in a leadership role. She takes leadership of the equipment” (Participant A) [and] *“...people are not empowered...When responsibilities are given to them, they still think the leader [manager] must come and say something for it to work”* (Participant P).

A head office participant suggested that head-office employees and non-clinical employees should spend time in clinical areas to understand the core business of the hospital. As was stated by participants:

“If you are not going to do my job, it does not mean you don't need to understand my world...” (Participant N) [and] *“...you cannot understand what somebody is going through... if you haven't walked a mile in their shoes...so as part of*

orientation...you have to literally spend a day as a typical janitor...or nurse...or patient relationship manager in the hospital to really get an understanding of what the job entails” (Participant N).

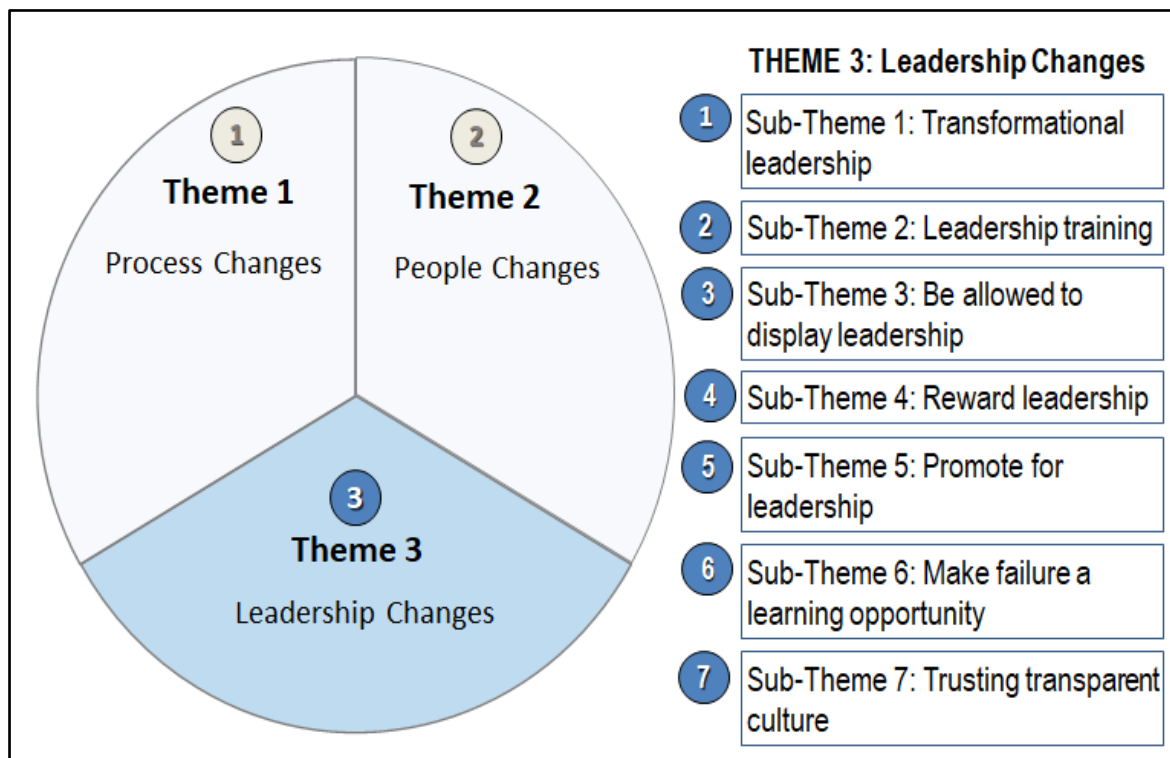
Hospital employees, and more specifically, nurses, must learn that they can be proud of being a nurse and of what they do. As was stated: *“We don't pride ourselves as nurses...we should pride ourselves in work and really uphold our profession in such a way because no one can do what nurses can do... I can take my hat off to them” (Participant O).*

A general finding on the people changes that are needed centres around the impact of severe staff shortages in the clinical and non-clinical teams. “...you need to stop staff shortages in the hospital” (Participant E). Often the managers have to perform day to day duties to fill in for the staff shortages: *“I work with my staff to fully fill the shortage on the floor” (Participant B),* impacting on their availability to get to the management duties they need to perform.

6.3.4.3 Theme 3: Leadership changes

The suggested leadership changes that will impact HDL and HOSS is displayed in Figure 6.14.

Figure 6.14: Theme 3: Leadership changes



All the participants agreed that the leadership of the hospitals had to change. Participants suggested that hospitals had to employ a different type of manager that is not hierarchical and autocratic, but that understands transformational leadership principles, “... *where [we] deal with a vulnerable person, where you basically in a position of power against that person! Looking after them is where we have to show leadership, compassion*” (Participant N).

Managers must understand the frustrations of the team and promote teamwork and cooperation between the clinical and non-clinical teams. Managers must empower employees to participate without compromising the patient experience. Management must develop employees' confidence to speak and change the culture for all to talk freely and express concerns. The employees' voice is an important factor in healthcare success (Al Rahbi et al., 2017). But as one participant stated: “...*management doesn't listen to us or ask our view*” (Participant A).

The values of trust, honesty and self-respect must be prioritised with a no-blame approach that celebrates the contribution of individuals who speak, and where every mistake or failure is a learning opportunity, for business to create a transparent, trust culture (Chatfield et al., 2017).

The management of the hospitals must be empowered to become motivational leaders that lead by example, rather than just being managers.

“They must go to formal training, sit down and learn what leadership is, they should know... [but] put them...not just with nurses, but put them in other environments with competing leaders that think critically, that think for the future that thinks outside of the box...something stimulating?” (Participant O).

Participants agreed that managers must be allowed to display the leadership they were taught. Therefore, the management change must occur top-down. Awareness must be created of the importance of leadership, and leadership value must be acknowledged, namely that: “...*the leadership impact should also be brought up...*” (Participant P).

Managers must be allowed to have a flexible decision-making approach. A good manager is a flexible leader that can meet the needs of the team. For complex adaptive systems, adaptability, flexible, and interactive structures must be implemented, rather than strict, hierarchical, bureaucratic structures (Baltaci & Balci, 2017). Good managers lead by example, communicate with the team and has relationships with everyone in the team.

Leadership needs to be rewarded, and managers must feel proud of the leadership they display, but as a participant stated: “...*leadership does not get rewarded at all*” (Participant L).

Managers must be open to daily growth and development and must have a customer focus in everything they do. Managers must not be promoted because of age or years of experience but because of their leadership ability.

A few participants noted that getting the authority back in the hospital is part of the solution. However, this contrasts with the view of the majority of the participants, who stated that autocratic hierarchical leadership is not conducive for growth and a positive working environment. More transparency is needed from the corporate office on why specific policies and procedures are implemented.

During the COVID-19 pandemic, a different type of positive caring, empathetic inspirational leadership was displayed in some hospitals.

“It [COVID-19] had a positive effect on the hospital as it was less hierarchical and more human...less of a disconnect from head office, more communication, more relationship building between doctors, head office and employees... fewer egos involved and more caring...more understanding” (Participant L).

It can be concluded that some hospitals did pull together with a more human, caring approach between all employees and the head office.

Therefore, the answer to RQ6 is that process changes, people changes, and leadership changes are needed in the hospital. The process changes are the quick and planned implementations that can be successful depending on how it is implemented, employees must be kept informed, a consultative forum is needed, and collaboration must be promoted. The people changes are that employees must be empowered to speak freely and to implement change. Non-clinical and head office employees must spend a day in the shoes of the hospital and clinical employees. The required leadership changes are that hospital leadership must become transformational leaders through leadership training. Furthermore, managers and leaders must be allowed to display leadership, and the demonstrated leadership must be rewarded, as well as managers promoted for being good leaders. Additionally, failure must become a learning opportunity through a culture of trust and transparency.

6.3.5 Discussion of RQ7

RQ7 What is the participants' experience of the impact the COVID-19 pandemic had on HDL and HOSS in private hospitals in South Africa?

The first COVID-19 case was diagnosed in South Africa on 6 March 2020, and the first death occurred on 27 March 2020. However, the hospitals started to prepare for COVID-19 early in February. National lockdown level five was implemented on 27 March 2020. The first survey for the quantitative phase of this study was completed on 8 December 2019, and 37% of the surveys were completed by 29 February 2020. When the study was planned, COVID-19 did not exist, and it was not identified as an extraneous variable at the time, complicating the research. The most significant percentage of surveys (63%) were completed during the first wave of national lockdown when the hospitals experienced extensive challenges resulting from the COVID-19 pandemic and witnessed the leadership change that occurred during COVID-19. The seventh research question is, therefore, answered by the third section of the interview guideline.

As an extraneous variable, did the COVID-19 pandemic have an impact on the hospitals that participated in the direct sample, as well as the number of participants that agreed to participate in the LinkedIn sample. On interaction with the participants in the quantitative sample, was it evident that the pandemic had a significant impact on the dynamics and experience of employees in the hospital at the time. A COVID-19 question was therefore included in the qualitative guideline. The participants were asked what the leadership changes were that they experienced as a result of COVID-19 and whether these changes were positive or negative. Two clear themes emerged during the data analysis relating to the COVID-19 pandemic. About half of the participants experiencing the HDL and HOSS were very positive, and about half of the participants experienced it very negatively. These diverse views were mainly the result of the manner in which senior management engaged the pandemic in the hospital. Please note no researcher intervention was performed, and these two diverse themes were a natural development. These two themes and sub-themes are displayed in Figure 6.15

Figure 6.15: Themes and sub-themes relating to RQ7

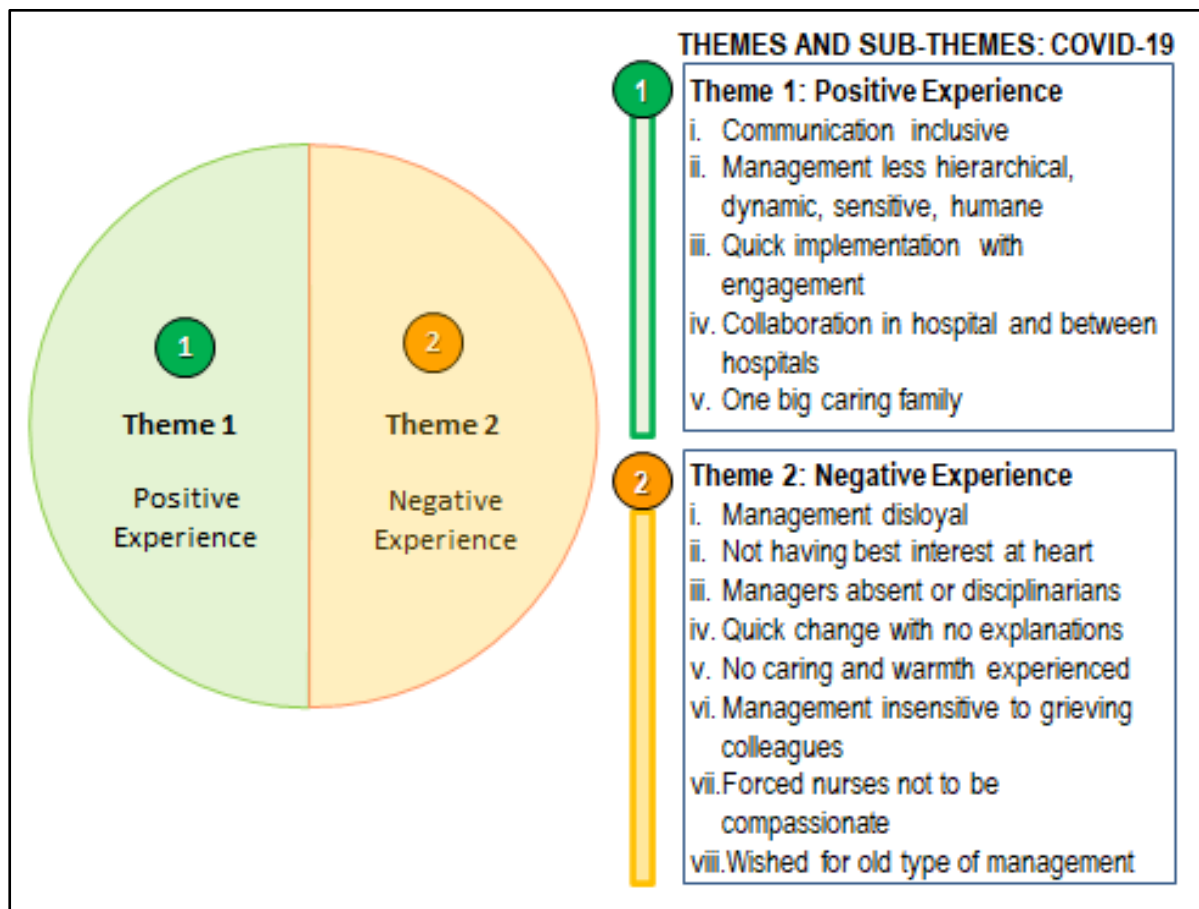
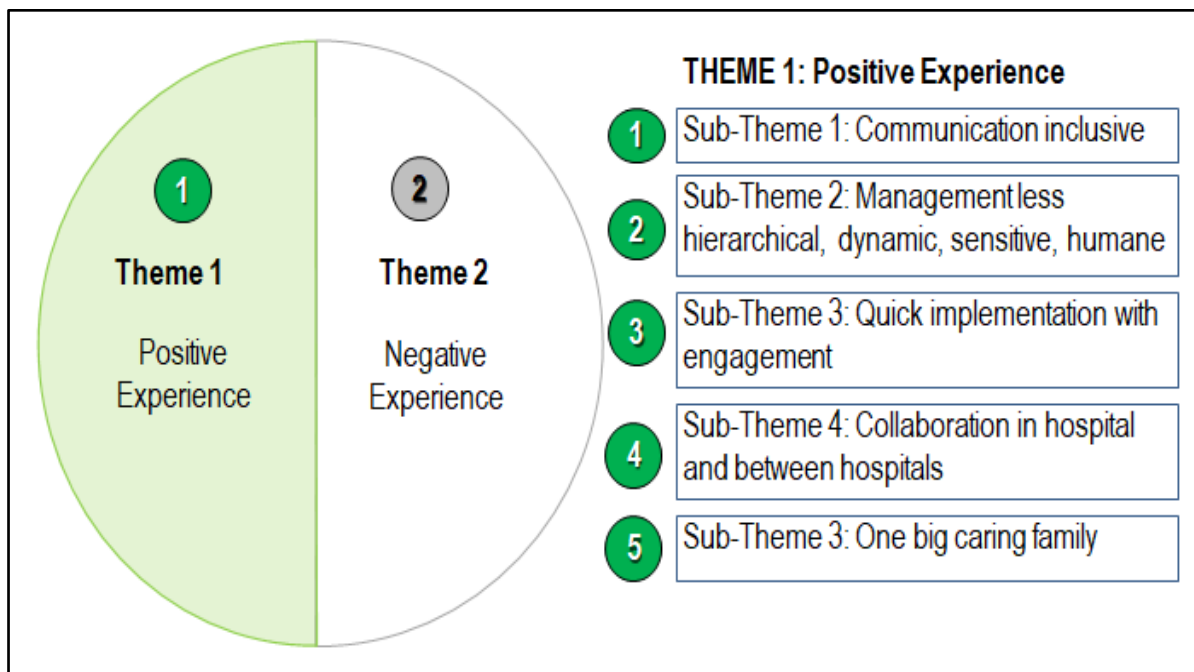


Figure 6.15 displays the two main themes and sub-themes related to RQ7.

6.3.5.1 Theme 1: positive experience

Five sub-themes were identified as a positive leadership experience during the COVID-19 pandemic. These sub-themes are displayed in Figure 6.16.

Figure 6.16: Theme 1: Positive experience



The participants who experienced the leadership change as positive indicated a great improvement in the relationships between doctors and head office. Communication was inclusive, with fewer egos involved. Most managers displayed real leadership, and it was experienced positively by employees at head office and at the hospitals.

“It had a positive effect on the hospital as it was less hierarchical and more human. There was less of a disconnect from head office, more communication, more relationship building between doctors, head office and employees...more caring for one another – more understanding” (Participant L).

Managers became more dynamic, more sensitive, more visible, more humane and displayed empathy with employees. There was less screaming and shouting on the floor, and employees and patients felt safer. Several employees, not in any management roles, emerged as leaders, discovering personal strengths in themselves and their colleagues, *“...people discovered some ability that they didn't know they had before COVID” (Participant P).*

With COVID-19, participants reported that hospital departments started to work together more and assisted one another. Support employees helped the nursing employees and displayed good leadership with co-operation between departments that led to bonding among hospital employees. Overall, *“...the display of leadership was much more important” (Participant N).*

“Social media placed nurses and healthcare on a pedestal and made us [nurses] heroes.” (Participant L) CL must aim to achieve adaptability, flexibility, and empowering the people and organisation (Uhl-Bien & Arena, 2018).

Quick implementations occurred during the COVID-19 pandemic, but as a result of the interaction and collaboration between departments, the employees were asked their views, which were accepted. This whole experience was viewed in a positive light since *“...they were forced into this change, and it was sudden, but in the midst of that, they didn't panic...they didn't run around, they just dealt with it well”* (Participant O).

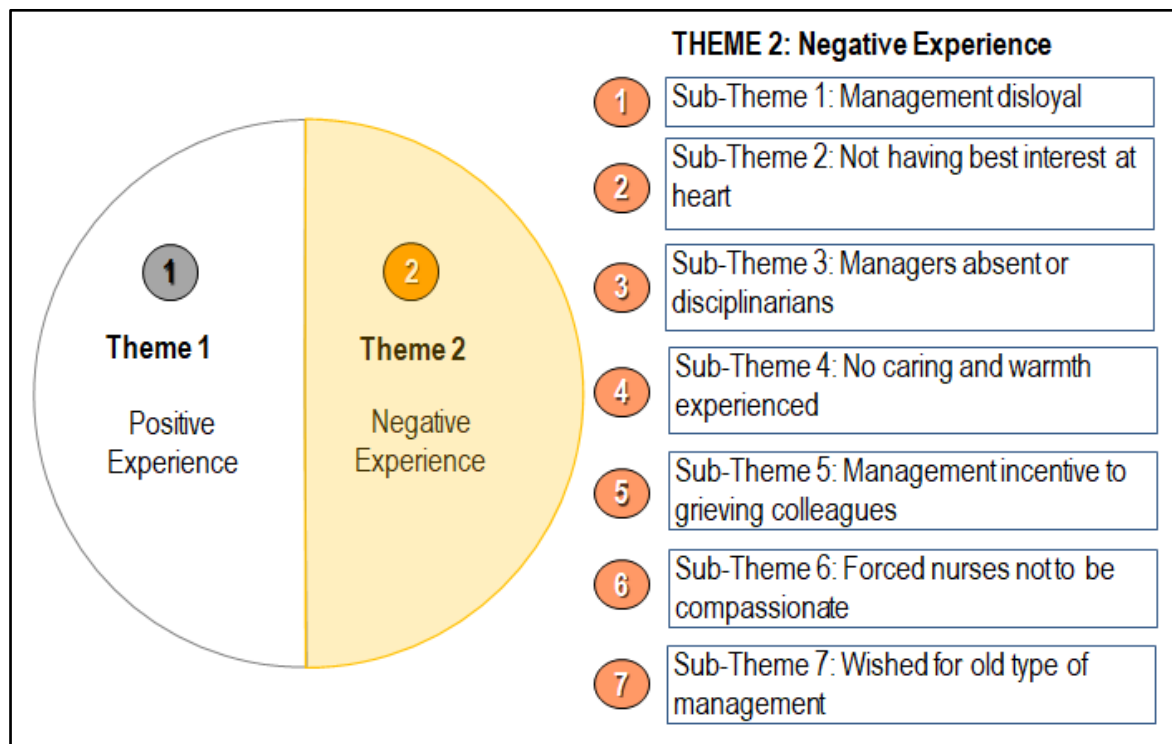
Although senior management of the hospital groups worked fully remote, the employees at head office and the hospitals experienced their presence very strongly through real-time digital communications (Zoom meetings), groups broadcasts (on WhatsApp), short mobile messages per cell phone or memos to employees. In this study, some participants experienced their group to function as one family across the group and across the country that celebrated and grieved together.

Participants that had a positive experience of leadership during the COVID-19 pandemic indicated that they did not want to return to the old way of leadership. *“Because those changes bring some of us to another level, which is a bit higher, which is a bit more complex...”* (Participant P).

6.3.5.2 Theme 2: Negative experience

The seven sub-themes identified for the negative leadership experience of employees during the COVID-19 pandemic are displayed in Figure 6.17.

Figure 6.17: Theme 2: Negative experience



Some participants, however, had an extremely negative leadership experience during the COVID-19 pandemic. All hospitals have many employees, mostly nursing employees, who are not permanently employed by the hospital but are regarded as ‘permanent’ agency employees. They always work set shifts in the hospital through the nursing agency. Three participants mentioned that, when the pandemic started, all “permanent” agency shifts were cancelled as a money-saving initiative, which negatively impacted the trust in management. Trust is a mental and psychological state where confidence influences a person’s integrity and ability to act (Le & Lei, 2018). The permanent employees had to work additional hours to cover the nursing needs but were not paid overtime. They had to “bank” these hours, which resulted in exhaustion and negativity amongst employees, with “...*the hospital employees worked themselves to death, literally*” (Participant G).

Employees realised that, as a result of the pandemic and employee shortage challenges facing the hospital, they would not any time soon be able to take the banked hours.

In several hospitals, employees did not feel cared for. In some groups, employees received standard blue surgical masks that they had to wear for a week, but doctors received N95 masks. The employees experienced the distribution of PPE as a money-saving exercise. Only after this leaked to the media was everyone issued with the same masks. As one participant

noted: “...[they] issued their employees with blue masks and told them to keep them on for a week...but all the doctors received N95 issued masks” (Participant G).

Some participants noted that senior management refused to go into COVID-19 wards and was hiding in their offices, but employees had to work in COVID-19 wards. Some employees had to perform management duties in COVID-19 areas. Employees experienced management not to understand their fears and to display more management and less leadership.

In some hospitals, quick changes were experienced negatively because no context or explanations were offered, and the instructions were very autocratic, with no questions or objections allowed. “Managers [were] more, I would say, disciplinarians, enforcing the COVID [-19] rules and regulations” (Participant B) [and] “...there was no room for individual thought around this” (Participant B).

Managers shouting at employees increased with the excuse that it was because they cared for the employees. Some hospitals experienced chaos because employees experienced management as incompetent and failing to plan, which did not increase employees' trust. Employees experienced managers not to provide guidance, not lead and to be absent. Participants experienced the management decisions to be driven by cost-savings and not by employees and patients' needs. The participants who experienced COVID-19 leadership negatively also voiced the need to feel cared for and safe.

Two of the participants mentioned that employees did not experience the hospital management to be sensitive to colleagues and families' grief. By November 2020, over 339 healthcare workers had died since the start of the pandemic (South African Government News Agency, 2020). One participant mentioned that after COVID-19, all clinical employees, non-clinical employees and doctors will have PTSD and will need counselling. The rules of COVID-19 have forced nurses to go totally against what they believe in since they were not allowed to display compassion and empathy to patients and families, and if they did, they were strongly reprimanded. This resulted in uncertainty and low morale amongst the employees.

COVID-19 increased personal growth and ownership with people, and, therefore, people did not want to go back to the leadership dynamics present before the onset of COVID-19. However, participants expected that pre-COVID-19 dynamics would make a return in the workplace, namely: “...head office is again giving more instructions, doctors are already more important, and the spirit of care and appreciation is less” (Participant L).

Towards the latter part of the first wave of the pandemic, participants experienced the old leadership dynamics of absent hierarchical leadership again. However, some participants did mention the hope that leadership will stabilise somewhere in between.

It is important that all management teams do introspection and objectively evaluate their employees' COVID-19 experiences so as to understand where it could have been done differently. A small change can often have a big impact (Obolensky, 2016). *“Hopefully, it will go back; at least it seems like things are calming down, and we are moving back to the pre-COVID-19 style of leadership”* (Participant K).

The solution to RQ7 is that some participants had a positive experience of the HDL and HOSS during the COVID-19 pandemic, and some participants had a negative experience. The positive HDL and HOSS experience included inclusive communication by a management team that was less hierarchical, dynamic, sensitive and humane. Furthermore, did quick implementations with engagement and collaboration in hospitals and between hospitals of the same group reaffirm a caring family experience. The negative HDL and HOSS experience was when management was experienced as disloyal and not having the employees' best interest at heart. Management was either absent or disciplinarians that implemented quick change with no explanation, no warmth and no caring for grieving colleagues. Nurses were forced not to be compassionate, and some even wished for the situation pre-COVID-19, which was not good anyway.

6.3.6 Summary of the qualitative results

As discussed in section 6.3.3, the qualitative results supported the quantitative results in that they identified three causal factors that were the explanation for the current situation in private hospitals relating to HDL and HOSS. The causal factors were the autocratic leadership style, not enough “right type” inspiring leaders, and driving hard business objectives. Furthermore, did the qualitative results identify six leadership and operational consequences because of the situation. These consequences were disempowered absent leaders, the voice of the staff being quiet, change being implemented poorly, lack of collaboration and communication, a negative culture of authority gradient, and the disconnect between clinical and non-clinical departments. Lastly, the qualitative study identified two aggravating factors that negatively impact HDL and HOSS: the rewards and recognition process and head office vs hospital disconnect.

The qualitative study provided some suggestions for how the situation can be changed by implementing process changes, people changes and leadership changes. Lastly, did the

qualitative study provide evidence of two opposing experiences of HDL and HOSS during the COVID-19 pandemic. The approach of the senior leadership and how they engaged middle management, and the employees resulted in a total different COVID-19 experience.

The integration of the quantitative and qualitative results will now be discussed.

6.4 INTEGRATION OF RESULTS

Mixed methods research offers the researcher a framework for combining quantitative and qualitative research methods. The value of mixed-methods research lies in the integration of the results from both methods and drawing inferences using both sets of results (Tashakkori & Creswell, 2007).

The quantitative study methods were integrated with the qualitative study by connecting (Fetters et al., 2013) when the quantitative sample became the qualitative study population. The quantitative results determined the content of the interview guideline for the qualitative study. The integrated quantitative results and qualitative findings complemented each other since all the quantitative results were further explained through the qualitative findings.

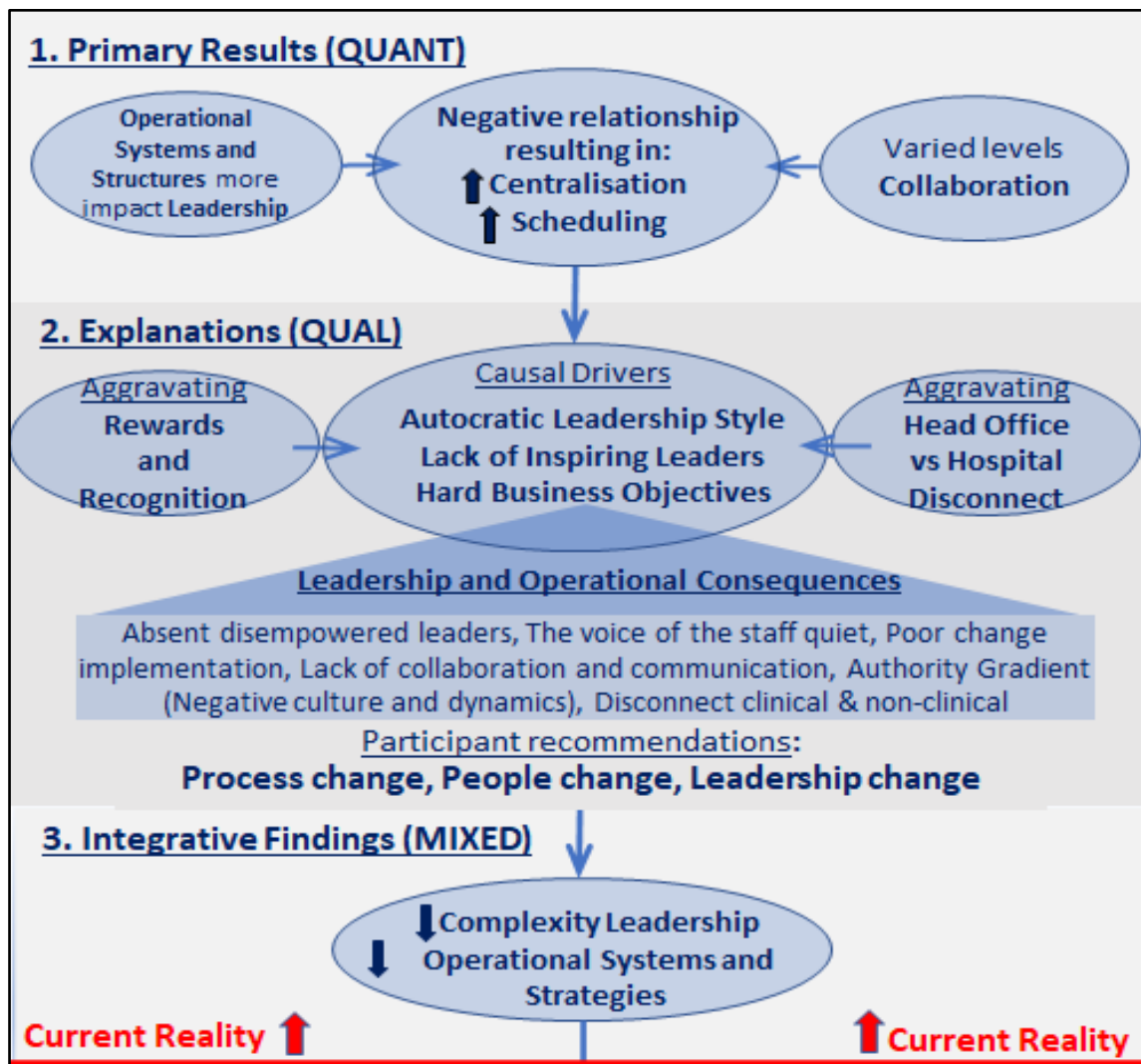
6.4.1 Discussion of RQ8

RQ8 Are CL and OSS, as defined in this study, displayed in the private hospitals in South Africa?

When seeking answers to the combined outcome of RQ1, RQ2, RQ3 and RQ4, as explained in the summary of the quantitative results (Section 6.2.8), it indicates that a strong relationship could not be established between both conceptual models of (1) CL and OSS and (2) the HDL and HOSS. It furthermore shows that HOSS had a much bigger impact than HDL for all groups of participants. Lastly, it indicated a negative relationship between HDL and centralised decision-making and a negative relationship between HOSS and planned scheduled change.

RQ5 explored the explanations for the drivers that contributed to the quantitative results and identified causal factors in the hospital that have leadership and operational consequences, together with factors that aggravated the quantitative results. RQ5, therefore, confirmed the quantitative results and explained the drivers of why it occurred. RQ6 suggested process changes, people changes, and leadership changes would change the situation in the hospital. The integrated results of RQ1 – RQ6 is displayed in Figure 6.18.

Figure 6.18: Integrated study results



The integrated results of RQ1-4, supported by the findings of RQ5 and RQ6, provide the answer to RQ8. CL and OSS, as defined in this study, is not displayed in the private hospitals in South Africa.

6.4.2 Discussion of RQ9

RQ9 What recommendations can be offered to the private hospital industry in South Africa to increase adaptability as a reaction to the increased disruption.

Following the integrated quantitative and qualitative results, as discussed in RQ8, and the understanding that HDL and HOSS are not aligned with CL and OSS's conceptual model, as explained in this study, participants were asked for suggestions on what must change.

The participants suggested process changes, people changes and leadership changes, as extensively discussed in 6.3.4. The process changes are that quick and scheduled changes

can be used, as long as the staff are engaged, a consultative forum is developed, and collaboration is promoted. The people changes were that employees had to be empowered to speak freely and implement change, head office and non-clinical employees must spend a day in the shoes of clinical employees. Employees (especially nurses) must feel proud, and staff shortages must be addressed. Transformational leadership must be promoted, especially through training. Leaders must be allowed to display leadership, and the leadership displayed must be rewarded. People must be promoted because they are good leaders. Within a trusting transparent culture, failure must be regarded as a learning opportunity.

Participants were asked about their experiences of HDL and HOSS during the COVID-19 pandemic. This mini study within a study had no manipulation of the experiment from the researcher. However, significant results were obtained with two distinctive opposing experiences that emerged. About half of the participants reported a positive experience, while the other half reported a negative experience. The staff that had a positive experience reported inclusive communication with management that was less hierarchical, more dynamic, sensitive and humane. Positive employee engagement resulted in successful quick implementations with increased collaboration amongst the hospital departments and hospitals in the same group. The participants' overall experience was that "We are one big family!".

The participants who had a negative experience viewed management as disloyal and not having the employees' best interest at heart. Management was either absent or disciplinarians, and it was difficult to implement quick changes with no explanation or buy-in. No caring and warmth were experienced. It felt as if management was insensitive to the grief of employees who had colleagues that passed away. Management did not understand that nurses effectively felt forced not to be compassionate. This group of participants wished for the pre-COVID-19 management style to return, which they did not appreciate in the first place.

The participants recommended process changes, people changes, and leadership changes. However, the changes must be aligned with the leadership and operational systems and structures of the positive COVID-19 group's experience rather than the negative COVID-19 group.

6.5 TRIANGULATION ACHIEVED

Several forms of triangulation were achieved in this study. Data triangulation was achieved, since different data sources were used; namely, the content of the literature, the quantitative questionnaires that were completed online, and the qualitative interviews conducted afterwards. Investigator triangulation, as per the definition, could not be achieved since only

one researcher was performing the study. However, the quality and integrity of the findings were improved because several discussions were conducted with leaders in CL, systems specialists, and the business acumen field. Methodological triangulation was achieved because this was a mixed-methods study with a robust and powerful integration as the sample and results of the quantitative study informed the population and questions of the qualitative study. Theory triangulation was achieved since several theories from different schools of thought were integrated into the study, and the results, therefore, strengthened the results and findings (see Section 5.7).

6.6 CONCLUSION

In this section, the quantitative, qualitative, and integrated results were presented.

The principal component analysis was appropriate for all elements and sub-elements of HDL and HOSS. All descriptive statistics for both constructs were sufficient. An ANOVA was performed and found that the employees of one of the larger groups experienced HDL different to the employees from the other three groups (two larger groups and NHN, which is a combination of smaller groups). The ANOVA for HOSS did not indicate a significant difference between hospital groups. The Pearson's correlation for HDL indicated either a weak correlation or no correlation between collaboration and most HDL elements and sub-elements. A negative correlation existed between centralised decision-making and all elements and sub-element of HDL. For organisational adaptability, CL is needed, which means a balanced display of entrepreneurial leadership, operational leadership and adaptive leadership, which can only be achieved if a positive relationship exists between all elements of CL and HDL. The Pearson's correlation for HOSS indicated a weak correlation between predictable projection and most of the elements and sub-elements of HOSS. A negative correlation was identified between planned, scheduled change and all the elements and sub-elements of HOSS. For organisational adaptability, OSS is needed, which means a balanced display of agile, lean and leagile, which can only be achieved if a positive relationship exists between all elements of OSS and HOSS.

Structural equation modelling was used to answer RQ1, RQ2, RQ3 and RQ4. The answer to RQ1 was that there is not a positive relationship between all the elements and sub-elements of CL and the HDL, as well as between all the elements and sub-elements of OSS and the HOSS. The answer to RQ2 was that the impact of the relationship of HDL on HOSS is significantly less than the impact of HOSS on HDL. The answer to RQ3 is that both managers and non-managers regarded the impact of HOSS on HDL as stronger than HDL on HOSS. However, the values of the relationship for managers were significantly stronger than the

values for non-managers. The answer to RQ4 is that clinical employees regarded the impact of HOSS on HDL as about the same as the impact of HDL on HOSS. However, the non-clinical employees regarded the impact of HOSS on HDL as significantly stronger than the impact of HDL on HOSS. The last section was a discussion on the LinkedIn experience.

Following the presentation of the quantitative results, the qualitative results were presented. RQ5, RQ6, and RQ7 were answered by the qualitative results.

In answering RQ5, the drivers for the quantitative findings that were identified by the participants were the autocratic, hierarchical leadership style, the lack of inspiring leaders and the hard business objectives followed in the hospital, leading to significant leadership and operational consequences. The identified leadership and operational consequences were disempowered, absent leaders, the voice of the employees that are quiet, poor change implementation, a lack of collaboration and communication, a steep authority gradient, and a disconnect between the clinical and non-clinical teams. These aspects are made worse by the rewards and recognition approach and the disconnect between the head offices and the hospitals.

In answering RQ6, the need for process changes, people changes, and leadership changes were identified. Process changes are new ways to implement change by keeping employees informed, implementing a consultative forum, and promoting collaboration. The people changes are that employees must be empowered to speak freely and implement change, and non-clinical employees must spend time in the hospital. The required leadership changes are that managers must become transformational leaders, be trained, be allowed to display leadership, and the demonstrated leadership must be rewarded, as well as good leaders be promoted. Additionally, failure must become a learning opportunity through a culture of trust and transparency.

In answering RQ7, the COVID-19 experience was positive to some and negative to others. The positive HDL and HOSS experience included inclusive communication by a management team that was less hierarchical, dynamic, sensitive and humane. Furthermore, did quick implementations with engagement and collaboration in hospitals and between hospitals of the same group reaffirm a caring family experience. The negative HDL and HOSS experience happened when management was experienced as disloyal and not having the employees' best interest at heart. Management was either absent or disciplinarians that implemented quick change with no explanation, no warmth and no caring for grieving colleagues. Nurses were forced not to be compassionate, and some even wished for the situation pre-COVID-19, which was not good anyway.

The integrated results were presented in answering RQ8 and RQ9. In answering RQ8, it is confirmed that CL and OSS, as defined in this study, are not displayed in the private hospitals in South Africa. In answering RQ9, which requested recommendations for the private healthcare industry in South Africa, the recommendations provided included the following: process changes; people changes; and leadership changes, all aligned with the principles of enabling and maintaining the adaptive space (as discussed in the literature review of this study). As explained by the participants, these suggested changes were also aligned with the positive COVID-19 experience. The integration of the results was concluded with a discussion on the implementation of triangulation that was achieved during the study, in which the way it enhanced the results was explained.

In Chapter 7, the discussion and conclusions of the results will be presented with reference to each of the research questions. Furthermore, the outcome of the study will highlight important limitations stemming from the research, including methodological limitations and personally for the researcher. This chapter will be concluded with overall recommendations from the study and suggestions for future research.

CHAPTER 7: DISCUSSION AND CONCLUSION

7.1 INTRODUCTION

The results and findings reported in chapter 6 will now be discussed. This will be followed by a discussion on the limitations of this study, final recommendations, suggestions for future research and concluding remarks.

7.2 RESEARCH QUESTIONS

This research aimed to identify whether private hospitals in South Africa are positioned for adaptability in reaction to significant exogenous pressures? It was suggested in the title of this research that Complexity Leadership (CL) and Operational Systems and Structures (OSS) (agile, lean and leagile) could be positioned as the key to achieving adaptability in private hospitals.

Mixed methods research was conducted by investigating nine research questions. The research design was an explanatory sequential design with a quantitative study informing the qualitative study. The first four research questions focused mainly on the quantitative research, the next three questions mainly on the qualitative research, with the last two research questions focussed on integrating the two studies to a new whole that was more significant than the two individual parts, as described by (Fetters & Freshwater, 2015).

The presentation of Chapter 7 will follow the research questions as guidance, followed by an overall conclusion, limitations and recommendations of the study.

7.2.1 Conclusions regarding RQ1

RQ1 What is the relationship between the HDL and the principles of CL, and the relationship between the HOSS and OSS principles, as defined in this study, in private hospitals in South Africa?

Within a hospital, the Hospital Displayed Leadership (HDL) and the Hospital Operational Systems and Structures (HOSS) are made up of interconnected parts, as explained in Seddon's Systems Theory, of which the elements and sub-elements of CL and OSS form some of the interconnected parts that form the system (Seddon & Caulkin, 2007). Although most of the elements and sub-elements of CL had a positive relationship with HDL, hospital employees reported centralised decision-making to be prevalent in both hospitals and hospital groups, which had a negative relationship with the HDL. Centralised decision-making is a critical component of operational leadership, and from the literature review, this was expected

to be a positive relationship. The negative result means that the leadership that is experienced by employees in the hospital is not aligned with the framework of CL.

A similar result was identified with most of the elements and sub-elements of OSS identified to have a positive relationship with HOSS, however, planned, scheduled change had a negative relationship with the HOSS. Planned and scheduled change is a key component of lean as the operating system. The expectation was for planned, scheduled change to have a positive relationship with HOSS. The negative correlation result here means that the overall experience of employees around how planned, scheduled change is implemented is not aligned with OSS, as described in the study's model.

These results were further supported by the qualitative findings that the hospital's decision-making is mostly centralised and hierarchical without engaging employees for their input. This was also supported by the qualitative findings that the implementation of change is mostly planned, scheduled change without engaging employees or getting their input and buy-in. Employees don't trust management and don't experience management to have the employees' best interest at heart.

The conclusion that there is no positive relationship between the HDL and CL and between HOSS and OSS will influence the outcome of RQ2 in the next section. These results will be further discussed in RQ5 and RQ6 (see sections 6.3.3 and 6.3.4, respectively).

As explained in the literature review, the South African healthcare industry is a complex environment underpinned by Complexity Theory (Chapter 4:(Uhl-Bien & Arena, 2017). The negative correlation with centralised decision-making and planned scheduled change resulted in an order and hierarchical approach by the hospital management.

This conclusion that centralised decision-making and planned scheduled change is so strong in the industry that it has a negative impact on the HDL and HOSS is a unique contribution to private healthcare in South Africa studies.

7.2.2 Conclusions regarding RQ2

RQ2 What is the difference between the impact of HDL on HOSS and the impact of HOSS on HDL in private hospitals in South Africa?

The HOSS was reported to have a much more significant impact on HDL than the impact of HDL on HOSS. This difference in impact was significant, and indeed concerning, as the literature points out, that organisational change is mainly a leadership challenge (Schulze & Pinkow, 2020). This quantitative result was supported and explained by the qualitative

findings, which were discussed in more detail in Section 6.3.3, confirming that the value of HDL is much lower than the value of HOSS. The employees of the hospital and head office indicated that it is not disruptive to replace a manager since the HOSS are strong. Additionally, employees rather trust HOSS than HDL, do not respect managers and regard HOSS as the law since it has disciplinary power. This unique finding indicates that before any big change in the industry can be implemented, the management team's position, credibility, and trust will have to first be re-established.

The conclusion that hospital group size is not a differentiator for HDL and HOSS's impact was surprising because it was assumed that smaller companies would display more agility and entrepreneurial leadership than larger companies. For this study, the outcome can be explained by looking at the size of the industry. The pool of skilled and highly-skilled employees in private hospitals in South Africa are 21 935 (Econex, 2017). However, the percentage of leaders in the industry is exceedingly small. As a result, the same leaders get rotated between the different groups. This finding is unique to the South Africa private hospital industry due to the size and dynamics of the industry.

Private hospitals that want to differentiate themselves in the industry will have to understand that it is the same small leadership pool that is shared across all groups. Literature confirms that leadership is the main factor to establish organisational change. Therefore, only if groups re-establish the value of leadership in hospitals will change occur.

Looking at the principles of Chaos Theory, a balance must be achieved between too much or too little since a small change can result in a disproportionate effect (Obolensky, 2016). The difference between HDL and HOSS was found not to be in balance.

7.2.3 Conclusions regarding RQ3

RQ3 Is there a difference in the relationship between managers and non-managers towards HDL and HOSS in private hospitals in South Africa?

This study found that HDL's impact is much less than the impact of HOSS for both managers and non-managers as groups. This finding is somewhat concerning and can be interpreted that managers and non-managers have lost faith in the benefit and impact of being a manager. Considering the qualitative findings (see sections 6.3.3 and 6.3.4 for details), participants mentioned that the managers were not inspiring, did not know the processes and structures, were absent, stayed in their offices, and practised steep authority gradients and corporate bullying. Keeping in mind that the new generation of managers comes from the current generation of non-managers makes the impact of this result significant. Managers are

appointed by virtue of their position, whereas leadership can be displayed in all roles. The leadership of managers needs to be developed to re-establish the trust of staff in the managers of the hospital. The leadership ability of non-managers also needs to be developed as impactful leaders can have a positive influence on all levels.

The qualitative sub-theme of the industry not having enough inspiring leaders further supports this result, with the inevitable conclusion that the South African private healthcare industry does not have enough role models in management. The industry and industry bodies will have to identify the profile of role model leaders, determine why they left the industry and find ways to change the shortage of inspiring healthcare leaders because leadership is the key to organisational and industry change (Schulze & Pinkow, 2020). This finding also supports Seddon's Systems Thinking Theory discussed in Section 2.1.5.

7.2.4 Conclusions regarding RQ4

RQ4 Is there a difference in the relationship between clinical and non-clinical employees towards HDL and HOSS in private hospitals in South Africa?

The results indicated that clinical employees regarded the impact of the relationship of HOSS on HDL as approximately the same as the impact of HDL on HOSS. However, the non-clinical employees experienced the impact of HOSS on HDL as significantly stronger than the impact of HDL relationship on HOSS.

The results of RQ4 indicated a silo approach in hospitals. It does not seem that clinical and non-clinical teams have a shared organisational vision that drives all activities and outcomes. The clinical team has a strong people and process focus since their group result indicates the impact of HDL and HOSS as being nearly the same, whereas, for the non-clinical teams, HDL had significantly less impact than HOSS.

These results were supported by the qualitative findings where several non-clinical participants commented on how the situation was in the clinical team, and the clinical team commented on the situation in the non-clinical team. It seemed that no group wanted to take ownership of their own negatives. The qualitative results confirmed that leadership has a lot more value in the clinical teams than in the non-clinical teams, as confirmed by participants in both groups. However, it seems that, although leadership had more value in the clinical teams, this leadership was seldom positive and inspirational since the clinical teams always seemed to be negative. Clinical and non-clinical leadership were experienced as absent.

The extremely low impact of HDL experienced by non-clinical teams is concerning since leadership is needed to guide and inspire employees. This result indicates that the non-clinical teams are mainly focused on HOSS.

The disconnect between clinical and non-clinical teams is unique in the South African private hospital literature, indicating that this industry is in an urgent need to establish better collaboration within hospitals. It is imperative that not only individuals start to know and trust each other, but that cross-functional collaboration amongst departments be encouraged and developed. This will include developing a better understanding of all departments' inner-workings and developing a better sense of the needs and challenges of others. Learning to support and to trust each other cross-functionally will help to overcome the divide. Trust and transparency between clinical and non-clinical teams will grow as positive leadership is displayed.

Therefore, the answer to RQ4 is that while clinical employees regarded the impact of the relationship of HOSS on HDL about the same as the impact of HDL on HOSS, non-clinical employees regarded the impact of HOSS on HDL as significantly stronger than the impact of HDL's relationship on HOSS. This was supported by the qualitative participants' views that leadership is not needed for non-clinical divisions, whereas in clinical roles, HDL has significantly more value.

7.2.5 Conclusions regarding RQ5

RQ5 Understanding what the drivers are that contributed to the quantitative results?

The qualitative findings in Chapter 6 led to the development of three main themes addressing RQ5. These dealt with finding explanations for the drivers contributing to the quantitative results, namely: Theme 1: causal drivers, Theme 2: leadership and operational consequences, and Theme 3: drivers aggravating the situation. These themes explained, individually and collectively, the quantitative results in RQ1, RQ2, RQ3 and RQ4.

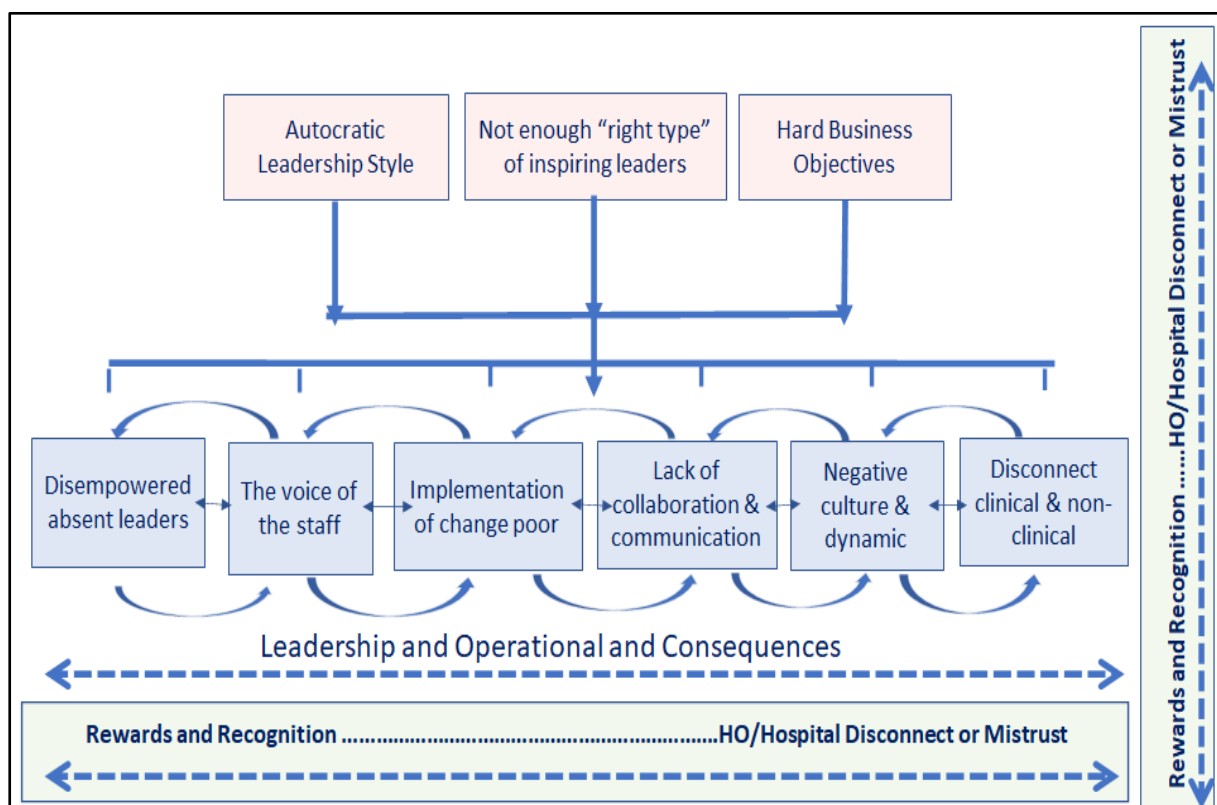
Theme 1, the causal drivers that led to HDL and HOSS's current situation, was developed as the collective sub-themes of autocratic hierarchical leadership style displayed in the hospitals, the lack of inspiring leaders, and the hard business objectives that the hospital groups follow. It is evident from these conclusions that participants experienced leadership very negatively, especially as an inflexible, autocratic approach resulting in employees feeling scared of management. Although employee satisfaction was not measured in this study, the literature reported a strong negative correlation between employee satisfaction with centralised leadership (Hartviksen et al., 2019) and absent leadership, as described by DeLay and Clark

(2020). Leadership drives change in complex organisations, and therefore, not having enough inspiring leaders impact change negatively, as was found in this study.

Theme Two, leadership and operational consequences, explains the effect of the stronger focus on lean principles and operational leadership principles, together with the stronger impact of HOSS compared to HDL. This focus resulted in leaders in the hospital being disempowered and often absent, with the outcome that staff are quiet and not giving their views. Most healthcare organisations have enough “managers” (the person with authority to execute effective action and give instructions due to their appointed position (Glinkowska, 2017), but lack “inspiring leaders” (the person influencing the team to naturally follow him/her without being told to do so (Glinkowska, 2017)). It is often assumed that a person appointed in a management position is a leader, which is not accurate, as was clearly highlighted by this study’s findings. Furthermore, corporate bullying occurred at all levels, often endorsed by the nursing leaders and the hospital C-suite leadership through their leadership behaviour. This stronger focus on HOSS than HDL also impacts how change is implemented. The lack of collaboration and communication in all relationships results in a negative culture and negative dynamics in hospitals. The disconnect between departments (clinical and non-clinical) impacts role satisfaction and relationships. It is evident that the consequences stated in RQ5 had a significant impact on the hospital environment.

These challenges experienced by employees in the hospitals and hospital groups were further exacerbated by the factors identified in Theme 3. These factors are the approach to rewards and recognition in hospitals and the disconnect between head office and the hospitals. The aggravating drivers in Theme 3, therefore, made an already bad situation worse.

Because the hospitals are complex (see Section 2.2.1), there is no clear cause and effect relationship, as explained in the Cynefin framework (see Section 2.1.4). This, therefore, results in an unordered universe. Figure 7.1, however, does indicate some of the relationships that were found to exist and impact the display of HDL and HOSS.

Figure 7.1: Conclusions of RQ5

Referencing Figure 7.1, it is evident that the causal factors not only individually impact the relationship between HDL and HOSS, but the collective result of these three causal factors makes the impact more significant. The consequences are related to one another and impacts one another; for example, the voice of the staff that are quiet will increase the disconnect between clinical and non-clinical. The aggravating factors impact the consequences and causal factors. For example, because all recruitment is done centrally, the disconnect between the head office and the hospitals resulted in the wrong profile of staff put forward to the hospitals for employment. Understanding the factors that cause the relationship between HDL and HOSS, identifying the consequences and indicating the aggravating aspects is a unique contribution to the body of knowledge pertaining to private hospitals in South Africa. Collaboration and trust and transparency, are lacking on multiple levels between the head office and hospital, between departments, and between managers and employees within the hospital.

Referencing Chaos Theory (see Section 2.1.3), initially, small changes in the hospital probably occurred in different levels (Obolensky, 2016), but small changes could have disproportionate results, as evident in the findings of RQ5. The contrary is also true that small changes could have disproportionate positive effects on the hospitals and the industry as a whole.

The ideal leadership style for clinical managers is a participatory transformational leadership style where team members are consulted before decisions are made, as explained by Naicker (2018). However, middle management and non-managers experienced hospital management as unapproachable, inflexible, not transparent, not trustworthy, and not transformational.

It can also be concluded that clinical executives at hospitals were not successful in translating clinical matters in business/financial terms, resulting in non-clinical executives at hospitals (for example, the financial manager or general manager) often making clinical decisions, as supported by (Jones et al., 2017). The problem was made worse by the fact that clinical leaders tend to only focus on the patient and do not have enough knowledge and skills to talk the business talk, an aspect that can be overcome through business skills training and development. Lastly, the qualitative results supported the quantitative results that group size did not have a significant impact as a differentiator in the way employees experience HDL and HOSS. The differentiator was mainly between the different views of managers and non-managers and differences between clinical and non-clinical.

Overall, the integrated results of RQ1-5 suggests that the exploitative leadership experienced in the hospital is not fully aligned with the definition of operational leadership, which is one aspect of the 2018 CL framework (Section 2.2.4), which can be defined as formal leadership focused on formal structures, systems and processes to produce results through execution, efficiency and refinement, with the main focus to produce (Uhl-Bien & Arena, 2018). Elements of the HDL are more aligned with the 2007 model of CL that describes exploitative leadership as administrative leadership, defined as a top-down formal managerial role that exists in bureaucratic organisations based on position and authority with the function to structure tasks, build vision, plan, engage resources and manage a crisis (Uhl-Bien et al., 2007). This occurred because of the focus on an autocratic, hierarchical leadership approach with a strong drive towards achieving hard business objectives. Therefore, it can be concluded that exploitative leadership experienced in private hospitals in South Africa is a combination of administrative and operational leadership. This is a unique finding of the study, only pertaining to private hospitals in South Africa.

Accordingly, the first progress that is needed in the South African healthcare system is for administrative leadership to move more towards the definition of operational leadership by becoming less bureaucratic and less focused on the position and authority and more operational, focused on processes and efficiencies. This change will assist with the development of entrepreneurial leadership in healthcare (Uhl-Bien, 2020b).

Leadership in healthcare has significant challenges because the complexity of healthcare is very high (Uhl-Bien & Arena, 2017). This study has highlighted that South African healthcare is equally complex, as highlighted in the literature, especially by Uhl-Bien and Arena (2017). The RQ5 findings confirm and explain the quantitative study's outcome (RQ1, RQ2, RQ3 and RQ4). Furthermore, the RQ5 result highlighted the challenges experienced by hospital management in the display of CL and OSS, as explained in this study. These findings are consistent with the literature, especially the major contributions of Uhl-Bien & Arena (2017). However, the exploitative leadership in private hospitals in South Africa that is a combination of administrative and operational leadership is not aligned with the current literature in the field of CL and is, therefore, a unique contribution specifically relating to South African private healthcare.

7.2.6 Conclusions regarding RQ6

RQ6 What are the recommendations by employees (managers and non-managers) for possible HDL and HOSS changes in private hospitals in South Africa?

Participants suggested a wide variety of recommendations that would impact the negative situation in hospitals, as explained in the discussion of RQ5. These initiatives have been categorised as process changes, people changes, and leadership changes. On closer analysis of these suggested recommendations, it is clear that the recommendations of the participants support the development, engagement and maintenance of the adaptive space, as discussed in the literature review Section 2.5. Accordingly, the conclusion can be made that the participants unknowingly communicated the intuitive need for expanding the display of entrepreneurial leadership and agile systems and structures, together with developing the adaptive space in leadership (enabling leadership) and in operational systems and structures (leagile). The synergies between the recommendations that the participants voiced, and the adaptive space, will now be explored.

The high-level interpretation of the process changes is that both quick changes and planned, scheduled changes can work in the same hospital; however, the key is to engage the team members and provide the team with a platform to ask questions, give their views and input, and even to engage other people (wider engagement). It was, for instance, suggested that a consultative forum must be established. Some of the participants had already experienced the success of such a forum at their hospitals. A manager will facilitate such a forum as the expectation that leaders must create the adaptive space, as explained by Schulze and Pinkow (2020). However, all levels, especially junior levels of the organisation, will have a representation at this forum. Such a consultative forum can, however, only succeed if there is

open collaboration, as well as trust and transparency amongst all levels presented at the forum. Employees and managers have to feel safe. Such a consultative forum meets the criteria for “discovery connections”, as explained by (Arena, 2018). Participants requested to stay informed and engaged, which are aligned with the principles of enabling leadership, as discussed in this study (Section 2.2.4.1). The participants also communicated the need for more collaboration internally and between hospitals of the same group. This need is aligned with the explanations of the adaptive space for organisations to create connections within and across divisions and have champions that will take the initiatives that were developed during collaboration to the bigger organisation for evaluation and possible implementation (see Section 2.5).

The participants' high-level suggestions around people changes have to do with building a culture of trust and transparency in the hospital, where every individual has value, and where they know that they are essential to the team. This culture change must not only occur at the non-manager level but across the organisation, through all levels and literally all the way to head office executive leadership and the CEO. Behavioural change by leaders focusing on their leadership style and displaying inclusive communication will strengthen relationships and build trust. Employees must be empowered to speak freely and implement change without waiting for permission from a senior. Furthermore, employees, including managers, must have confidence that they can make suggestions and give their views without any negative consequences. Employees and managers must feel safe. The participants have suggested that all senior non-clinical employees and head office, including the general managers and CEO, must spend a day in the shoes of a typical clinical employee; otherwise, they can never understand what happens in a hospital.

Employees who work in the hospital, especially nurses, need to become proud of what they do. However, they can only become proud if they experience value and appreciation. Value and appreciation do not have to be expensive. It has to do with how people and leaders interact with one another. The participants requested that the people dynamic be changed. The participants also communicated that the senior management did not care about them. Consequently, there were constant staff shortages and pressures. The participants viewed the staff shortage as a matter of management not understanding the hospital and the needs of the employees. If management wants to change the hospital's dynamics and negativity, they must address the staff shortages.

The leadership changes are closely related to people changes, which are strongly aligned with the principles of CL (See Section 2.2.4) and with creating the adaptive space. The leadership approach recommended and suggested by the participants are aligned with the principles of

transformational leadership. As discussed earlier in this study, entrepreneurial leadership is categorised as transformational leadership (see Section 2.2.4.1). Participants requested that leadership training be increased and that it must be relevant to the challenges experienced by leaders. Training in how to become inspirational leaders, as well as training focusing on the financial and business side of healthcare leadership, is needed. Knowledge sharing and training are integral components of CL. A request was also made that managers must be allowed to display the leadership they learn about, and managers must be rewarded and promoted for displaying strong leadership. In a culture of trust and transparency, failures will be regarded as learning opportunities. Only when everyone truly lives trust and transparency will the current administrative leadership progress to become true operational leadership.

In the qualitative study, participants unknowingly requested changes that are aligned with the principles of CL and of creating the adaptive space. Creating an adaptive space in the hospital does not have to be expensive, nor does it have to be a big project plan or take much time. The adaptive space can be created by creating awareness, implementing small, purposeful changes, and by changing small processes that will have a big impact. Aligned with the butterfly effect mentioned in Chaos Theory (see Section 2.1.3) small changes to the way the managers lead their teams can have a significant impact on the team morale, trust, confidence, and contribute to the well-being of colleagues and patients, aligned with the literature (Obolensky, 2016; Tourish, 2019).

7.2.7 Conclusions regarding RQ7

RQ7 What is the participants' experience of the impact the COVID-19 pandemic had on HDL and HOSS in private hospitals in South Africa?

The participants were asked to describe their COVID-19 experience relating to HDL and HOSS. The COVID-19 pandemic created disruption and complexity in healthcare worldwide, but especially in South African private hospitals, due to many ill patients admitted. In complex environments, organisations must react to the complexity. Hierarchical organisations will often attempt to implement order, stability and rationality to deal with the complexity and to drive efficiencies. In contrast, adaptive organisations will focus on implementing and maintaining the adaptive space while focusing on endogenous entrepreneurship and entrepreneurial leadership (Felipe et al., 2017; Uhl-Bien & Arena, 2017) to manage the complexity.

In analysing the private hospitals' COVID-19 response, some hospitals had an adaptive response, resulting in positive employee experiences, despite all the trauma and emotional stress of the extraordinary situation that the pandemic presented. In contrast, some hospitals

had an order response, with increased autocracy, which intensified employees' anxiety and trauma experience, having them wishing that the previous, not optimal, dynamics would return. The findings of these two driver responses will now be explored.

The COVID-19 pandemic met all the requirements of a complex situation, where the cause and effect lead to an unpredictable network of interconnected agents, as per the Cynefin framework (see Section 2.1.4) (Snowden & Boone, 2007), resulting in emerging patterns in an unordered universe.

According to the study's conceptual model, the positive experience reported by team members displayed many of the CL attributes, which included actively engaging the adaptive space. The experiences were described as inclusive communication with a management team that is less hierarchical, more dynamic, sensitive and humane. Quick implementations with employee engagement, collaboration, and functioning as one big family, were the participants' experiences. These experiences changed the negative dynamics of the pandemic to a situation where team members felt empowered, valued, and contributing to something bigger than themselves. These hospitals displayed inspirational, transformational leadership where the managers acted as leaders, were actively involved in finding solutions with the team members and value their contributions. These experiences are aligned with CL, which includes engaging the adaptive space, as described in this study (Section 2.2.4.1).

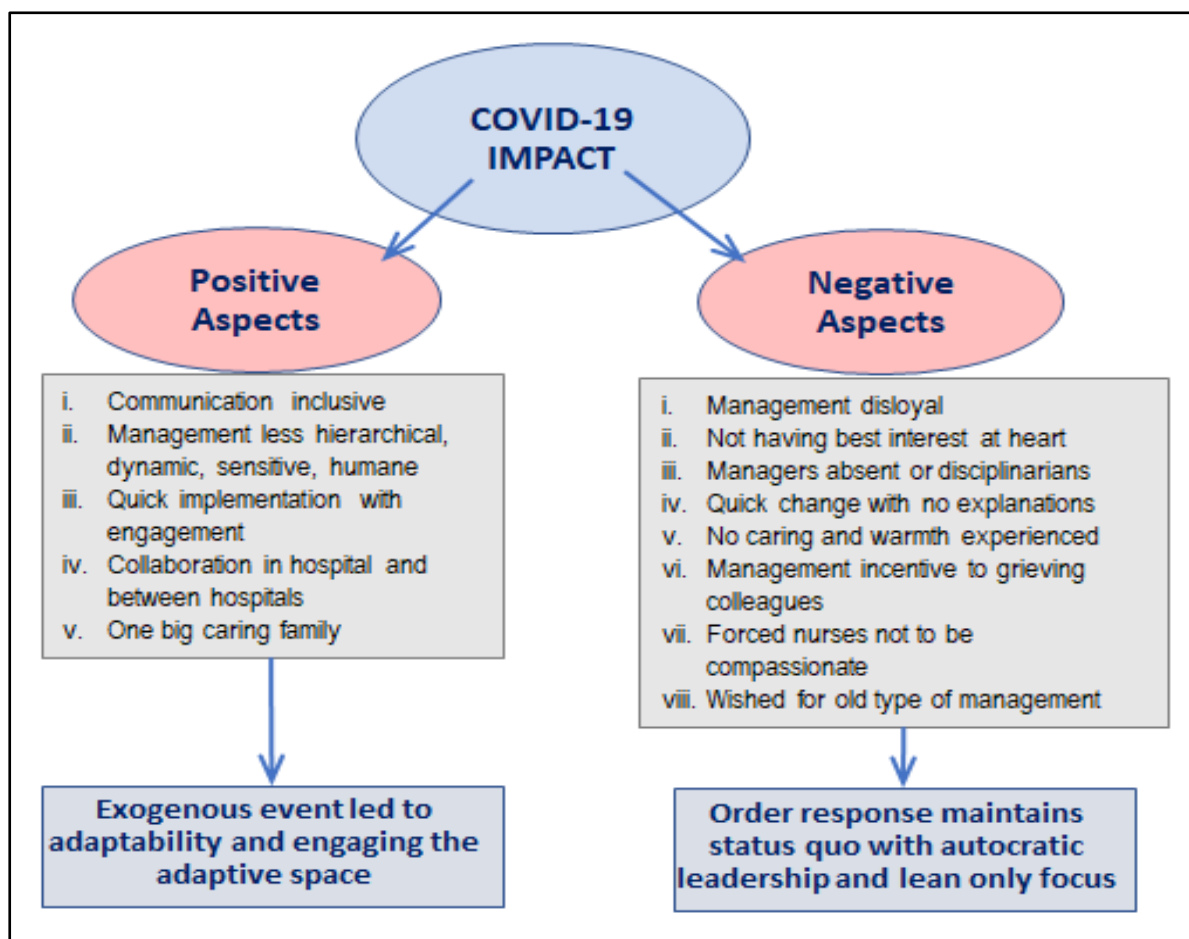
The hospitals where participants had a negative COVID-19 experience were hospitals with an order response, which intensified the current hierarchical leadership displayed. An order response is often the natural reaction of hierarchical organisations to complex, disruptive situations. The employees experienced the managers as either absent or disciplinarians, not having the employees' best interest at heart, and experienced to be disloyal. These organisations also had quick implementations because quick implementations were needed during the pandemic crisis. However, employees were not engaged; they could not ask questions and could not voice their fears. Subsequently, the employees experienced quick implementations in response to the pandemic in an extremely negative light. During the pandemic, employees felt the need to feel safe and to feel cared for. Employees needed to know that the management team understood their grief for colleagues or family members that have passed away. However, this was not the experience. The employees experienced the hard business focus of autocratic leadership, as applied by uninspiring leaders. This approach increased the trauma of COVID-19 for employees substantially.

The interconnectedness between the different parts of a system, as explained by Seddon's Systems Theory (see Section 2.1.5), is very evident in the difference between the positive and

negative results explained (Seddon & Caulkin, 2007). The interconnectedness between what the management team said and how they reacted towards the pandemic was 100% connected to the employee experience, which then impacted the COVID-19 experience of the patients. This interconnectedness either resulted in a positive or negative experience

As explained in Complexity Theory (see Section 2.1.2), the employees that worked in the hospitals that displayed an order response had a negative experience. In contrast, employees working in hospitals with an adaptive response, as explained by Complexity Theory, had a positive experience. The positive and negative experiences of COVID-19 are displayed in Figure 7.2.

Figure 7.2: Positive and negative COVID-19 experience



This unstructured case study within the main study where no manipulation by the researcher occurred displayed the difference in results and experiences by employees when, in the same complex and disruptive situation, an adaptive response was implemented, as well as the situation with an order response. The experience of the adaptive response resulted in a more positive employee experience. Keeping in mind the industry's current staff shortages and the demonstrated differences in experience by the two groups, the recommendation is that private

hospitals in South Africa should consider having an adaptive response to the complexity rather than an order response. This unstructured and unmanipulated experiment is a unique contribution supporting the enhanced employee experience and resultant customer experience when the adaptive space is engaged. This unique experiment also clearly displays the negative result of the order response in the private healthcare environment.

7.2.8 Conclusions regarding RQ8

RQ8 Are CL and OSS, as defined in this study, displayed in the private hospitals in South Africa?

As explained in the discussions of RQ1-4, HDL and HOSS are not aligned with the conceptual models of CL and OSS, as explained in this study. This is evident between managers and non-managers, as well as between clinical and non-clinical employees. The impact of HOSS on HDL is stronger than the impact of HDL on HOSS. In answering RQ5, the relationships between the factors causing the hospital's dynamics, the leadership and operational consequences, and the aggregating factors were explained, indicating the internal relationships between all these factors. The exploitative HDL in South Africa are more aligned to the definition of administrative leadership than operational leadership within the theoretical model of CL, as explained by (Uhl-Bien & Arena, 2018). It was, therefore, concluded that the hospitals' exploitative leadership have a shared label, namely administrative-operational leadership. The answer to RQ6 concluded that some process changes, people changes, and leadership changes are needed in the private hospital industry. These proposed changes are aligned with CL and OSS principles, which are then the implementation of entrepreneurial leadership and enabling leadership (the adaptive space) and the implementation of agile systems and structures, together with leagile systems and structures (the adaptive space). The difference in the employee experience if an organisation in a complex disrupted industry engages an adaptive response compared to an order response in reaction to the disruption is vital to be cognizant of, as explained in RQ7. The confirmation that CL and OSS, as aligned with the conceptual model of this study, are not displayed in private hospitals in South Africa is a unique contribution by this study as studies comparing CL and OSS in private hospitals have not been conducted before.

The HDL and HOSS in South Africa are displayed in Figure 7.3.

Figure 7.3: Current HDL and HOSS as experienced by participants

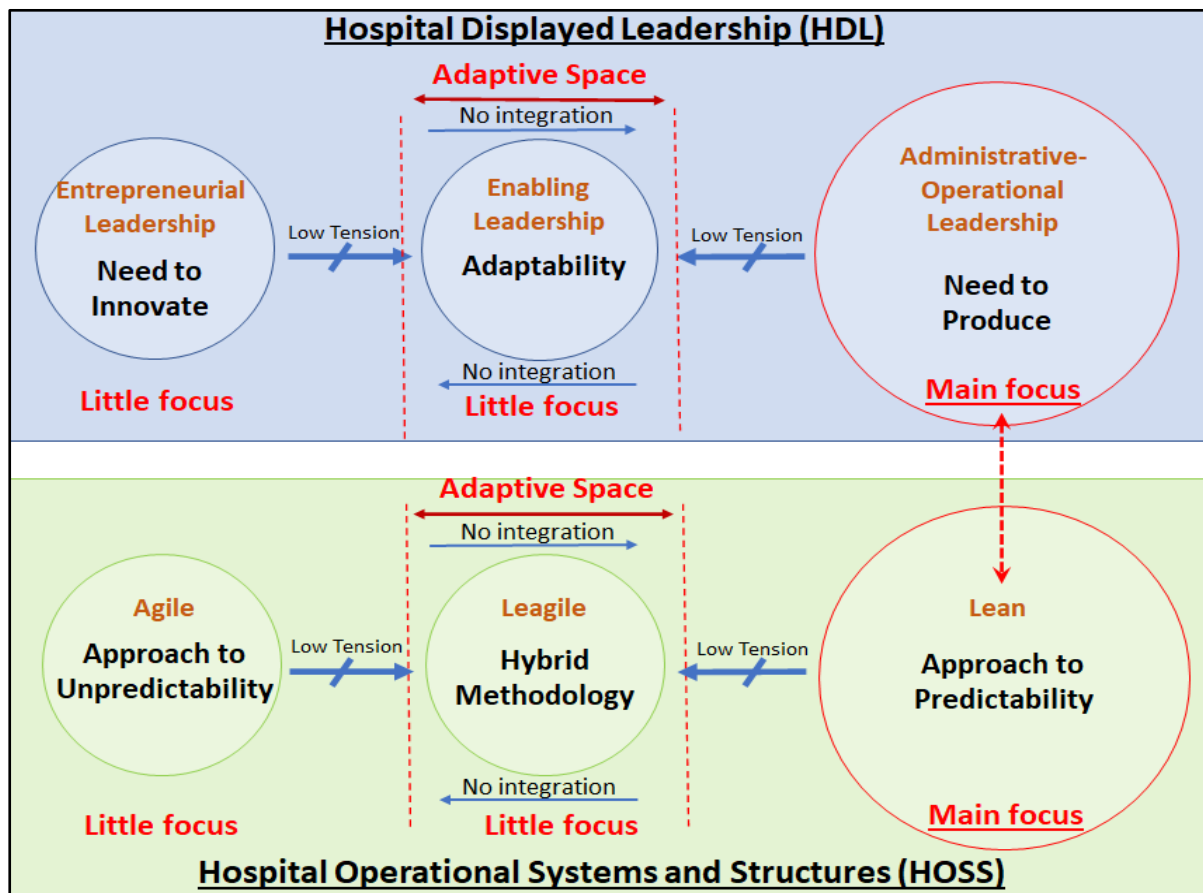


Figure 7.3 displays the experience of participants of the HDL and HOSS, as per the integrated study. The main focus of HDL is on administrative-operational leadership with little emphasis on entrepreneurial and enabling leadership, while the primary focus of HOSS is on a lean systems approach, with little emphasis on agile and leagile systems approach. The circles' unequal sizes represent key findings of this study, namely: that the increased emphasis on administration-operational leadership and lean systems negatively impact the display of entrepreneurial leadership and agile systems. In addition, that there is a negative impact as well on the adaptive space in leadership and in operational systems and structures. However, small pockets of agility and entrepreneurial leadership do exist in the hospitals, which are reflected by the smaller circles and low tension, as described by Uhl-Bien (2020a), but not “no circles” and “no tension”. For both HDL and HOSS, the adaptive space is not engaged in the hospital, as displayed in the quantitative and qualitative results individually and collectively. If the operational leadership in an organisation is much stronger than the entrepreneurial- and enabling leadership, it is not regarded as CL but as management (Uhl-Bien, 2020b). All three leadership styles must be in balance with an active adaptive space for it to be regarded as CL. This is in line with both the conceptual model of the study and of CL (Uhl-Bien, 2020b). Likewise, all three circles of the operational systems and structures must be in balance with

an active adaptive space for it to be regarded as OSS, in accordance with the conceptual model of the study (Section 2.4).

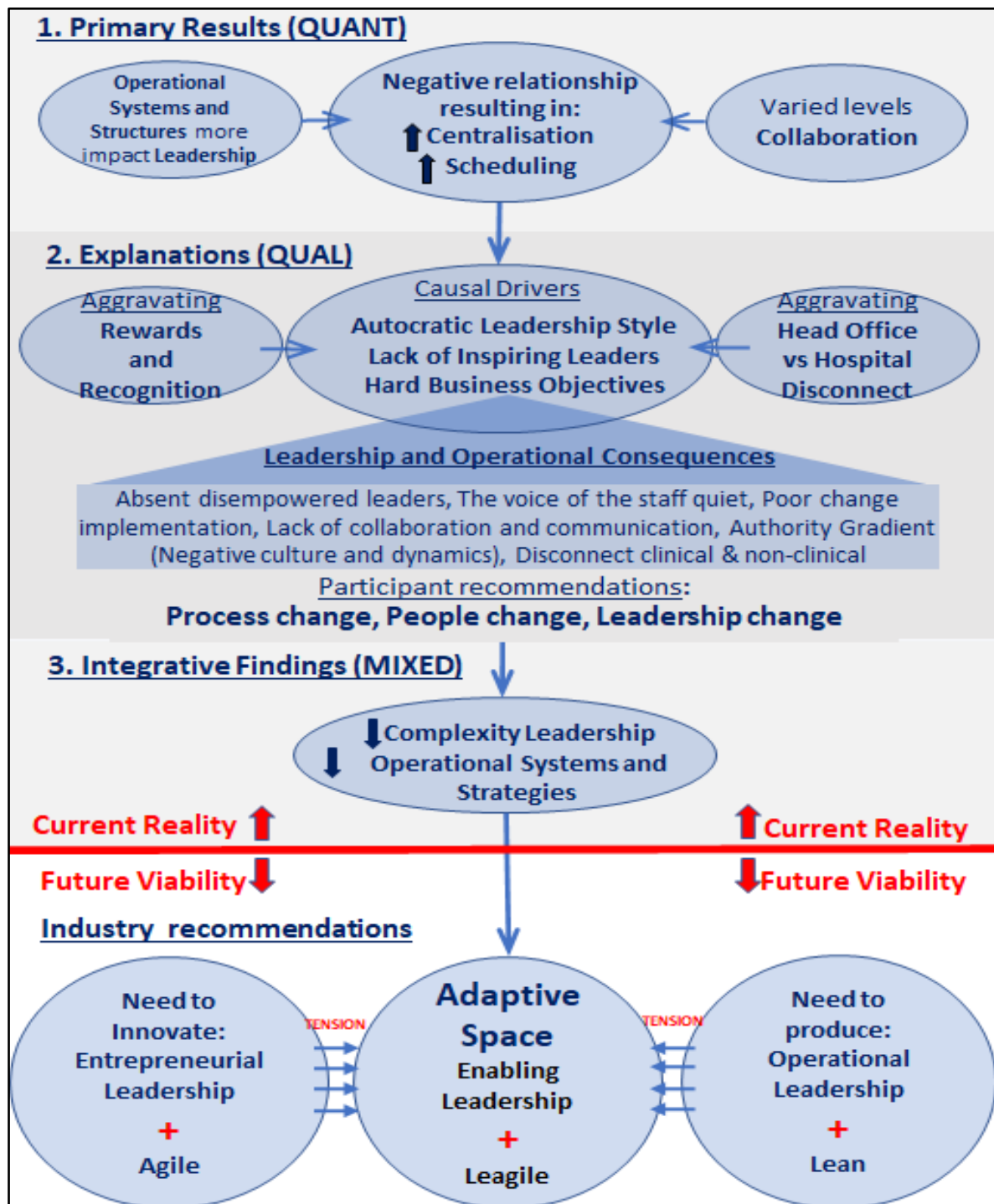
Considering the evidence presented, it can be conclusively confirmed that CL and OSS, as per their individual conceptual models, as well as the overall conceptual model, are not regularly displayed in private hospitals in South Africa. By not demonstrating CL and OSS (agile, lean and leagile), it can be confirmed that South African private hospitals are, therefore, not positioned for adaptability through these structures.

7.2.9 Conclusions regarding RQ9

RQ9 What recommendations can be offered to the private hospital industry in South Africa to increase adaptability as a reaction to the increased disruption.

The overarching principle underlying the recommendations stemming from this research is to position the private healthcare industry in South Africa for adaptability in response to the external pressures experienced. These pressures are expected to, in the near future, increase even further. Taken together, the results of the quantitative, qualitative, and integrated study, together with the literature study, culminated in several industry recommendations. The overall integrated study results and the high-level recommendations are displayed in Figure 7.4.

Figure 7.4: Integrated study results and high-level recommendations



As displayed in Figure 7.4, the *first recommendation* aligned with the title of this study is for aggressive industry change through *implementing CL and OSS* as the key to position South African private hospitals for adaptability. It is recommended that this implementation of CL has to be *balanced* between operational leadership, entrepreneurial leadership, and enabling leadership, as well as the implementation of OSS, has to be balanced between lean, agile and leagile.

As displayed in Figure 7.4, when CL and OSS are both implemented in a balanced manner, a natural result will be the *development of an adaptive space*. This adaptive space will develop where enabling leadership is displayed, and leagile is implemented. As explained by Northouse (2016), this adaptive space is necessary as the holding space to promote change, tension and to support integration between entrepreneurial leadership/agile and operational leadership/lean. The adaptive space is where leaders and employees will be allowed to have a voice and a view, whether it is about the hospital in general or specifically the implementation of new solutions. The adaptive space is the space where implementations will be discussed, and a decision will be made whether the more suitable approach is agile or lean, whether more flexibility is needed or not. The adaptive space can only be created if there is trust and transparency. The need for trust and transparency does not only apply to private healthcare but to the bigger healthcare industry, especially considering the NHI legislation and the criticism of the industry (Section 4.6). In the adaptive space where trust and transparency exists, collaboration and communication will exist that will change the negative authority gradient culture to a positive culture. In this positive culture, employees will be allowed to grow and develop and display leadership, regardless of whether they are appointed as a manager or not. In the adaptive space, the disconnect between clinical and non-clinical can be overcome, and positive relationships can be cultivated to promote adaptability (Belrhiti et al., 2018; Hazy & Prottas, 2016; Uhl-Bien & Arena, 2017; Uhl-Bien & Arena, 2018).

As part of implementing CL, a focus in South African private hospitals must be to progress the industry from the current display of hierarchical, autocratic *administrative-operational leadership* to an *operational leadership* that is more aligned with the conceptual model of CL, as explained in section 2.2.4.1 (Uhl-Bien & Arena, 2018). On a practical level, it means the top-down formal managerial, operational leadership based on position and authority (Uhl-Bien et al., 2007), as well as the excessive focus on lean (Tolf, 2017), has to purposefully change. The approach to leadership in private hospitals must develop a stronger focus on entrepreneurial leadership that is decentralised and explorative, as well as a stronger focus on agile which is unpredictable with quick changes.

The *second recommendation* is for private hospital groups to actively work on *overcoming the disconnect* between the head office and the hospital, between the clinical and non-clinical team members, between managers and non-managers, between the hospital groups, as well as the hospital groups and government. Creating and developing the adaptive space will naturally have a positive impact on the disconnectedness, resulting in *increased collaboration*; however, top-down purposeful initiatives are needed to create aggressive industry change around the disconnectedness and collaboration.

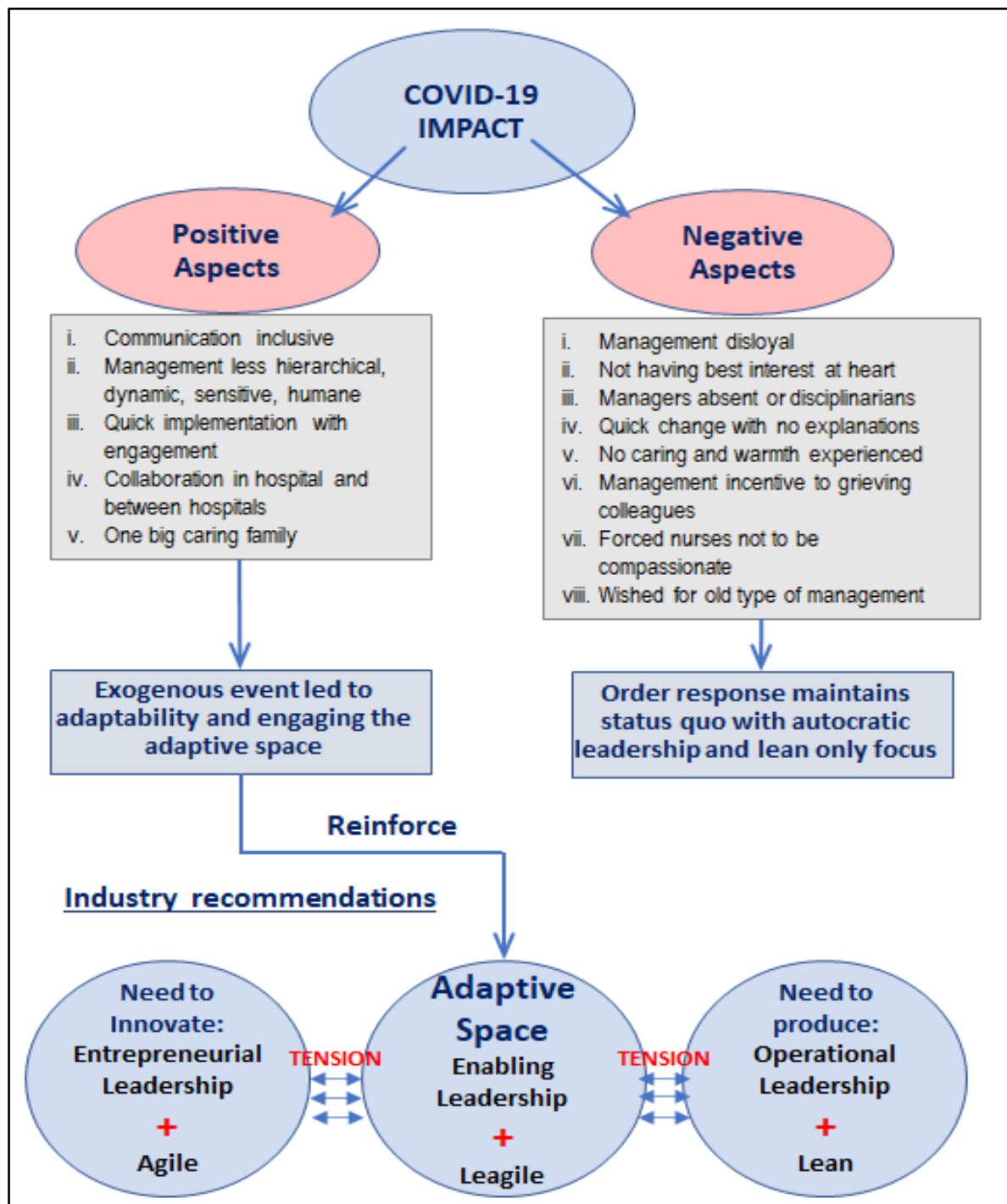
The *third recommendation* is for the development of a *formal framework* for the implementation of *adaptability in private hospitals*, which can then become a guiding tool to hospitals and hospital groups. This framework must be supported by the hospitals and hospital group's leaders at all levels.

The *fourth recommendation* for adaptability in private hospitals is skills development through *integrated and applied development programmes* that focus on business skills, leadership skills, CL, and OSS principles. This will increase the confidence level of managers to become inspiring leaders, to understand business finance and the direct impact business operations have on the overall results of the organisation. These programmes must have applied learning principles, and it will be important that clinical and non-clinical employees at all levels attend these programmes. Knowledge and learning are key to change.

These abovementioned recommendations will result in a culture change in the hospital, moving towards a trust and transparency culture with engagement and leadership that impacts the bigger organisation, impacting adaptability. These recommendations are supported by Schulze and Pinkow (2020), who confirmed that achieving adaptability is primarily a leadership challenge necessary for organisations' long-term survival in complex industries.

These recommendations are supported by the results of RQ7 that confirmed that the reaction of the industry to complexity must be an adaptive response, aligned with the positive COVID-19 experience, rather than an order response, which was aligned with the negative COVID-19 response. These recommendations are also aligned with literature indicating that complex organisations in disruptive industries need a new generation of leaders with different skills and competencies (Groves, 2018) aiming to achieve adaptability, flexibility and empowering the people and the organisation (Uhl-Bien & Arena, 2018). The proposed approach is displayed in Figure 7.5.

Figure 7.5: COVID-19 experience in support of the study recommendations



As confirmed by the results of RQ7, implementing the adaptive space aligned with the approach displayed in Figure 7.5 will result in a similar positive employee experience, as reported in this study (see Section 7.2.7). This experiment that was not manipulated by the researcher confirmed the positive effect the overall recommendations of the study will have on private hospitals and complex organisations in complex industries in general.

This result confirmed that implementing CL and OSS as per the conceptual model of this study is the solution to adaptability for the private hospitals in South Africa.

7.2.10 Linking the study research questions to the questionnaire questions

Complex studies with a relatively large number of research questions, such as this one, makes it often difficult to briefly summarise how all the research questions fit together and relate to the main quantitative questionnaire, which was also comprehensive. Table 7.1 provides an overview of the relationships between research questions and the questionnaire questions.

Table 7.1: Linking the study research questions to the questionnaire questions

Division/- Question	Subject Related	Type of question	Research Question*	Main focus
QUANTITATIVE QUESTIONNAIRE				
Introduction	Consent	Tick Box	Not applicable	Determinant to continue with questionnaire
Section 1:	Demographics			
Q2 – Q9		Open ended	Not applicable	Demographics
Section 2:	Leadership: Quant			
Q1 to Q29	Criteria	Ordinal scale (Likert scale)	RQ1, RQ2, RQ3, RQ4	RQ1: Relationship between the HDL and the principles of CL, HOSS, and OSS principles RQ2: Difference between the impact of HDL on HOSS, and the impact of HOSS on HDL RQ3: Difference in relationship between managers and non-managers towards HDL and HOSS RQ4: difference in relationship between clinical and non-clinical towards HDL and HOSS
Section 3	Operational systems and structures: Quant			
Q1 to Q33	Criteria	Ordinal scale (Likert scale)	RQ1, RQ2, RQ3, RQ4	RQ1: Relationship between the HDL and the principles of CL, HOSS, and OSS principles RQ2: Difference between the impact of HDL on HOSS, and the impact of HOSS on HDL RQ3: Difference in relationship between managers and non-managers towards HDL and HOSS RQ4: difference in relationship between clinical and non-clinical towards HDL and HOSS
Section 4	Additional Information	Open-ended		Useful information for QUAL purposeful sampling, further supporting information
QUALITATIVE QUESTIONNAIRE				
Section 1	Introduction	Open ended discussion		Determinant to continue with questionnaire

Section 2	Relationship between HDL and HOSS	Open ended discussion	RQ5, RQ6	RQ5: explanations for the drivers of RQ1, RQ2, RQ3, RQ4 RQ6: Recommendations by managers and non-managers for possible HDL and HOSS changes
Section 3	Clarifying concepts	Open ended discussion	RQ5, RQ6	RQ5: explanations for the drivers of RQ1, RQ2, RQ3, RQ4 RQ6: Recommendations by managers and non-managers for possible HDL and HOSS changes
Section 4	COVID-19 experience	Open ended discussion	RQ7	RQ7: participants' experience of the impact the COVID-19
INTEGRATED SECTION				
	Integration of results RQ1-RQ7	Integration	RQ8	RQ8: Are CL and OSS, as defined in this study, displayed in the private hospitals in South Africa?
	Integration of results RQ1-RQ7	Integration	RQ9	RQ9: Developing recommendations for the private hospital industry in South Africa regarding adaptability

Table 7.1 provides a summary of how the study research questions are linked to the questionnaire and interview questions, displaying how the research is an integrated whole.

7.3 RESEARCH NOTE: CONTRIBUTION THAT DOES NOT FORM PART OF THE RESEARCH QUESTIONS

Two contributions of this study that do not form part of the research questions add to the body of knowledge. These two contributions will now be discussed.

7.3.1 Conceptual framework of this study

The structure of the conceptual framework of this study is unique as no study internationally, nationally, or in private hospitals in South Africa could be found where CL and OSS (agile, lean and leagile) were combined into one study. Furthermore, the literature study displays the synergies between the conceptual foundation of entrepreneurial leadership and agile operational systems and structures, between operational leadership and lean systems and structures, and between enabling leadership and leagile systems and structures. The shared underpinning concepts of the CL and OSS conceptual models, which are collaboration and continuous improvement, provide additional support for the alignment between CL and OSS as per the overall conceptual model of this study.

The HDL and HOSS in hospitals are not fully aligned with the conceptual model of the study. As explained in section 6.2.6.7., entrepreneurial HDL and agile HOSS have a strong positive correlation with one another, however administrative-operational HDL has a moderate negative relation to lean HOSS and lean HOSS has a very strong positive relation to administrative-operational HDL.

The strong alignment between CL and OSS, as displayed in the combined conceptual framework of this study, provides a clear direction to private hospitals in South Africa that change cannot occur only by implementing new, more lean or more agile operational systems and structures. The success of change is linked to the type of leadership approach that is displayed by the managers in the hospital, supported by the way in which the employees are engaged. The combination of CL and OSS in one study framework is a unique finding.

7.3.2 LinkedIn sampling

The LinkedIn sampling approach applied to a large portion of the study sample is a unique approach to this type of study. Several social media studies were found where LinkedIn was used for studies of business referral and collaboration related to social media; however, very limited studies could be found where LinkedIn was used as a sampling platform for a non-LinkedIn related study.

Throughout the data collection process, all possible statistics were gathered to ensure the validity of the LinkedIn sample. No significant difference was noted in the percentage of LinkedIn participants that received an invitation and engaged the questionnaire and the percentage of direct sample participants that engaged the questionnaire. When comparing quantitative statistics between the LinkedIn sample and the direct sample, it is clear that LinkedIn as a sample approach provides a credible alternative to traditional sampling approaches for a study.

Using LinkedIn sampling in a healthcare study is, therefore, a unique contribution to the body of knowledge.

7.4 LIMITATIONS OF THE RESEARCH

Limitations always apply to research studies and complex research environments in a politically sensitive setting, such as healthcare, even more so. The limitations applied to this study will be discussed in two domains:

7.4.1 Methodological limitations

A few methodological limitations have been experienced:

- All three largest hospital groups in South Africa refused to assist with this study citing “lack of time” or “priorities” as reasons, potentially impacting the probability sampling as they denied the researcher access to their staff even when the researcher offered to manage all administrative and research work. The researcher was forced to use

alternative sampling methods, such as public profiles on LinkedIn, to gain access to potential participants, potentially influencing the demographics of the sample. Specific actions were taken to ensure the validity of the sampling (Section 5.4.1).

- Using LinkedIn as a sampling strategy is a novel approach to sampling in academic research, although limited literature on this sampling method exists (Stokes et al., 2019).
- The quantitative survey was an online self-assessment. Self-assessment inherently carries the risk of personal bias by the individuals in answering it, especially the participant's viewpoint about HDL and HOSS within the organisation and providing “expected” responses. Task difficulty, the respondent's ability and the respondent's motivation, play a role in whether the respondent will accurately complete a survey (Krosnick, 2018)
- The time-lapse of just over six months that occurred between completing the first and the last quantitative survey could potentially impact the integrity of the results. However, it was found not to be too extensive as the quantitative study was less time-sensitive by the nature of the questions, whilst the more time-sensitive qualitative data collection was performed within four weeks.
- Several participants initially indicated they would participate but soon withdrew from the sample. Follow-up revealed that they withdrew since they feared possible reprisal (sanctions) by their employers. Furthermore, 91 Participants started but did not complete the survey. A sample follow-up revealed similar reasons. This was notwithstanding an absolute assurance of confidentiality and anonymity, highlighting the fear of potential participants working in highly autocratic organisations with leaders ruling by fear.
- Shortly after the quantitative survey process commenced, the COVID-19 pandemic hit South Africa on 5 March 2020 (National Institute for Communicable Diseases, 2020) , with the result that the private hospitals took severe strain. This slowed the data collection process but also provided an important opportunity to conduct a study within a study with obtaining real-life experiences of participants amidst a major health crisis and major change (see Section 7.2.7 for conclusions).

7.4.2 The researcher

The researcher is a registered intensive care unit nurse with extensive previous experience in all three of the major private hospitals in this study, which could lead to potential bias. However, she has worked in healthcare insurance for the past five years (not associated with

any hospital group). The researcher made conscious decisions to always remain objective and limit bias. However, the subjective nature of especially qualitative research cannot be denied.

One of the three larger hospital groups reported the researcher, in an unwarranted manner, to the Ethics Committee of the University in an attempt to put a stop to the research (this came about after realising that the research would go ahead through LinkedIn sampling). A compromise solution was found in that additional disclaimers had to be added to the Participant Information Document for participants from this specific hospital group only (no questionnaire content had to be adapted). This resulted in the researcher employing a parallel data collection strategy to accommodate the additional wording during the introductions. After the data collection was concluded, the data were combined.

7.5 OVERALL HIGH-LEVEL STUDY RECOMMENDATIONS

The private healthcare industry and private hospitals specifically face complexity on a wide variety of fronts, as indicated in the literature study and supported by the findings of this study. Urgent action is required from the leaders at the hospital and industry level to deal with the complexities that are experienced. Details of the study recommendations were provided when discussing the conclusions of RQ9 (See Section 7.2.9).

The leaders in the private hospital industry must aggressively implement the following recommendations; however, to only hand-pick low-hanging fruit and not address the ingrained dynamics pointed out in this study will result in a failed attempt. The following recommendations must be embraced in an all-or-nothing approach.

1. Aggressive industry change by implementing CL and OSS

CL and OSS aligned with the conceptual model of this study have to be aggressively implemented, as indicated in the title of this study. It is recommended that this implementation of CL has to be balanced between operational leadership, entrepreneurial leadership, and enabling leadership. The implementation of OSS has to be balanced between lean, agile, and leagile. A natural result from the implementation to CL and OSS will be the development of an adaptive space, where enabling leadership is displayed and leagile is implemented. In the adaptive space, where trust and transparency exist, collaboration and communication will change the negative authority gradient culture to a positive one, resulting in change.

2. Overcome disconnect and increase collaboration

The industry must purposefully create aggressive change to decrease the disconnectedness and to increase collaboration between the head office and the hospital, between the clinical and non-clinical team members, between managers and non-managers, between the hospital groups, as well as the hospital groups and government. This must be a top-down initiative.

3. A formal framework for industry adaptability

A formal framework for industry adaptability must be developed. This should be an industry-wide framework supported by the leaders of the hospitals and hospital groups at all levels.

4. Integrated and applied development programme

Private hospitals must have extensive skills development initiatives with an integrated applied development program for leaders at all levels, as well as normal employees. The aim must be to understand the relationship between CL, OSS, business acumen, and the impact it has on the success of the organisation.

Implementing the abovementioned recommendations will result in industry change towards a culture of trust, transparency, engagement and leadership that impact the bigger organisation through positive adaptability.

7.6 SUGGESTIONS FOR FUTURE RESEARCH

The following suggestions can be made for future research:

- Similar research must be conducted in the public hospital industry to understand the relationship between HDL and HOSS in that industry, understand whether it is aligned with CL and OSS principles, and identify what measures can be implemented to change the situation. This is needed in lieu of the impact of implementing the intended regulatory changes on the industry.
- An industry framework for adaptability for the South African healthcare industry must be developed that will overcome the disparity between the current public and private healthcare industries and address the complexity experienced and guide the industry in better establishing private-public partnerships.

- This study had to rely on LinkedIn for collecting primary data for surveys not related to LinkedIn directly. LinkedIn, as a data source, is a novel approach. Research must be conducted to establish guidelines for research using LinkedIn as a primary data source for research not related to LinkedIn or social media.
- The study identified that the authority gradient in healthcare does not only exist between individuals (senior person vs junior person), but it also exists between the culture and dynamics between the head office and hospital, the dynamics between specialists and the way they interact with funders, as well as between the large hospital groups and the way they interact with funders. Future research is needed to expand the definition of authority gradient, as it is currently stated in healthcare literature.

7.7 FINAL CONCLUSION

This study has examined the relationship between the HDL and the HOSS displayed in private hospitals in South Africa, evaluating whether the HDL and HOSS are aligned with the principles of CL and OSS, understanding why the result occurred, and recommending what can be done to enhance the alignment of these factors for private hospitals adaptability.

Throughout this study, hospitals and hospital groups were illustrated as autopoietic units that attempted to meet the criteria of being bounded, complex, mechanistic, self-referential, self-producing and autonomous (see Section 2.1.1). Should a hospital not meet these criteria, it attempts to meet them through either an order response or an adaptive response (see Section 2.2.1) to ensure autonomy and self-producing are maintained (Varela et al., 1974) as explained in the Autopoiesis Theory. The first major finding from the literature is that the private healthcare industry is being disrupted by implementing the NHI and other regulatory changes, generating a major exogenous shock that will need a response from the industry in reaction to the disruptor.

The results of this study conclusively confirmed that the HDL and the HOSS do not meet the guidelines of CL and OSS, as explained in this study. The HDL is an administrative-operational leadership, and the HOSS are more aligned with the principles of lean.

A further significant finding was that organisations typically have two possible reactions to an exogenous shock: an order response or an adaptive response. The result of the employee experience during the COVID-19 pandemic indicated that employees that experienced an order response had an extremely negative experience, whereas employees that experienced an adaptive response had a very positive experience, despite the trauma of the pandemic.

In positioning private hospitals in South Africa for adaptability, it has been conclusively shown that implementing CL and OSS aligned with the conceptual model of this study is the solution. Implementing CL and OSS can only be achieved if the adaptive space is purposefully created, as clearly supported by the findings of the study. This finding has major consequences for private hospital executive leadership if they want to ready themselves to deal effectively with the next major exogenous disrupter, the introduction of universal health care in South Africa, a given governmental strategic objective. The study has conclusively shown that unless South African private hospitals actively pursue entering the adaptive space in both CL and OSS, it will find it exceedingly difficult to adapt to and deal with the complexities currently in the industry, as well as the expected complexities going forward. In creating and maintaining the adaptive space, small changes can have a significant impact (Section 2.5), creating different dynamics in the hospital and the industry. The adaptive space must also be created between the head office and hospitals to overcome the disconnect and find innovative ways to collaborate and find innovative solutions to deal with the disruption.

The final and most important finding is that industry change will only happen if the change is top-down. As explained in this study, managers at all levels should receive integrated and applied training on how to become inspiring leaders by implementing the frameworks of CL and OSS. Furthermore, they need to be guided on how to develop and engage the adaptive space and how to display business acumen in their hospital role.

The research objective of this study was achieved by positioning private hospitals in South Africa for adaptability by considering the implementation of CL and OSS (agile, lean and leagile).

"Leadership is inspiring people to do things they never thought they could!"

(Steve Jobs, 1955 - 2011)

**"Let's create a different future, by....
Changing the Heartbeat of Healthcare,
One Beat at a Time!"**

(Karen Nel, 2021).

REFERENCES

- Abbatiello, A., Agarwal, D., Bersin, J., Lahiri, G., Schwartz, J., & Volini, E. (2018). *The rise of the social enterprise, 2018. Deloitte global human capital trends*. Retrieved 17 September 2019 from https://www2.deloitte.com/content/dam/insights/us/articles/HCTrends2018/2018-HCTrends_Rise-of-the-social-enterprise.pdf.
- Abdelilah, B., El Korchi, A., & Balambo, M. A. (2018). Flexibility and agility: evolution and relationship. *Journal of Manufacturing Technology Management*, 29(7), 1138-1162. DOI: 10.1108/JMTM-03-2018-0090.
- Acton, B. P., Foti, R. J., Lord, R. G., & Gladfelter, J. A. (2019). Putting emergence back in leadership emergence: A dynamic, multilevel, process-oriented framework. *The Leadership Quarterly*, 30(1), 145-164. DOI:10.1016/J.LEAQUA.2018.07.002.
- Adebanjo, D., Laosirihongthong, T., & Samaranayake, P. (2016). Prioritizing lean supply chain management initiatives in healthcare service operations: a fuzzy AHP approach. *Production Planning & Control*, 27(12), 953-966. DOI: 10.1080/09537287.2016.1164909.
- Adom, D., Hussein, E. K., & Agyem, J. A. (2018). Theoretical and conceptual framework: Mandatory ingredients of a quality research. *International Journal of Scientific Research*, 7(1), 438-441.
- Adserias, R. P., Charleston, L. J., & Jackson, J. F. (2017). What style of leadership is best suited to direct organizational change to fuel institutional diversity in higher education? *Race Ethnicity and Education*, 20(3), 315-331. <https://doi.org/10.1080/13613324.2016.1260233>.
- Africa Health. (2020). *Market insights: Healthcare market for South Africa*. Retrieved 20 August 2020 from https://www.africahealthexhibition.com/content/dam/Informa/africahealthexhibition/en/2020/pdf/AFH20_Industry_Insights_Healthcare_Market_South-Africa.pdf.
- Ågotnes, K. W., Einarsen, S. V., Hetland, J., & Skogstad, A. (2018). The moderating effect of laissez-faire leadership on the relationship between co-worker conflicts and new cases of workplace bullying: A true prospective design. *Human Resource Management Journal*, 28(4), 555-568. <https://doi.org/10.1111/1748-8583.12200>.
- Ahmed, H., & Cowan, B. (2021). Mobile money and healthcare use: Evidence from East Africa. *World Development*, 141, 105392. <https://doi.org/10.1016/j.worlddev.2021.105392>.

- Akmal, A., Greatbanks, R., & Foote, J. (2020). Lean thinking in healthcare: Findings from a systematic literature network and bibliometric analysis. *Health Policy*, 124, 615-627. DOI: 10.1016/j.healthpol.2020.04.008.
- Aktan, H. E., & Akyuz, G. (2017). Positioning the decoupling point along a supply chain: a case study. *International Journal of Productivity and Quality Management*, 22(3), 309-339. <https://doi.org/10.1504/IJPQM.2017.087302>.
- Al-Ali, A. A., Singh, S. K., Al-Nahyan, M., & Sohal, A. S. (2017). Change management through leadership: the mediating role of organizational culture. *International Journal of Organizational Analysis*, 25(2), 201-222. DOI: 10.1108/IJOA-01-2017-1117.
- Al-Zain, Y., Al-Fandi, L., Arafah, M., Salim, S., Al-Quraini, S., Al-Yaseen, A., & Abu Taleb, D. (2019). Implementing Lean Six Sigma in a Kuwaiti private hospital. *International Journal of Health Care Quality Assurance*, 32(2), 431-446. DOI:10.1108/IJHCQA-04-2018-0099.
- Al Rahbi, D., Khalid, K., & Khan, M. (2017). The effects of leadership styles on team motivation. *Academy of Strategic Management Journal*, 16(2), 1-14. DOI: 1939-6104-16-2-113.
- Alfaro-Velcamp, T. (2017). "Don't send your sick here to be treated, our own people need it more": immigrants' access to healthcare in South Africa. *International Journal of Migration, Health and Social Care*, 13(1), 53-68. DOI 10.1108/IJMHSC-04-2015-0012.
- Allen, S. (2020). *2020 Global health care outlook: Laying a foundation for the future*. Retrieved 16 August 2020 from <https://www2.deloitte.com/content/dam/Deloitte/lu/Documents/life-sciences-health-care/lu-lshc-2020-global-healthcare-infographic.pdf>.
- Allinder, S. M., & Fleischman, J. (2019). *The World's largest HIV epidemic in crisis: HIV in South Africa*. Retrieved 20 August 2020 from <https://www.csis.org/analysis/worlds-largest-hiv-epidemic-crisis-hiv-south-africa>.
- Anderson, V. (2017). Criteria for evaluating qualitative research. *Human Resource Development Quarterly*, 28(2), 125-133. <https://doi.org/10.1002/hrdq.21282>.
- Andersson, R., Eriksson, H., & Torstensson, H. (2006). Similarities and differences between TQM, six sigma and lean. *The TQM Magazine*, 18(3), 282-296. <https://doi.org/10.1108/09544780610660004>.
- Apenko, S., & Chernobaeva, G. (2016, 14-15 April). The influence of complex adaptive leadership on the efficiency of business management, (p. 17-24). In *Proceedings of the 4th International Conference on Management, Leadership & Governance*. Saint-Petersburg, Russia. Retrieved 28 June 2020 from <https://academic-bookshop.com>
- Arena, M. J. (2018). *Adaptive space*. New York: McGrawHill. Retrieved 10 August 2019 from <https://www.adaptivespace.net/>.

- Arena, M. J. (2019, 16 January) *The power of networks: Michael Arena on adaptive spaces and redesigning organizations for the future*/Interviewer: T. McDowell & A. N. Phillips. Deloitte Insights, Retrieved 20 August 2019 from <https://www2.deloitte.com/us/en/insights/focus/technology-and-the-future-of-work/michael-arena-adaptive-spaces-organization-design.html>
- Arena, M. J., Cross, R., Sims, J., & Uhl-Bien, M. (2017). Groundswell: Tapping the power of employee networks to fuel emergent innovation. *Connected Commons*, April, 1-13. Retrieved 17 September 2020 from <https://connectedcommons.com/wp-content/uploads/2018/05/groundswell-tapping-employee-networks-to-fuel-emergent-innovation.pdf>.
- Arena, M. J., & Uhl-Bien, M. (2016). Complexity Leadership Theory: Shifting from human capital to social capital. *People and Strategy*, 39(2), 22-27. Retrieved 14 July 2019 from https://sagewaysconsulting.com/wp-content/uploads/2017/03/ComplexityLeadershipTheory_HRPS_39.2_Arena_Uhl_Bien.pdf
- Arnold, K. (2020, 15 March). The NHI could provide a dose of social justice for South Africa. *Mail & Guardian*. Retrieved 10 May 2020 from <https://mg.co.za/article/2020-03-15-the-nhi-could-provide-a-dose-of-social-justice-for-south-africa/>.
- Aronsson, H., Abrahamsson, M., & Spens, K. (2011). Developing lean and agile health care supply chains. *Supply Chain Management: An International Journal*, 16(3), 176-183. DOI/10.1108/13598541111127164.
- Arora, M., & Gigras, Y. (2018). Importance of supply chain management in healthcare of Third World countries. *International Journal of Supply and Operations Management*, 5(1), 101-106. DOI: 10.22034/2018.1.7.
- Asamani, J. A., Amertil, N. P., Ismaila, H., Akugri, F. A., & Nabyonga-Orem, J. (2020). The imperative of evidence-based health workforce planning and implementation: lessons from nurses and midwives unemployment crisis in Ghana. *Human Resources for Health*, 18(1), 1-6. <https://doi.org/10.1186/s12960-020-0462-5>.
- Asiabar, A. S., & Ardestani, A. S. (2018). Factors affecting the leadership effectiveness of hospital managers: A systematized review. *Medical Journal of the Islamic Republic of Iran*, 32, 1-6. DOI: 10.14196/mjiri.32.6.
- Atlas.ti. (2020). *Atlas.ti*. Retrieved 10 May 2020 from <https://atlasti.com/>.
- Avert.org. (2020). *HIV and AIDS in South Africa*. Retrieved 20 April 2020 from <https://www.avert.org/professionals/hiv-around-world/sub-saharan-africa/south-africa>.
- Bacharach, S. B. (1989). Organizational theories: some criteria for evaluation. *Academy of Management Review*, 14(4). 496-515.

- Baltacı, A., & Balcı, A. (2017). Complexity leadership: A theoretical perspective. *International Journal of Educational Leadership and Management*, 5(1), 30-58.
- Balu, S. (2018). *The organisational salience and the perceived influence of operational safety professionals: An examination of Hopkins' hypothesis that decentralised hierarchical structures limit the capacity of technical experts and specialists to promote operational safety priorities in corporate decision-making processes*. PhD thesis, Australian National University, Canberra. Retrieved 4 June 2019 from <https://openresearch-repository.anu.edu.au/bitstream/1885/156981/1/Balu-Thesis-2019.pdf>.
- Banks, G. C., McCauley, K. D., Gardner, W. L., & Guler, C. E. (2016). A meta-analytic review of authentic and transformational leadership: A test for redundancy. *The Leadership Quarterly*, 27(4), 634-652. <https://doi.org/10.1016/j.leaqua.2016.02.006>.
- Barach, P., Fisher, S. D., Adams, M. J., Burstein, G. R., Brophy, P. D., Kuo, D. Z., & Lipshultz, S. E. (2020). Disruption of healthcare: Will the COVID pandemic worsen non-COVID outcomes and disease outbreaks? *Progress in Pediatric Cardiology*. 59: 101254. DOI: 10.1016/j.ppedcard.2020.101254.
- Baran, B. E., & Woznyj, H. M. (2020). Managing VUCA: The human dynamics of agility. *Organizational Dynamics*, 20 August. DOI: 10.1016/j.orgdyn.2020.100787.
- Barasa, E. W., Molyneux, S., English, M., & Cleary, S. (2017). Hospitals as complex adaptive systems: A case study of factors influencing priority setting practices at the hospital level in Kenya. *Social Science & Medicine*, 174, 104-112. DOI: 10.1016/j.socscimed.2016.12.026.
- Bardoel, E. A., Russell, G., Advocat, J., Mayson, S., & Kay, M. (2020). Turnover among Australian general practitioners: a longitudinal gender analysis. *Human Resources for Health*, 18(1), 1-12. <https://doi.org/10.1186/s12960-020-00525-4>.
- Barling, J., & Frone, M. R. (2017). If only my leader would just do something! Passive leadership undermines employee well-being through role stressors and psychological resource depletion. *Stress and Health*, 33(3), 211-222. DOI: 10.1002/smi.2697.
- Bass, B. M. (1960). *Leadership, psychology, and organizational behavior*. New York: Harper.
- Bass, B. M., & Riggio, R. E. (2006). *Transformational Leadership: (2nd Ed)*. London: Lawrence Erlbaum Associates.
- Belrhiti, Z., Giralt, A. N., & Marchal, B. (2018). Complex leadership in healthcare: a scoping review. *International Journal of Health Policy and Management*, 7(12), 1073-1084. DOI: 10.15171/IJHPM.2018.75.

- Benitez, J., Castillo, A., Llorens, J., & Braojos, J. (2018b). IT-enabled knowledge ambidexterity and innovation performance in small US firms: the moderator role of social media capability. *Information & Management*, 55(1), 131-143. <https://doi.org/10.1016/j.im.2017.09.004>.
- Berlin, G., De Smet, A., & Sodini, M. (2017). *Why agility is imperative for healthcare organizations*. [SI]: McKinsey & Company. Retrieved 10 August 2019 from https://healthcare.mckinsey.com/wp-content/uploads/2020/02/AgilityWP_R4C.pdf.
- Bhatta, N., & Thite, M. (2019). *Agile approach to e-HRM project management*. *e-HRM: Digital Approaches, Directions & Applications*. New York: Routledge.
- Blecher, M., Davén, J., Harrison, S., Fanoe, W., Ngwaru, T., Matsebula, T., & Khanna, N. (2019). National Health Insurance: vision, challenges, and potential solutions (pp. 29-42). In: T. Moeti, & A. Padarath (Eds). *South African Health Review, 2019*. Durban: Health Systems Trust. 20 September 2020 from https://www.hst.org.za/publications/South-African-Health-Reviews/SAHR_2019_14012020_Updated-web.pdf.
- Boisot, M., & McKelvey, B. (2011). Complexity and organization-environment relations: Revisiting Ashby's law of requisite variety (pp. 279-298). In: P. Allen, S. Maguire, & B. McKelvey (Eds). *The Sage Handbook of Complexity and Management*. Thousand Oaks, CA: Sage.
- Bolarinwa, O. A. (2015). Principles and methods of validity and reliability testing of questionnaires used in social and health science researches. *Nigerian Postgraduate Medical Journal*, 22(4), 195-201.
- Bollen, K., & Lennox, R. (1991). Conventional wisdom on measurement: A structural equation perspective. *Psychological Bulletin*, 110(2), 305-314. <https://doi.org/10.1037/0033-2909.110.2.305>.
- Bollen, K. A. (1989). *Structural equations with latent variables*. Wiley series in probability and mathematical statistics. Applied probability and statistics section. New York: John Wiley & Sons.
- Brauns, M. (2016). *Public healthcare in a post-apartheid South Africa: a critical analysis in governance practices*. PhD (Policy & Development Studies). University of Kwazulu-Natal, Durban. Retrieved 17 June 2020 from https://ukzn-dspace.ukzn.ac.za/bitstream/handle/10413/14281/Brauns_Melody_2016.pdf.
- Breed, M., Downing, C., & Ally, H. (2020). Factors influencing motivation of nurse leaders in a private hospital group in Gauteng, South Africa: A quantitative study. *Curationis*, 43(1), 1-9. DOI: 10.4102/curationis.v43i1.2011.

- Brothwell, R. (2018, 21 June). These are the 10 massive medical aid changes you need to know about. *BusinessTech*. 21 June 2019 from <https://businesstech.co.za/news/government/253207/these-are-the-10-massive-medical-aid-changes-you-need-to-know-about/>.
- Brunier, A., & Harris, M. (2020). *COVID-19 significantly impacts health services for noncommunicable diseases* [Press Release]. Retrieved 1 June 2020 from <https://www.who.int/news-room/detail/01-06-2020-covid-19-significantly-impacts-health-services-for-noncommunicable-diseases>.
- Burger, R., & Christian, C. (2018). Access to health care in post-apartheid South Africa: availability, affordability, acceptability. *Health Economics, Policy and Law*, 15(1), 43-55. DOI:10.1017/S1744133118000300.
- Busagala, L. S., & Kawono, G. C. (2013). Perceptions and adoption of information and communication technology for healthcare services in Tanzania. *International Journal of Computing & ICT Research*, 7(1), 12-21. DOI: 10.1.1.372.5723.
- Cai, Z., Huang, Q., Liu, H., & Wang, X. (2018). Improving the agility of employees through enterprise social media: The mediating role of psychological conditions. *International Journal of Information Management*, 38(1), 52-63.
- Campbell, E. (2020). *Servant leadership and passive leadership: A comparison of the effects of two non-heroic leadership styles on engagement, burnout, and performance*. Master's Thesis, University of Waikato, Hamilton. Retrieved 20 October 2020 from <https://hdl.handle.net/10289/13590>.
- Carifio, J., & Perla, R. (2008). Resolving the 50-year debate around using and misusing Likert scales. *Medical education*, 42(12), 1150-1152.
- Centers for Disease Control and Prevention. (2020). *HIV Basics*. Retrieved 3 November 2020 from <https://www.cdc.gov/hiv/basics/whatishiv.html>.
- Champagne, J. (2020). Navigating the emotional turmoil of the COVID-19 pandemic as a new leader. *American Journal of Health-System Pharmacy*, 77(18), 1539-1540. DOI: 10.1093/ajhp/zxaa181.
- Chatfield, J. S., Longenecker, C. O., Fink, L. S., & Gold, J. P. (2017). Ten CEO imperatives for healthcare transformation: lessons from top-performing academic medical centers. *Journal of Healthcare Management*, 62(6), 371-383. DOI: 10.1097/JHM-D-16-00003.
- Child, K. (2020, 8 August). Doctors and hospitals won't be able to charge what they like under NHI. *Times Live*. Retrieved 14 December 2020 from <https://www.timeslive.co.za/news/south-africa/2019-08-08-doctors-and-hospitals-wont-be-able-to-charge-what-they-like-under-nhi/>.

- Chuan, C. L., & Penyelidikan, J. (2006). Sample size estimation using Krejcie and Morgan and Cohen statistical power analysis: A comparison. *Jurnal Penyelidikan IPBL*, 7(1), 78-86.
- Clinix Health Group. (2019). *Clinix Health Group*. Retrieved 5 March 2020 from <https://www.clinix.co.za/>.
- Coetzer, E. L. (2019). *An investigation into whether learning about social cognitive neuroscience in a leader development intervention helps to facilitate behavioural change in leaders*. PhD (Consulting Psychology) thesis, University of South Africa, Pretoria. Retrieved 19 June 2020 from http://uir.unisa.ac.za/bitstream/handle/10500/25765/thesis_coetzer_el.pdf.
- Cohen, W.M. & Levinthal, D.A. (1990). Absorptive capacity: a new perspective on learning and innovation. *Administrative Science Quarterly*, 35(1) Special Issue: Technology, Organizations, and Innovation, 128-152. <https://doi.org/10.2307/2393553>.
- Cohn, M., & Rubin, K. (2018). *Comparative agility*. Retrieved 10 January 2020 from <https://www.comparativeagility.com/capabilities/agile-assessment/>.
- Collis, J., & Hussey, R. (2013). *Business research: a practical guide for undergraduate and postgraduate students*. London: Macmillan International Higher Education.
- Colombo, F., Oderkirk, J., & Slawomirski, L. (2020). Health Information Systems, Electronic Medical Records, and Big Data in Global Healthcare: Progress and Challenges in OECD Countries. *Handbook of Global Health*, 1-31. New York: Springer.
- Combrinck, Y. (2018). *Strategies to preserve the professional dignity of nurses in a demanding healthcare environment*. PhD (Nursing Science) thesis, University of Pretoria, Pretoria. Retrieved 26 September 2019 from https://repository.up.ac.za/bitstream/handle/2263/67981/Combrinck_Strategies_2018.pdf.
- Competition Commission of South Africa. (2019). *Health Market Inquiry: Final findings and recommendations report (September 2019)*. Retrieved 18 January 2020 from <http://www.compcom.co.za/wp-content/uploads/2020/01/Final-Findings-and-recommendations-report-Health-Market-Inquiry.pdf>.
- Conforto, E. C., Amaral, D. C., da Silva, S. L., Di Felippo, A., & Kamikawachi, D. S. L. (2016). The agility construct on project management theory. *International Journal of Project Management*, 34(4), 660-674. <https://doi.org/10.1016/j.ijproman.2016.01.007>.
- Cooke, P. (2002). Regional innovation systems: general findings and some new evidence from biotechnology clusters. *The Journal of Technology Transfer*, 27(1), 133-145. <https://doi.org/10.1023/A:1013160923450>.
- Coolidge, F. L. (2020). *Statistics: A gentle introduction*. New York: Sage.

- Corley, K. G., & Gioia, D. A. (2011). Building theory about theory building: what constitutes a theoretical contribution? *Academy of Management Review*, 36(1), 12-32.
- Council for Medical Schemes. (2019). *Annual Report 2018/2019*. Retrieved 10 April 2020 from https://www.medicalschemes.com/files/Annual-Reports/CMSAR2018_19.pdf.
- Council for Medical Schemes. (2020a). *Circular 52 of 2020: Guidance on benefit changes and contribution increases for 2021* [Press Release]. Retrieved 23 July 2020 from <https://www.medicalschemes.com/files/Circulars/Circular52of2020.pdf>.
- Council for Medical Schemes. (2020b). *CMS Annual Report 2019/20*. Retrieved 8 December 2020 from https://www.medicalschemes.co.za/download/3506/2019-20-annual-report/23421/cms-annual-report-201920_digital.pdf.
- Course Hero. (2020). *Adaptive Leadership Questionnaire*. Retrieved 10 April 2020 from <https://www.coursehero.com/tutors-problems/Business/10745943-Make-one-copy-of-the-Authentic-Leadership-Self-Assessment-Questionnaire/>.
- Creswell, J. W. (2014). *Research design: qualitative, quantitative and mixed methods approaches* (4th ed.). New York: Sage.
- Creswell, J. W., Klassen, A. C., Plano Clark, V. L., & Smith, K. C. (2018). *Best practices for mixed methods research in the health sciences* (2nd ed.). Bethesda, MA: Office of Behavioral and Social Sciences Research, National Institutes of Health.
- Creswell, J. W., & Plano Clark, V. L. (2017). *Designing and conducting mixed methods research* (3rd ed.). Washington: Sage.
- Crow, G., Hahn, J., & French-Bravo, M. (2019). Through the looking glass: reimagining nursing professional governance in the age of complexity. *Nurse Leader*, 17(1), 27-31. Retrieved 10 January 2020 from DOI: <https://doi.org/10.1016/j.mnl.2018.09.008>.
- Cucinotta, D., & Vanelli, M. (2020). WHO declares COVID-19 a pandemic. *Acta Bio Medica: Atenei Parmensis*, 91(1), 157. Retrieved 10 October 2020 from <https://doi.org/10.23750/abm.v91i1.9397>.
- Czarniawska, B. (2017). Bruno Latour and Niklas Luhmann as organization theorists. *European Management Journal*, 35, 145-150. Retrieved 15 July 2019 from DOI: 10.1016/j.emj.2017.02.005.
- D'Innocenzo, L., Mathieu, J. E., & Kukenberger, M. R. (2016). A meta-analysis of different forms of shared leadership – team performance relations. *Journal of Management*, 42(7), 1964-1991. <https://doi.org/10.1177/0149206314525205>.
- Denzin, N. K. (2017). *The Research Act: a theoretical introduction to sociological methods (ebook)*. Abingdon, Oxon: Routledge. <https://doi.org/10.4324/9781315134543>.
- De Paula Guedes, H., Ziviani, F., de Paiva, R. V. C., Ferreira, M. A. T., & De Mendonça Herzog, M. (2017). Assessment of absorptive capacity: a study in Brazilian manufactures of solar panels. *Management and Production*, 24(1), 50-63.

- De Raedemaeker, S., Handscomb, C., Jautelat, S., Rodriguez, M., & Wienke, L. (2020). *Lean management or agile? The right answer may be both*. Retrieved 1 August 2020 from <https://www.mckinsey.com/business-functions/operations/our-insights/lean-management-or-agile-the-right-answer-may-be-both>.
- De Smet, M. D., Naus, G. J., Faridpooya, K., & Mura, M. (2018). Robotic-assisted surgery in ophthalmology. *Current Opinion in Ophthalmology*, 29(3), 248-253. DOI: 10.1097/ICU.0000000000000476.
- DeCosterd, S., Brennan, C. W., Bavaud, S., Ballabeni, P., & Eicher, M. (2019). Translation and preliminary validation of the Oncology Acuity Tool – French (for Switzerland). *Journal of Nursing Measurement*, 27(3), 401-417. DOI: 0.1891/1061-3749.27.3.401.
- DeCuir-Gunby, J. T., & Schutz, P. A. (2016). *Developing a mixed methods proposal: A practical guide for beginning researchers*. Thousand Oaks, CA: Sage.
- Deichmann, D., & Stam, D. (2015). Leveraging transformational and transactional leadership to cultivate the generation of organization-focused ideas. *The Leadership Quarterly*, 26(2), 204-219. <https://doi.org/10.1016/j.leaqua.2014.10.004>.
- DeLay, L., & Clark, K. R. (2020). The relationship between leadership styles and job satisfaction: a survey of MR technologists' perceptions. *Radiologic Technology*, 92(1), 12-22.
- Deloitte. (2019). *2019 Global health care outlook: Shaping the future*. Retrieved 10 January 2020 from <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Life-Sciences-Health-Care/gx-lshc-hc-outlook-2019.pdf>.
- Department of Health. (2018). Medical Schemes Amendment Bill, 2018. *Government Gazette*, 41726(636), 21 June. Retrieved 28 November 2019 from https://www.gov.za/sites/default/files/gcis_document/201806/41726gon636s.pdf.
- Department of Health. (2019). *National Health Insurance Bill*. [B11-2019]. Pretoria: Government Printers. Retrieved 18 December 2019 from https://www.gov.za/sites/default/files/gcis_document/201908/national-health-insurance-bill-b-11-2019.pdf.
- Department of Health. (2020). *Update of COVID-19 (27th March 2020)*. Retrieved 18 August 2020 from <https://sacoronavirus.co.za/2020/03/27/update-of-covid-19-27th-march-2020/>.
- Dixit, A., Routroy, S., & Dubey, S. K. (2019). A systematic literature review of healthcare supply chain and implications of future research. *International Journal of Pharmaceutical and Healthcare Marketing*, 13(4), 405-435.

- Doherty, J., Gilson, L., & Shung-King, M. (2018). Achievements and challenges in developing health leadership in South Africa: the experience of the Oliver Tambo Fellowship Programme 2008–2014. *Health Policy and Planning*, 33(Suppl_2), ii50-ii64. Doi:10.1093/heapol/czx155.
- Downey, A. B. (2016). *Think complexity: Complexity science and computational modelling* (2nd ed.). Sebastopol, CA: Green Tea Press.
- Du, J., & Chen, Z. (2018). Applying organizational ambidexterity in strategic management under a “VUCA” environment: evidence from high tech companies in China. *International Journal of Innovation Studies*, 2(1), 42-52. <https://doi.org/10.1016/j.ijis.2018.03.003>.
- Durojaiye, C. O., & Morgan, R. (2020). *COVID-19 crisis and global healthcare delivery: Lessons to be learned*. Preprints 2020, 2020090535. Retrieved 23 September 2020 from DOI: 10.20944/preprints202009.0535.v1.
- Ebert, J. F., Huibers, L., Christensen, B., & Christensen, M. B. (2018). Paper- or web-based questionnaire invitations as a method for data collection: cross-sectional comparative study of differences in response rate, completeness of data, and financial cost. *Journal of Medical Internet Research*, 20(1), e24. DOI: 10.2196/jmir.8353.
- Ebrahimi, P., Moosavi, S. M., & Chirani, E. (2016). Relationship between leadership styles and organizational performance by considering innovation in manufacturing companies of Guilan province. *Procedia-Social and Behavioral Sciences*, 230, 351-358. DOI: 10.1016/j.sbspro.2016.09.044.
- Econex. (2017). *The economic footprint in private hospital groups in South Africa: A multiplier study*. Retrieved 10 January 2019 from https://hasa.co.za/wp-content/uploads/2019/02/ECONEX_HASA-multiplier-report_26102017.pdf.
- Edmonson, C., Bolick, B., & Lee, J. (2017). A moral imperative for nurse leaders: Addressing incivility and bullying in health care. *Nurse Leader*, 15(1), 40-44. DOI: 10.1016/j.mnl.2016.07.012.
- El Mokadem, M. (2017). The classification of supplier selection criteria with respect to lean or agile manufacturing strategies. *Journal of Manufacturing Technology Management*, 28(2), 232-249.
- Erthal, A., Frangeskou, M., & Marques, L. (2020). Cultural tensions in lean healthcare implementation: A paradox theory lens. *International Journal of Production Economics*, 233(C), 107968. Retrieved 17 December 2020 from DOI: 10.1016/j.ijpe.2020.107968.
- Farooq, M. B. (2015, 12 June). Qualitative telephone interviews: Strategies for success. *18th Annual Waikato Management School Student Research Conference 2015*. Hamilton, New Zealand. Retrieved 10 February 2019 from <https://researchcommons.waikato.ac.nz/handle/10289/9376>.

- Faulkner, A., & Nicholson, M. (2020). *Data-Centric Safety: Challenges, Approaches, and Incident Investigation*. Amsterdam: Elsevier. Retrieved 10 July 2020 from <https://www.elsevier.com/books/data-centric-safety/faulkner/978-0-12-820790-1>.
- Felipe, C. M., Roldán, J. L., & Leal-Rodríguez, A. L. (2017). Impact of organizational culture values on organizational agility. *Sustainability*, 9(12), 2354-2377. DOI: 10.3390/su9122354.
- Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving integration in mixed methods designs – principles and practices. *Health Services Research*, 48(6pt2), 2134-2156. DOI: 10.1111/1475-6773.12117.
- Fetters, M. D., & Freshwater, D. (2015). The 1 + 1 = 3 integration challenge. *Journal of Mixed Methods Research*, 9(2), 115-117. <https://doi.org/10.1177/1558689815581222>.
- Fetters, M. D., & Molina-Azorin, J. F. (2019). A call for expanding philosophical perspectives to create a more “worldly” field of mixed methods: The example of Yinyang Philosophy. *Journal of Mixed Methods Research*, 13(1), 15-18.
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (4th ed.). Thousand Oaks, CA: Sage.
- Fisher, M. L. (2003) *Operations management: critical perspectives on business and management* (4th ed.). London: Routledge / Taylor and Francis Group.
- Flannelly, K. J., Flannelly, L. T., & Jankowski, K. R. (2020). *Quantitative research for chaplains and health care professionals: A primer*. New York: Routledge.
- Fowler, M., & Highsmith, J. (2001). The agile manifesto. *Software Development*, 9(8), 28-35.
- Fowler, R., Gajewska-De Mattos, H., & Chapman, M. (2018). Adapting adaptation: expanding adaptive strategy theory to account for the East Asian business context. *Journal of World Business*, 53(3), 323-336. DOI: 10.1016/j.jwb.2017.06.008.
- Francis, D. (2017, 12-26 October). The auditing of agile capability: Revisiting CENTRIM's agile wheel model. *Paper presented at the Auditing Agility Conference*, Courtyard Marriot, Brussels, Belgium. 12-26 October. Retrieved 18 July 2020 from <http://eprints.brighton.ac.uk/18392/1/Agility-Conference-paper-DLF-291017.pdf>.
- Freeman, W. D., Sanghavi, D. K., Sarab, M. S., Kindred, M. S., Dieck, E. M., Brown, S. M., . . . Simon, L. V. (2020). Robotics in simulated COVID-19 patient room for health care worker effector tasks: preliminary, feasibility experiments. *Mayo Clinic Proceedings: Innovations, Quality & Outcomes*, 5(10228). Retrieved 10 December 2020 from DOI: 10.1016/j.mayocpiqo.2020.12.005.
- Galankashi, M. R., & Helmi, S. A. (2016). Assessment of hybrid lean-agile (leagile) supply chain strategies. *Journal of Manufacturing Technology Management*, 27(4), 470-482.
- Galuska, L. (2014). Enabling leadership: unleashing creativity, adaptation, and learning in an organization. *Nurse Leader*, 12(2), 34-38. 10.1016/j.mnl.2014.01.011.

- Garchitorena, A., Miller, A. C., Cordier, L. F., Ramananjato, R., Rabeza, V. R., Murray, Cripps, A., Hall, L., Farmer, P., Rich, M., Orlan, A. V., Rabemampionona, A., Rakotozafy, G., Randriantsimaniry, D., Gikic, G., & Bonds, M. H. (2017). In Madagascar, use of health care services increased when fees were removed: lessons for universal health coverage. *Health Affairs*, 36(8), 1443-1451. DOI: 10.1377/hlthaff.2016.1419.
- García, O., Navarro, H., Rodríguez, A., Fernández, D., & Freixes, D. (2017, 5-8 October). Dealing with transformation in a VUCA world: A competence-based development project applying transmedia storytelling and gamification for an international corporation (pp. 919-925). *Proceedings of the 11th European Conference on Games Based Learning*. Graz, Austria.
- Gehman, J., Glaser, V. L., Eisenhardt, K. M., Gioia, D., Langley, A., & Corley, K. G. (2018). Finding theory-method fit: A comparison of three qualitative approaches to theory building. *Journal of Management Inquiry*, 27(3), 284-300. <https://doi.org/10.1177/1056492617706029>.
- Gibson, C. B., & Birkinshaw, J. (2004). The antecedents, consequences, and mediating role of organisational ambidexterity. *Academy of Management Journal*, 47(2), 209-226.
- Giudici, M., & Filimonau, V. (2019). Exploring the linkages between managerial leadership, communication and teamwork in successful event delivery. *Tourism Management Perspectives*, 32, 100558. DOI: 10.1016/j.tmp.2019.100558.
- Glinkowska, B. (2017). Features of the international manager-leader of the near future-findings of the research. *Management*, 21(1), 120-132. <https://doi.org/10.1515/manment-2015-0084>.
- Golden, J. H., & Shriner, M. (2019). Examining relationships between transformational leadership and employee creative performance: The moderator effects of organizational culture. *The Journal of Creative Behavior*, 53(3), 363-376. DOI: <https://doi.org/10.1002/jocb.216>.
- Grabau, M. (2016). *Lean hospitals, improving quality, patient safety and employee engagement* (3rd ed.). Boca Raton, Florida: CRC Press / Taylor and Francis Group. Retrieved 17 July 2019 from DOI: Boca Raton://doi.org/10.4324/9781315380827.
- Green, B., Oeppen, R., Smith, D., & Brennan, P. (2017). Challenging hierarchy in healthcare teams – ways to flatten gradients to improve teamwork and patient care. *British Journal of Oral and Maxillofacial Surgery*, 55(5), 449-453. DOI: 10.1016/j.bjoms.2017.02.010.
- Gregory, P., Barroca, L., Sharp, H., Deshpande, A., & Taylor, K. (2016). The challenges that challenge: Engaging with agile practitioners' concerns. *Information and Software Technology*, 77, 92-104. <https://doi.org/10.1016/j.infsof.2016.04.006>.

- Grindel, C. G. (2016). Clinical leadership: a call to action. *Medsurg Nursing*, 25(1), 9-16.
- Grobbelaar, S. S., & Uriona-Maldonado, M. (2019). Using technology to improve access to healthcare: The case of the MomConnect programme in South Africa. *Local Economy*, 34(8), 838-852. <https://doi.org/10.1177/0269094219897544>.
- Groenewald, Y. (2017, 9 June). South Africa last in healthcare efficiency study. *Fin24*. Retrieved 10 February 2019 from <https://m.fin24.com/Economy/south-africa-last-in-healthcare-efficiency-study-20170609>.
- Gross, R. (2020). Constructing a relationship between entrepreneurial leadership and organizational flexibility. *Delhi Business Review*, 21(1), 23-38.
- Groves, K. S. (2018). *Succession management capabilities in a VUCA environment: Lessons from the healthcare industry*. Paper GCAR-A006. Retrieved 10 May 2020 from <https://digitalcommons.pepperdine.edu/graziadiowps/6/>.
- Guba, E. G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Resources Information Center Annual Review*, Paper 29, 75-91.
- Guetterman, T. (2015). Descriptions of sampling practices within five approaches to qualitative research in education and the health sciences. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research*. Retrieved 10 February 2019 from file:///C:/Users/P51/AppData/Local/Temp/2290-9645-1-PB.pdf.
- Gumede, V. (2013). *Perspectives on Thought Leadership for Africa's Renewal*. Johannesburg, South Africa: Africa Institute of South Africa.
- Gupta, M., George, J. F., & Xia, W. (2019). Relationships between IT department culture and agile software development practices: An empirical investigation. *International Journal of Information Management*, 44, 13-24. <https://doi.org/10.1016/j.ijinfomgt.2018.09.006>.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate data analysis: Pearson new international edition*. Essex: Pearson Education.
- Hales, D. (2010). *An introduction to triangulation*. Geneva: UNAIDS Monitoring and Evaluation Division. Retrieved 18 March 2020 from https://www.unaids.org/sites/default/files/sub_landing/files/10_4-Intro-to-triangulation-MEF_0.pdf.
- Hammarberg, K., Kirkman, M., & De Lacey, S. (2016). Qualitative research methods: when to use them and how to judge them. *Human Reproduction*, 31(3), 498-501. <https://doi.org/10.1093/humrep/dev334>.
- Hardie, J., Oepfen, R., Shaw, G., Holden, C., Tayler, N., & Brennan, P. (2020). You Have Control: aviation communication application for safety-critical times in surgery. *British Journal of Oral and Maxillofacial Surgery*. 58(2020),1073-1077. <https://doi.org/10.1016/j.bjoms.2020.08.104> 0266-4356.

- Hart, C. (2018). *Doing a literature review: Releasing the research imagination*. (2nd ed.). London: Sage.
- Hartviksen, T. A., Aspors, J., & Uhrenfeldt, L. (2019). Healthcare middle managers' experiences of developing capacity and capability: a systematic review and meta-synthesis. *BMC Health Services Research*, 19(1), 546, 1-19.
<https://doi.org/10.1186/s12913-019-4345-1>.
- Havlicek, L. L., & Peterson, N. L. (1976). Robustness of the Pearson correlation against violations of assumptions. *Perceptual and Motor Skills*, 43(3_suppl), 1319-1334.
doi:<https://doi.org/10.2466%2Fpms.1976.43.3f.1319>
- Hayduk, L. A. (1990). Should model modifications be oriented toward improving data fit or encouraging creative and analytical thinking? *Multivariate Behavioral Research*, 25(2), 193-196. https://doi.org/10.1207/s15327906mbr2502_7.
- Hazy, J. K. (2012). The unifying function of leadership: shaping identity, ethics and the local rules of interaction. *International Journal of Society Systems Science*, 4(3), 222-241.
- Hazy, J. K., Goldstein, J., & Lichtenstein, B. B. (2007). *Complex systems leadership theory: New perspectives from complexity science on social and organizational effectiveness*. Mansfield, MA: ISCE.
- Hazy, J. K., & Prottas, D. J. (2016). *How complexity leadership enables both resilience and effectiveness: validation study to distinguish leadership interaction modes during organizing*. Retrieved 8 August 2019 from
https://www.researchgate.net/publication/310440813_How_Complexity_Leadership_Enables_Both_Resilience_and_Effectiveness_Validation_Study_to_Distinguish_Leadership_Interaction_Modes_during_Organizing#fullTextFileContent.
- Hazy, J. K., & Uhl-Bien, M. (2013). Towards operationalizing complexity leadership: How generative, administrative and community-building leadership practices enact organizational outcomes. *Leadership*, 11, 79-104.
<https://doi.org/10.1177/1742715013511483>.
- Hazy, J. K., & Uhl-Bien, M. (2014). Changing the rules: The implications of complexity science for leadership research and practice (pp. 709-732). In: D. V. Day (Ed.). *The Oxford Handbook of Leadership and Organizations*. Oxford: Oxford University Press.
- Henriksen, J. (2016). An alternative approach to nurse manager leadership. *Nursing Management*, 47(1), 53-55.
- Herbert, W. E., Tsegba, I. N., Ene, E. E., & Onyilo, F. (2017). The rise of fraud examination and forensic accounting in Africa: the Nigerian experience. *Archives of Business Research*, 5(4).

- Herbst, S. (2018). 10 major points revealed by the Competition Commission's private healthcare probe. *News24*. Retrieved from <https://www.health24.com/News/10-major-points-revealed-by-the-competition-commissions-private-healthcare-probe-20180709>
- HFM Talent Index. (2018). *Learning agility assessment*. Retrieved 10 February 2019 from <https://www.hfmentalindex.co.za/news/learning-agility-and-leader-success-results-meta-analysis/>.
- History.com. (2010, 3 March). *Apartheid*. Retrieved 10 March 2020 from <https://www.history.com/topics/africa/apartheid>.
- Hoch, J. E., & Dulebohn, J. H. (2017). Team personality composition, emergent leadership and shared leadership in virtual teams: A theoretical framework. *Human Resource Management Review*, 27(4), 678-693. <https://doi.org/10.1016/j.hrmr.2016.12.012>.
- Hoegl, M., & Muethel, M. (2016). Enabling shared leadership in virtual project teams: A practitioners' guide. *Project Management Journal*, 47(1), 7-12. <https://doi.org/10.1002/pmj.21564>.
- Hofman, K. (2014). Non-communicable diseases in South Africa: a challenge to economic development. Guest editorial. *South African Medical Journal*, 104(10), 647. DOI:10.7196/SAMJ.8727.
- Hogue, M., & Lord, R. (2007). A multilevel, complexity theory approach to understanding gender bias in leadership. *Leadership Quarterly*, 18, 370-390. doi:10.1016/j.leaqua.2007.04.006.
- Hohl, P., Klünder, J., Van Bennekum, A., Lockard, R., Gifford, J., Münch, J., Stupperich, M., & Schneider, K. (2018). Back to the future: origins and directions of the "Agile Manifesto" – views of the originators. *Journal of Software Engineering Research and Development*, 6(1), 15. DOI: 10.1186/s40411-018-0059-z.
- Horney, N., Pasmore, B., & O'shea, T. (2010). Leadership agility: A business imperative for a VUCA world. *People & Strategy*, 32, 32-38. Retrieved 27 Julu 2019 <https://luxorgroup.fr/coaching/wp-content/uploads/Leadership-agility-model.pdf>.
- Horvat, A., & Filipovic, J. (2018). Service quality and maturity of health care organizations through the lens of Complexity Leadership Theory. *Journal of Evaluation in Clinical Practice*, 24(1), 301-307. DOI: 10.1111/jep.12789.
- Hoyle, R. H. (2012). *Handbook of structural equation modeling*. New York: Guilford press.
- Hunt, G. M., Dokubo, E. K., Takuva, S., De Oliveira, T., Ledwaba, J., Dube, N., Moodley, P., Sabatier, J., Deyde, V., Morris, L., & Raizes, E. (2017). Rates of virological suppression and drug resistance in adult HIV-1-positive patients attending primary healthcare facilities in KwaZulu-Natal, South Africa. *Journal of Antimicrobial Chemotherapy*, 72(11), 3141-3148. <https://doi.org/10.1093/jac/dkx252>.

- Hussain, S. T., Lei, S., Akram, T., Haider, M. J., Hussain, S. H., & Ali, M. (2018). Kurt Lewin's change model: A critical review of the role of leadership and employee involvement in organizational change. *Journal of Innovation & Knowledge*, 3(3), 123-127. <https://doi.org/10.1016/j.jik.2016.07.002>.
- In, J. (2017). Introduction of a pilot study. *Korean Journal of Anesthesiology*, 70(6), 601.
- IQBusiness. (2017). *The path to business agility: mapping agile adoption in South Africa*. Retrieved 10 July 2018 from https://iqbusiness.net/wp-content/uploads/2018/03/Agile-Report_Latest.pdf.
- IQBusiness. (2018). *Agility 2018 - the state of agile in South Africa*. Retrieved 15 June 2019 from https://iqbusiness.net/wp-content/uploads/2018/11/Agile_Report_2018.pdf.
- Istepanian, R. S., & Woodward, B. (2017). *m-Health: fundamentals and applications*. New York: Wiley IEEE Press.
- Janssen, M., & van der Voort, H. (2020). Agile and adaptive governance in crisis response: Lessons from the COVID-19 pandemic. *International Journal of Information Management*, 55, 102180. <https://doi.org/10.1016/j.ijinfomgt.2020.102180>.
- Johansson, C., Bedggood, R., Farquharson, K., & Perenyi, A. (2018). Shared leadership as a vehicle to healthy service eco-systems: practical or fanciful? *Journal of Social Marketing*, 8(2), 159-181. DOI:10.1108/JSOCM-03-2016-0009.
- Joint Medical Holdings. (2019). *Joint Medical Holdings Group*. Retrieved 10 August 2020 from <https://www.jmh.co.za/about-us/>.
- Jones, P., Polancich, S., Steaban, R., Feistritz, N., & Poe, T. (2017). Transformational leadership: The chief nursing officer role in leading quality and patient safety. *The Journal for Healthcare Quality (JHQ)*, 39(3), 186-190. DOI: 10.1097/JHQ.0000000000000090.
- Juniper, E., Guyatt, G., & King, D. (1994). Comparison of methods for selecting items for a disease-specific quality of life questionnaire: importance versus factor analysis. *Quality of Life Research*, 52-53.
- Kaefer, F., Roper, J., & Sinha, P. N. (2015). A software-assisted qualitative content analysis of news articles: Examples and reflections. *FQS Forum: Qualitative Research*. 16(2), 1-20. <https://doi.org/10.17169/fqs-16.2.2123>.
- Kahn, T. (2019, 15 August). The fatal flaws of NHI. *BusinessLive*. Retrieved 20 July 2020 from <https://www.businesslive.co.za/fm/features/2019-08-15-the-fatal-flaws-of-nhi/>.
- Kaikkonen, H., Haapasalo, H., & Hänninen, K. (2018). Characteristics of self-managing teams in rapid product development projects. *International Journal of Value Chain Management*, 9(1), 1-25. DOI: 10.1504/IJVC.2018.091097.
- Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika*, 39(1), 31-36. doi:<https://doi.org/10.1007/BF02291575>

- Kalina, P. (2020). Resilient and inclusive healthcare leadership: Black Swans, COVID-19, and beyond. *The International Journal of Health Planning and Management*, 35(6), 1611-1613. <https://doi.org/10.1002/hpm.2983>.
- Kallemeyn, L. M., Hall, J. N., & Gates, E. (2020). Exploring the relevance of complexity theory for mixed methods research. *Journal of Mixed Methods Research*, 14(3), 1558689819872423. <https://doi.org/10.1177/1558689819872423>.
- Kame, G. S. (2014). Intellectual Leadership: The Alternative Leadership Paradigm for Africa's Advancement. *Perspectives on Thought Leadership for Africa's Renewal*, 130.
- Kanabus, A. (2020, November). *TB Statistics South Africa - National, incidence, provincial*. Retrieved 12 January 2021 from <https://tbfacts.org/tb-statistics-south-africa/>.
- Karbach, J. (1987). Using Toulmin's model of argumentation. *Journal of Teaching Writing*, 6(1), 81-92.
- Kelly, G., Mrengqwa, L., & Geffen, L. (2019). "They don't care about us": older people's experiences of primary healthcare in Cape Town, South Africa. *BMC Geriatrics*, 19(1), 98. <https://doi.org/10.1186/s12877-019-1116-0>.
- Kempermann, G. (2017). Cynefin as reference framework to facilitate insight and decision-making in complex contexts of biomedical research. *Frontiers in Neuroscience*, 11, 634. <https://doi.org/10.3389/fnins.2017.00634>.
- Kenny, D. A. (2011). *Respecification of latent variable models*. Retrieved 29 July 2020 from <http://davidakenny.net/cm/respec.htm>.
- Khan, S., Vandermorris, A., Shepherd, J., Begun, J. W., Lanham, H. J., Uhl-Bien, M., & Berta, W. (2018). Embracing uncertainty, managing complexity: applying complexity thinking principles to transformation efforts in healthcare systems. *BMC Health Services Research*, 18(1), 1-8. <https://doi.org/10.1186/s12913-018-2994-0>.
- Kher, R., & Nair, A. S. (2020). The case for a global healthcare partnership. *RIS Discussion Paper Series*, Retrieved 18 December 2020 from <http://ris.org.in/sites/default/files/Publication-File/DP-252-Rajeev-Kher-and-Arun-S-Nair.pdf>.
- Kidd, P. T. (1994), *Agile manufacturing: forging new frontiers*, Boston, MA: Addison-Wesley.
- Kim, H. Y. (2013). Statistical notes for clinical researchers: assessing normal distribution (2) using skewness and kurtosis. *Restorative Dentistry & Endodontics*, 38(1), 52-54. DOI: 10.5395/rde.2013.38.1.52.
- Kline, R. B. (2015). *Principles and practice of structural equation modeling*. New York: Guilford.

- Koff, W. C., Schenkelberg, T., Williams, T., Baric, R. S., McDermott, A., Cameron, C. M., . . . Kawaoka, Y. (2021). Development and deployment of COVID-19 vaccines for those most vulnerable. *Science Translational Medicine*, 13(579), 1-14. <https://doi.org/10.1126/scitranslmed.abd1525>.
- Kopp, C. M. (2020). *Product life cycle*. Retrieved 28 December 2020 from <https://www.investopedia.com/terms/p/product-life-cycle.asp>.
- Kozak, T., Madlenak, R., & Neszmelyi, G. I. (2020). How the lean management decision influences the transportation cost in the supply chain? *Communications-Scientific letters of the University of Zilina*, 22(4), 13-19. <https://doi.org/10.26552/com.c.2020.4.13-19>.
- Kraemer, H. C., & Blasey, C. (2016). *How many subjects?: Statistical power analysis in research*. New York: Sage.
- Krefting, L. (1991). Rigor in qualitative research: The assessment of trustworthiness. *American Journal of Occupational Therapy*, 45(3), 214-222. <https://doi.org/10.5014/ajot.45.3.214>.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607-610. <https://doi.org/10.1177/001316447003000308>.
- Krosnick, J. A. (2018). Questionnaire design (pp. 439-455). In D. L. Vannette, & J. A. Krosnick (Eds.), *The Palgrave handbook of survey research* (pp. 439-455). Cham, Switzerland: Palgrave Macmillan.
- Kumar, V., Babu, G., & Muthusamy, S. (2016). Assessing the awareness of the agile manufacturing for organizational change in Indian small manufacturing firms: an empirical investigation. *Journal of Organizational Change Management*, 29(5), 713-731.
- Lai, K., & Green, S. B. (2016). The problem with having two watches: Assessment of fit when RMSEA and CFI disagree. *Multivariate Behavioral Research*, 51(2-3), 220-239. <https://doi.org/10.1080/00273171.2015.1134306>.
- Lawrie, T. A., Liu, H., Lu, D., Dowswell, T., Song, H., Wang, L., & Shi, G. (2019). Robot-assisted surgery in gynaecology. *Cochrane Database Systematic Review*. 2019 Apr 15;4(4):CD011422. DOI: 10.1002/14651858.CD011422.pub2.
- Le, P. B., & Lei, H. (2018). The mediating role of trust in stimulating the relationship between transformational leadership and knowledge sharing processes. *Journal of Knowledge Management*, 22(3), 521-537. <https://doi.org/10.1108/JKM-10-2016-0463>.
- Lee, D. K., In, J., & Lee, S. (2015). Standard deviation and standard error of the mean. *Korean Journal of Anesthesiology*, 68(3), 220-223. DOI: 10.4097/kjae.2015.68.3.220.

- Lee, R., Jones, A., Woodgate, F., Killough, N., Bellamkonda, K., Williams, M., Hurst, K., Fulford-Smith, L., Cassimjee, I., & Handa, A. (2017). Data for the Oxford Abdominal Aortic Aneurysm Study international survey of vascular surgery professionals. *Data in Brief*, 14, 298-301. DOI: 10.1016/j.dib.2017.07.058.
- Leech, N. L. (2012). Writing mixed research reports. *American Behavioral Scientist*, 56(6), 866-881. <https://doi.org/10.1177/0002764211433800>.
- Lentenbrink, L. (2017). *The impact of adaptive leadership capacity on complex organizational health systems outcomes*. PhD (Health Services) thesis, Walden University, Minnesota. Retrieved 25 November 2020 from <https://scholarworks.waldenu.edu/cgi/viewcontent.cgi?article=4722&context=dissertations>.
- Lever, J., Krzywinski, M., & Altman, N. (2017). Points of significance: Principal component analysis. *Nature Methods*, 14, 641-642. <https://doi.org/10.1038/nmeth.4346>.
- Life Healthcare. (2018). *Life Healthcare Group Annual Integrated Report*. Retrieved 30 March 2019 from <https://www.lifehealthcare-online.co.za/life-healthcare-iar-2018/index.php>.
- Life Healthcare. (2020). *Life Healthcare COVID-19 preparedness* [Press release]. Retrieved 18 November 2020 from <https://www.lifehealthcare.co.za/news-and-info-hub/latest-news/life-healthcare-covid-19-preparedness-1/>.
- LinkedIn. (2020). *What is LinkedIn and how can I use it?* Retrieved 20 December 2020 from <https://www.linkedin.com/help/linkedin/answer/111663/what-is-linkedin-and-how-can-i-use-it->.
- Lorenz, E. N. (1972). Predictability: does the flap of a butterfly's wings in Brazil set off a tornado in Texas? *Address at the 139th Annual Meeting of the American Association for the Advancement of Science*. Sheraton Park Hotel, Boston, Mass. 26-31 December. Retrieved on 10 August 2020 from https://static.gymportalen.dk/sites/lru.dk/files/lru/132_kap6_lorenz_artikel_the_butterfly_effect.pdf.
- Loveday, M., Mzobe, Y., Pillay, Y., & Barron, P. (2019). Figures of the dead: A decade of tuberculosis mortality registrations in South Africa. *South African Medical Journal*, 109(10), 728-732. DOI:10.7196/SAMJ.2019.v109i10.14073.
- Lowy Institute. (2021). *Covid Performance Index: deconstructing pandemic responses*. Retrieved 18 January 2021 from <https://interactives.lowyinstitute.org/features/covid-performance/>.
- LRN. (2016). *The HOW report, a global, empirical analysis of how governance, culture and leadership impact performance*. Retrieved 22 April 2019 from <https://howmetrics.lrn.com/>.

- Lucia, F. (2018). Manager versus Leader. Why Are Both Roles Valuable? *Ovidius University Annals: Economic Sciences Series*, 18(2), 428-431.
- Luis, C., & Vance, C. (2020). A pandemic crisis: mentoring, leadership, and the millennial nurse. *Nursing Economics*, 38(3), 152-163.
- Lusiani, M., & Langley, A. (2019). The social construction of strategic coherence: Practices of enabling leadership. *Long Range Planning*, 52(5), 101840. <https://doi.org/10.1016/j.lrp.2018.05.006>.
- Mackintosh, M., Banda, G., Tibandebage, P & Wamae, W (Eds.). (2015). *Making medicines in Africa: the political economy of industrializing for local health*. London: Palgrave Macmillan. Retrieved 10 January 2021 from <https://www.palgrave.com/us/book/9781137546463>.
- Macrotrends. (2020). *South Africa Healthcare Spending 2000-2020*. Retrieved 10 January 2021 from <https://www.macrotrends.net/countries/ZAF/south-africa/healthcare-spending>.
- Mahmood, M., Uddin, M. A., & Fan, L. (2019). The influence of transformational leadership on employees' creative process engagement. *Management Decision*, 57, 741-764. DOI: 10.1108/MD-07-2017-0707.
- Malan, M. (2019, 8 August). Five things you need to know about the new National Health Insurance Bill. *News24.com*. Retrieved 15 March 2020 from <https://www.news24.com/news24/SouthAfrica/News/five-things-you-need-to-know-about-the-new-national-health-insurance-bill-20190808>.
- Manne-Goehler, J., Montana, L., Gómez-Olivé, F. X., Rohr, J., Harling, G., Wagner, R. G., Wade, A., Kabudula, C. W., Geldsetzer, P., Kahn, K., & Tollman, S., Berkman, L. F., Bärnighausen, T. W., & Gaziano, T. A. (2017). The ART advantage: healthcare utilization for diabetes and hypertension in rural South Africa. *Journal of Acquired Immune Deficiency Syndromes* 75(5), 561-567. DOI: 10.1097/QAI.0000000000001445.
- Maphumulo, W. T., & Bhengu, B. R. (2019). Challenges of quality improvement in the healthcare of South Africa post-apartheid: A critical review. *Curationis*, 42(1), a1901. DOI: 10.4102/curationis.v42i1.1901.
- Maramba, G., Coleman, A., & Ntawanga, F. F. (2020). Causes of challenges in implementing computer-based knowledge management systems in healthcare institutions: a case study of private hospitals in Johannesburg, South Africa. *The African Journal of Information Systems*, 12(1), Art 4, 76-91.
- March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization Science*, 2(1), 71-87.

- Marion, R., Christiansen, J., Klar, H. W., Schreiber, C., & Erdener, M. A. (2016). Informal leadership, interaction, cliques and productive capacity in organizations: A collectivist analysis. *The Leadership Quarterly*, 27(2), 242-260.
<http://dx.doi.org/10.1016/j.leaqua.2016.01.003> 1048-9843/© 2016 Elsevier Inc. All rights reserved.
- Marion, R., & Uhl-Bien, M. (2001). Leadership in complex organizations. *The Leadership Quarterly*, 12(4), 389-418. DOI: 10.1016/S1048- 9843(01)00092-3.
- Martínez-García, M., Bal-Alvarado, M., Guerra, F. S., Ares-Rico, R., Suárez-Gil, R., Rodríguez-Álvarez, A., Pérez-López, E. & Rial, Á. F. (2020). *Monitoring of COVID-19 patients via telemedicine with telemonitoring. Revista Clínica Española [Spanish Clinical Journal]* (English ed.), 220(8), 472-479. DOI: 10.1016/j.rceng.2020.07.001.
- Marx, T. G. (2017). The impacts of company size on leadership. *Management and Organizational Studies*, 4(1), 82-89. <https://doi.org/10.5430/mos.v4n1p82>.
- Mathole, T., Lembani, M., Jackson, D., Zarowsky, C., Bijlmakers, L., & Sanders, D. (2018). Leadership and the functioning of maternal health services in two rural district hospitals in South Africa. *Health Policy and Planning*, 33(suppl_2), ii5-ii15. DOI: 10.1093/heapol/czx174.
- Matthews, L., Power, D., Touboulis, A., & Marques, L. (2016). Building Bridges: Toward Alternative Theory of Sustainable Supply Chain Management. *Journal of Supply Chain Management*, 52(1), 82-94.
- Mayring, P. (2000). Qualitative content analysis. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, 1 (2), Art. 20, Retrieved 16 June 2020 from <https://www.qualitative-research.net/index.php/fqs/article/view/1089>.
- Mazza, M. G., De Lorenzo, R., Conte, C., Poletti, S., Vai, B., Bollettini, I., Melloni, E. M. T., Furlan, R., Cicedri, F., Rovere-Querini, P., COVID-19 BioB Outpatient Clinic Study Group., & Benedetti, F. (2020). Anxiety and depression in COVID-19 survivors: Role of inflammatory and clinical predictors. *Brain, Behavior, and Immunity*, 89, 594-600. DOI: 10.1016/j.bbi.2020.07.037.
- Mazzocchi, A., & Wolf, G. (2016). Mentoring through the leadership journey: From novice to expert. *Nurse Leader*, 14(4), 253-256. DOI: 10.1016/j.mnl.2016.05.012.
- Mbebwo, E. N. (2019). *Nurses' experiences regarding their leadership roles in a private healthcare day clinic in Gauteng*. University of Johannesburg,
- McIntyre, D. (2019). How can we best achieve a universal health system: a public conversation (pp. 17-28). In: T. Moeti, & A. Padarath (Eds). *South African Health Review, 2019*. Durban: Health Systems Trust. Retrieved 18 October 2020 https://www.hst.org.za/publications/South-African-Health-Reviews/SAHR_2019_14012020_Updated-web.pdf .

- McIntyre, D., & Ataguba, J. (2017). Access to quality health care in South Africa: is the health sector contributing to addressing the inequality challenge. *Parliament of South Africa*, 2017. Retrieved 10 September 2020 from https://www.parliament.gov.za/storage/app/media/Pages/2017/october/High_Level_Panel/Commissioned_reports_for_triple_challenges_of_poverty_unemployment_and_inequality/Diagnostic_Report_on_Access_to_Quality_Healthcare.pdf.
- McMahon, D. E., Peters, G. A., Ivers, L. C., & Freeman, E. E. (2020). *Global resource shortages during COVID-19: Bad news for low-income countries*. PLOS Neglected Tropical Diseases. 1-3. Retrieved 18 November 2020 from <https://doi.org/10.1371/journal.pntd.0008412>.
- Mediclinic. (2019). *Mediclinic*. Retrieved 10 January 2020 from <https://www.mediclinic.co.za/en/corporate/home.html>.
- Mediclinic. (2020). *Mediclinic efforts and readiness in the face of COVID-19 [Press release]*. Retrieved 18 August 2020 from <https://www.mediclinic.co.za/en/corporate/media-centre/press-releases-and-news/-mediclinic-s-efforts-and-readiness-in-the-face-of-covid-19.html>.
- Mediclinic International. (2018). *Mediclinic International 2018 Annual Report and Financial Statements*. Retrieved 30 March 2019 from <https://investor.mediclinic.com/static-files/f36cd261-ee9f-4748-8615-7c03980ab274>.
- Melomed. (2020). *Melomed Private Hospitals*. Retrieved 30 September 2020 from <https://www.melomed.co.za/history.asp>.
- Meredith, S., & Francis, D. (2000). Journey towards agility: the agile wheel explored. *The TQM Magazine*, 12(2), 137-143. <https://doi.org/10.1108/09544780010318398>.
- Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation*. New York: John Wiley & Sons.
- Meterko, M., Restuccia, J. D., Stolzmann, K., Mohr, D., Brennan, C., Glasgow, J., & Kaboli, P. (2015). Response rates, nonresponse bias, and data quality: Results from a national survey of senior healthcare leaders. *Public Opinion Quarterly*, 79(1), 130-144.
- Meyer, J. C., Schellack, N., Stokes, J., Lancaster, R., Zeeman, H., Defty, D., Godman, B., & Steel, G. (2017). Ongoing initiatives to improve the quality and efficiency of medicine use within the public healthcare system in South Africa; a preliminary study. *Frontiers in Pharmacology*, November, 8, Article 751, 1-16. DOI: 10.3389/fphar.2017.00751.
- Mhlanga, D., & Garidzirai, R. (2020). The influence of racial differences in the demand for healthcare in South Africa: A case of public healthcare. *International Journal of Environmental Research and Public Health*, 17(14), 5043, 1-10. DOI: 10.3390/ijerph17145043.

- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis*. Thousand Oaks, CA: Sage.
- Miseda, M. H., Were, S. O., Murianki, C. A., Mutuku, M. P., & Mutwiwa, S. N. (2017). The implication of the shortage of health workforce specialist on universal health coverage in Kenya. *Human Resources for Health*, 15(1), 80. DOI: 10.1186/s12960-017-0253-9.
- Mishra, P., & Sharma, R. K. (2011, 16-18 December). A framework imbibing leagile and six-sigma culture to improve SCM performance. In *Proceedings of the 2011 International Conference on "Advances in supply Chain and Manufacturing Management"*. Kharagpur, India.
- Mishra, V., Samuel, C., & Sharma, S. (2018). Lean, agile and leagile healthcare management—A case of chronic care. *International Journal of Healthcare Management*, 1-8. Retrieved 12 September 2020 from DOI:10.1080/20479700.2018.1428520.
- Mlambo, V. H., & Adetiba, T. C. (2017). Effects of brain drain on the South African health sector: analysis of the dynamics of its push factors. *Journal of Economics and Behavioral Studies*, 9(4), 62-72. DOI: 10.22610/jebbs.v9i4(J).1822.
- Mohajan, H. K. (2017). Two criteria for good measurements in research: Validity and reliability. *Annals of Spuru Haret University. Economic Series*, 17(4), 59-82.
- Morse, J. M. (2008). *Confusing categories and themes*. Los Angeles, CA: Sage.
- Nachtmann, H., & Pohl, E. A. (2009). The state of healthcare logistics: cost and quality improvement opportunities. *Centre for Innovation in Healthcare Logistics*, University of Arkansas. Retrieved on 10 February 2019 from <https://docplayer.net/28877157-The-state-of-healthcare-logistics.html>.
- Nagel, R. N., & Dove, R. (1991). *21st century manufacturing enterprise strategy: An industry-led view: Iacocca Institute*. Retrieved on 16 July 2019 from https://www.academia.edu/22216159/21st_Century_Manufacturing_Enterprise_Strategy.
- Naicker, V. (2018). *Leadership competencies within the context of nursing management, in private healthcare organisations in KwaZulu-Natal*. PhD (Business Administration) thesis, University Kwa-Zulu Natal, Durban. Retrieved 16 May 2020 from https://researchspace.ukzn.ac.za/bitstream/handle/10413/17278/Naicker_Vanitha_2018.pdf.
- Naim, M. M., & Gosling, J. (2011). On leanness, agility and leagile supply chains. *International Journal of Production Economics*, 131(1), 342-354.

- Narayanamurthy, G., Gurumurthy, A., Subramanian, N., & Moser, R. (2018). Assessing the readiness to implement lean in healthcare institutions – A case study. *International Journal of Production Economics*, 197, 123-142. <https://doi.org/10.1016/j.ijpe.2017.12.028>.
- National Hospital Network. (2019). *NHN Member Listing October 2019*. Retrieved 18 November 2019 from <http://nhn.co.za/members/>.
- National Hospital Network. (2020, 17 March). *Daily COVID-19 updates March 2020*. Retrieved 18 December 2020 from <https://mailchi.mp/nhn.co.za/coronavirus-status-update-17-march-2020>.
- National Institute for Communicable Diseases. (2020). *First case of COVID-19 Coronavirus reported in SA*. Retrieved 14 December 2020 from <https://www.nicd.ac.za/first-case-of-covid-19-coronavirus-reported-in-sa/#:~:text=This-morning-Thursday-March-5,Africa-on-March-1-2020>.
- Naylor, J. B., Naim, M. M., & Berry, D. (1999). Leagility: integrating the lean and agile manufacturing paradigms in the total supply chain. *International Journal of Production Economics*, 62(1-2), 107-118.
- NCD Countdown 2030 collaborators. (2020). NCD Countdown 2030: pathways to achieving Sustainable Development Goal target 3.4. *The Lancet*. 396, 918-934. DOI: 10.1016/S0140-6736(20)31761-X.
- Ndinda, C., Ndhlovu, T. P., Juma, P., Asiki, G., & Kyobutungi, C. (2018). The evolution of non-communicable diseases policies in post-apartheid South Africa. *BMC Public Health*, 18(1), 956. <https://doi.org/10.1186/s12889-018-5832-8>.
- Ned, L., Tiwari, R., Buchanan, H., Van Niekerk, L., Sherry, K., & Chikte, U. (2020). Changing demographic trends among South African occupational therapists: 2002 to 2018. *Human Resources for Health*, 18(1), Art 22, 1-12. <https://doi.org/10.1186/s12960-020-0464-3>.
- Neef, C., & Richert, A. (2020, 15-30 November). Promoting autonomy in care: combining sensor technology and social robotics for health monitoring. Paper presented at the 7th Electronic Conference on Sensors and Applications, University of Applied Sciences, Cologne, Germany. *Engineering Proceedings*, 2(42), 1-6. DOI: 10.3390/ecsa-7-08239.
- Nene, S. E., Ally, H., & Nkosi, E. (2020). Nurse managers experiences of their leadership roles in a specific mining primary healthcare service in the West Rand. *Curationis*, 43(1), 1-8. DOI: 10.4102/curationis.v43i1.2129.
- Netcare Limited. (2018). *Netcare Limited annual integrated report 2018*. Retrieved 20 January 2021 from https://www.netcare.co.za/InvestorReport/Netcare_interim_2018/index.html.

- Netcare Limited. (2020a). *Netcare is prepared for COVID-19 in South Africa* [Press release]. Retrieved 20 January 2021 from <https://www.netcarehospitals.co.za/News-Hub/News/netcare-is-prepared-for-covid-19-in-south-africa>.
- Netcare Limited. (2020b). *Netcare, who we are, group at a glance*. Retrieved 20 January 2021 from <https://www.netcare.co.za/Who-We-Are/Group-at-a-glance>.
- Newey, L. R., & Zahra, S. A. (2009). The evolving firm: how dynamic and operating capabilities interact to enable entrepreneurship. *British Journal of Management*, 20(1), S81-S100. <https://doi.org/10.1111/j.1467-8551.2008.00614.x>.
- Ng, Q. X., De Deyn, M. L. Z. Q., Loke, W., & Chan, H. W. (2020). A framework to deal with uncertainty in the age of COVID-19. *Asian Journal of Psychiatry*, 54, 102263. DOI: 0.1016/j.ajp.2020.102263.
- Ngara, E. (2014). Leadership, the Oldest Practice and Youngest Discipline: Clearing the Path to the African Renaissance. *Perspectives on Thought Leadership for Africa's Renewal*, 63.
- Niessen, L. W., Mohan, D., Akuoku, J. K., Mirelman, A. J., Ahmed, S., Koehlmoos, T. P., Trujillo, A., Khan, J., & Peters, D. H. (2018). Tackling socioeconomic inequalities and non-communicable diseases in low-income and middle-income countries under the Sustainable Development agenda. *The Lancet*, 391(10134), 2036-2046. DOI: 10.1016/S0140-6736(18)30482-3.
- Nkonki, L., Bhengu, N., Ramokgopa, M., & Fonn, S. (2019). The Health Market Inquiry and its potential contribution to improving health systems functioning in South Africa (pp. 81-88). In: T. Moeti, & A. Padarath (Eds). *South African Health Review, 2019*. Durban: Health Systems Trust. Retrieved 16 October 2020 from https://www.hst.org.za/publications/South-African-Health-Reviews/SAHR_2019_14012020_Updated-web.pdf
- Nkonki, L., & Fonn, S. (2020). Decisive and strong leadership and intersectoral action from South Africa in response to the COVID-19 virus. *South African Medical Journal*, 110(5), 339-340. DOI: 10.7196/SAMJ.2020.v110i5.14739.
- Northouse, P. G. (2016). *Leadership theory and practice* (7th ed.). Thousand Oaks, CA: Sage.
- Nousala, S., Hall, W., & Hadgraft, R. (2011). *Socio-technical systems for connecting social knowledge and the governance of urban action*. Paper presented at the 15th WMSCI, CENT Symposium. Orlando, FLA, 19-22 July. Retrieved 16 October 2020 from <http://ssrn.com/SSRN-id1906628.pdf>.

- Nousala, S., & Hall, W. P. (2008). Emerging Autopoietic Communities—Scalability of Knowledge Transfer in Complex Systems (pp. 1-8). Paper presented at the First IFIP International Workshop on Distributed Knowledge Management (DKM 2008), Shanghai, China. 18-19 October. Retrieved 14 April 2019 from <https://orgs-evolution-knowledge.net/Index/DocumentKMOrgTheoryPapers/NousalaHall2008AutopoieticCommunitiesDifferentOrganizationalScalesTransferringKnowledge.pdf>.
- Nugent, R., Bertram, M. Y., Jan, S., Niessen, L. W., Sassi, F., Jamison, D. T., Pier, E. G., & Beaglehole, R. (2018). Investing in non-communicable disease prevention and management to advance the Sustainable Development Goals. *The Lancet*, 391(10134), 2029-2035. DOI: 10.1016/S0140-6736(18)30667-6.
- Nzinga, J., McGivern, G., & English, M. (2018). Examining clinical leadership in Kenyan public hospitals through the distributed leadership lens. *Health Policy and Planning*, 33(suppl_2), ii27-ii34. DOI: 10.1093/heapol/czx167.
- O'Reilly, C. A., & Tushman, M. L. (2011). Organizational ambidexterity in action: how managers explore and exploit. *California Management Review*, 53(4), 5-22.
- O'Reilly, C. A., & Tushman, M. L. (2013). Organizational ambidexterity: past, present, and future. *Academy of Management Perspectives*, 27(4), 324-338.
- O'Kelly, F., Farhat, W., & Koyle, M. (2019). Cost, training and simulation models for robotic-assisted surgery in pediatric urology. *World Journal of Urology*, 38(8), 1875-1882. DOI: 10.1007/s00345-019-02822-7
- Obolensky, N. (2016). *Complex adaptive leadership: embracing paradox and uncertainty* (2nd ed.). Great Britain: Routledge / Taylor & Francis Group.
- Obolensky, N. (2018). CAL Organisational Capability Assessment. [Hard copies mailed directly to researcher. [16 November 2018].
- Oehmichen, J., Heyden, M. L., Georgakakis, D., & Volberda, H. W. (2017). Boards of directors and organizational ambidexterity in knowledge-intensive firms. *The International Journal of Human Resource Management*, 28(2), 283-306. DOI: 10.1080/09585192.2016.1244904.
- Office of Health Standards Compliance. (2018). *Annual Inspection Report 2016/17*. Retrieved 19 December 2020 from <https://ohsc.org.za/wp-content/uploads/OHSC-2016-17-ANNUAL-INSPECTION-REPORT.pdf>.
- Ohno, T. (1978). *Toyota production system: beyond large-scale production*. New York: Productivity Press.
- Oleribe, O. O., Momoh, J., Uzochukwu, B. S. C., Mbofana, F., Adebisi, A., Barbera, T., Williams, R., & Taylor-Robinson, S. D. (2019). Identifying key challenges facing healthcare systems in Africa and potential solutions. *International Journal of General Medicine*, 12, 395-403. DOI: 10.2147/IJGM.S223882.

- Oliveira, T. C., Barrenho, E., Vernet, A., Autio, E., & Barlow, J. (2017). *Developing a global healthcare innovation Index*. London: The Policy Innovation and Evaluation Research Unit (PIRU). Retrieved 18 December 2019 from <https://piru.ac.uk/assets/files/Healthcare-innovation-index-report.pdf>.
- Omarjee, L. (2018, 20 June). 8 Things you need to know about the National Health Insurance bills. *Fin24*. Retrieved 16 December 2020 from <https://www.fin24.com/Economy/8-things-you-need-to-know-about-the-national-health-insurance-bills-20180620>.
- Onwuegbuzie, A. (2012). Putting the mixed back into qualitative and quantitative research in educational research and beyond: Moving towards the radical middle. *International Journal of Multiple Research Approaches*, 6(3), 192-219. DOI: <https://doi.org/10.5172/mra.2012.6.3.192>
- Onwuegbuzie, A. J., & Byers, V. T. (2014). An exemplar for combining the collection, analysis, and interpretations of verbal and nonverbal data in qualitative research. *International Journal of Education*, 6(1), 183-246. <https://doi.org/10.5296/ije.v6i1.4399>.
- Ortiz-Ospina, E., & Roser, M. (2017). *Financing Healthcare*. Retrieved 18 December 2020 from <https://ourworldindata.org/financing-healthcare>.
- Osman, M. (2020). *Mind-blowing LinkedIn statistics and facts*. Retrieved 16 December 2020 from <https://kinsta.com/blog/linkedin-statistics/>.
- Otter.ai. (2020). *Otter is where conversations live*. Retrieved 22 August 2020 from <https://otter.ai/login>.
- Oxford University Press. (2019). *Oxford Learner's Dictionaries*. Retrieved 15 January 2021 from <https://www.oxfordlearnersdictionaries.com/definition/english>.
- Padgett, D. K. (2016). *Qualitative methods in social work research* (3rd ed.). Thousand Oaks, CA: Sage.
- Palanica, A., & Fossat, Y. (2020). COVID-19 has inspired global healthcare innovation. *Canadian Journal of Public Health*, 111(5), 645-648. DOI: 10.17269/s41997-020-00406-2.
- Panesar, A., & Panesar, H. (2020). Artificial intelligence and machine learning in global healthcare (pp. 1-39). In R. Haring, I. Kickbusch, D. Ganten, & M. Moeti (Eds.), *Handbook of Global Health*. Cham, Switzerland: Springer.
- Park, M., Braun, T., Carrin, G., & Evans, D. (2007). *Technical brief for policy-makers*. Retrieved 22 November 2019 from https://www.who.int/health_financing/documents/pb_e_07_2-provider_payments.pdf.

- Parker, A., Karamchand, S., Schrueder, N., Lahri, S., Rabie, H., Aucamp, A., Abrahams, A., Ciapparelli, P., Erasmus, D. S., Cotton, M. F., Lalla, U., Leisegang, R., Meintjes, J., Mistry, R., Moosa, M. R., Mowlana, A., Koegelenberg, C. F. N., Prozesky, H., Smith, W., Van Schalkwyk, M., & Taljaard, J.J. (2020). Leadership and early strategic response to the SARS-CoV-2 pandemic at a COVID-19 designated hospital in South Africa. *South African Medical Journal*, 110(6), 463-465. DOI: 10.7196/SAMJ.2020v110i6.14809.
- Parker, J., & DeLay, D. (2008). The future of the healthcare supply chain. *Healthcare Financial Management: Journal of the Healthcare Financial Management Association*, 62(4), 66-69.
- Parliament. (2020). *National Health Insurance (NHI) Bill*. Retrieved 22 November 2020 from <https://www.parliament.gov.za/project-event-details/54>.
- Patri, R., & Suresh, M. (2017). Modelling the Enablers of Agile Performance in Healthcare Organization: A TISM Approach. *Global Journal of Flexible Systems Management*, 18(3), 251-272.
- Pattni, N., Bould, M., Hayter, M., McLuckie, D., Noble, L., Malavade, A., & Friedman, Z. (2017). Gender, power and leadership: the effect of a superior's gender on respiratory therapists' ability to challenge leadership during a life-threatening emergency. *BJA: British Journal of Anaesthesia*, 119(4), 697-702. DOI: 10.1093/bja/aex246.
- Peersman, G. (2014). *Overview: Data collection and analysis methods in impact evaluation*. Florence: UNICEF Office of Research-Innocenti.
- Perry-Smith, J. E., & Mannucci, P. V. (2017). From creativity to innovation: The social network drivers of the four phases of the idea journey. *Academy of Management Review*, 42(1), 53-79. <https://doi.org/10.5465/amr.2014.0462>.
- Pillay, M., Tiwari, R., Kathard, H., & Chikte, U. (2020). Sustainable workforce: South African audiologists and speech therapists. *Human Resources for Health*, 18(1), Art 47, 1-13. <https://doi.org/10.1186/s12960-020-00488-6>.
- PMSolutions. (2018). *The adaptive organization, a benchmark of changing approaches to project management*. Retrieved 12 March 2019 from <https://www.pmsolutions.com/resources/view/the-adaptive-organization-research-report-data>.
- Poincaré, H. (1905). *Science and hypothesis*. New York: Walter Scott.
- Porter-O'Grady, T. (2020). Complexity Leadership: Constructing 21st-Century health care. *Nursing Administration Quarterly*, 44(2), 92-100. DOI: 10.1097/NAQ.0000000000000405
- Preiss, K., Goldman, S. L., & Nagel, R. N. (1996). *Cooperate to compete: building agile business relationships*. New York: Van Nostrand Reinhold.

- Presidential Health Summit. (2018, 19-20 October). *Strengthening the South African health system towards an integrated and unified health system*. Birchwood Conference Centre, Johannesburg. Retrieved 22 July 2020 from https://www.gov.za/sites/default/files/gcis_document/201902/presidential-health-summit-report.pdf.
- Pretorius, K. (2019, 11 September) *Webcast: The impact of NHI on private healthcare I* Interviewer: K. Pretorius. Mediclinic, Retrieved 21 November 2020 from <https://www.mediclinic.co.za>.
- Putter, R., & Naidoo, S. (2018). Dental fraud in South Africa 2007-2015. *South African Dental Journal*, 73(9), 546-553.
- PwC. (2020). *Top health industry issues of 2021: Will a shocked system emerge stronger?* [SI]: PwC Health Research Institute. Retrieved 18 December 2020 from <https://www.pwc.com/us/en/industries/health-industries/assets/pwc-us-health-top-health-issues-2021.pdf>.
- Rahimnia, F., & Moghadasian, M. (2010). Supply chain leagility in professional services: how to apply decoupling point concept in healthcare delivery system. *Supply Chain Management: An International Journal*. 15(1), 80-91. <https://doi.org/10.1108/13598541011018148>.
- Ramadan, M., Salah, B., Othman, M., & Ayubali, A. A. (2020). Industry 4.0-based real-time scheduling and dispatching in lean manufacturing systems. *Sustainability*, 12(6), 2272 (pp. 1-18). <https://doi.org/10.3390/su12062272>.
- Rampamba, E. M., Meyer, J. C., Godman, B., Kurdi, A., & Helberg, E. (2018). Evaluation of antihypertensive adherence and its determinants at primary healthcare facilities in rural South Africa. *Journal of Comparative Effectiveness Research*, 7(7), 661-672. DOI: 10.2217/cer-2018-0004.
- Reeves, S., Pelone, F., Harrison, R., Goldman, J., & Zwarenstein, M. (2017). Interprofessional collaboration to improve professional practice and healthcare outcomes. *Cochrane Database of Systematic Reviews*, 22 June, 6(6), CD000072, 1-48. DOI: 10.1002/14651858.CD000072.pub3.
- Republic of South Africa. (1996). Constitution of the Republic of South Africa. *Government Gazette*, 378(17678), 18 December. Pretoria: Government Printers. Retrieved 11 November 2020 from <https://www.gov.za/sites/default/files/images/a108-96>.
- RH Bophelo. (2019a). *RH Bophelo Integrated Annual Report 2020: Staying ahead of the curve*. Retrieved 15 December 2020 from <https://www.rhbophelo.co.za/rh-bophelo-integrated-annual-report-2020-staying-ahead-of-the-curve/>.

- RH Bophelo. (2019b). *RH Bophelo*. Retrieved 15 December 2020 from <https://www.rhbophelo.co.za/>.
- Rheeder, P., Morris-Paxton, A. A., Ewing, R.-M. G., & Woods, D. (2017). The noncommunicable disease outcomes of primary healthcare screening in two rural subdistricts of the Eastern Cape Province, South Africa. *African Journal of Primary Health Care & Family Medicine*, 9(1), 1-7.
- Rispel, L. C. (2016). Analysing the progress and fault lines of health sector transformation in South Africa (pp. 17-23). In: T. Moeti, & A. Padarath (Eds). *South African Health Review, 2019*. Durban: Health Systems Trust. Retrieved 18 August 2020 from https://www.hst.org.za/publications/South-African-Health-Reviews/SAHR_2019_14012020_Updated-web.pdf.
- Rogers, D. M. (2017). *Emergence of informal clinical leadership among bedside nurses in the acute care clinical setting: A mixed methods study*. PhD (Nursing Science) thesis, Georgia Baptist College of Nursing, Mercer University, Atlanta, Georgia. Retrieved 18 August 2020 from <http://hdl.handle.net/10755/20612>.
- Rohrer, J. M., Brümmer, M., Schmukle, S. C., Goebel, J., & Wagner, G. G. (2017). "What else are you worried about?" – Integrating textual responses into quantitative social science research. *PloS One*, 12(7), e0182156. <https://doi.org/10.1371/journal.pone.0182156>.
- Rosenhead, J., Franco, L. A., Grint, K., & Friedland, B. (2019). Complexity theory and leadership practice: A review, a critique, and some recommendations. *The Leadership Quarterly*, 30(5), 101304. DOI: 10.1016/j.leaqua.2019.07.002.
- Roser, M., Ortiz-Ospina, E., & Ritchie, H. (2019). *Life Expectancy*. Retrieved 10 April 2020 from <https://ourworldindata.org/life-expectancy>.
- Roser, M., & Ritchie, H. (2019). *Malaria*. Retrieved 16 March 2020 from <https://ourworldindata.org/malaria#:~:text=Since-the-beginning-of-the,2000-to-438-C000-in-2015>.
- Rusch, V. W., & Wexner, S. D. (Collaborators: American College of Surgeons COVID-19 Communications Committee, Board of Regents, and Officers). (2020). The American College of Surgeons responds to COVID-19. *Journal of the American College of Surgeons*, October, 231(4), 490-496. DOI: 10.1016/j.jamcollsurg.2020.06.020. Epub 2020 Jul 14.
- SA News. (2016, 11 October). How long the average South African stays in one job for. *BusinessTech*. Retrieved 28 July 2019, from <https://businesstech.co.za/news/-business/139675/how-long-the-average-south-african-stays-in-one-job-for/>.
- Saldaña, J. (2015). *The coding manual for qualitative researchers*. California: Sage.

- Saleh, A., & Bista, K. (2017). Examining factors impacting online survey response rates in educational research: Perceptions of graduate students. *Online Submission*, 13(2), 63-74.
- Sanner-Stiehr, E., & Ward-Smith, P. (2017). Lateral violence in nursing: implications and strategies for nurse educators. *Journal of Professional Nursing*, March-April, 33(2), 113-118. DOI: 10.1016/j.profnurs.2016.08.007.
- Saravo, B., Netzel, J., & Kiesewetter, J. (2017). The need for strong clinical leaders – Transformational and transactional leadership as a framework for resident leadership training. *PloS One*, 12(8), e0183019. <https://doi.org/10.1371/journal.pone.0183019>.
- Schad, J., Lewis, M. W., Raisch, S., & Smith, W. K. (2016). Paradox research in management science: Looking back to move forward. *The Academy of Management Annals*, 10(1), 5-64.
- Schwab, K. (Ed.). (2019). *The Global Competitiveness Report 2019*. Geneva: World Economic Forum. Retrieved 7 January 2020 from http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf.
- Schulze, J. H., & Pinkow, F. (2020). Leadership for organisational adaptability: How enabling leaders create adaptive space. *Administrative Sciences*, 10(3), Art 37 (pp. 1-22). <https://doi.org/10.3390/admsci10030037>.
- Seddon, J. (2002). *Systems thinking and performance improvement in the public sector*. Vanguard, January.
- Seddon, J., & Brand, C. (2008). Debate: systems thinking and public sector performance. *Public Money & Management*, 28(1), 7-9.
- Seddon, J., & Caulkin, S. (2007). Systems thinking, lean production and action learning. *Action Learning: Research and Practice*, 4(1), 9-24. <https://doi.org/10.1080/14767330701231438>.
- Senyoni, W. F. (2021). Health information systems implementation: Weaving alliances in East African Community. *The Electronic Journal of Information Systems in Developing Countries*, 87(1), e12152.
- Seutloadi, K. (2015). *Perceptions on the role and importance of soft skills or relevant competencies on the performance of nurse managers in hospitals*. PhD (Business Administration) thesis, University of Southern Queensland, Toowoomba, Queensland. Retrieved 18 September 2020 from https://eprints.usq.edu.au/28103/1/Seutloadi_2015_whole.pdf.

- Shah, E. D., Pourmorteza, M., Elmunzer, B. J., Ballou, S. K., Papachristou, G. I., Lara, L. F., Okafor, U., Pfeil, S. A., Conwell, D. L., & Krishna, S. G. (2020). Psychological health among gastroenterologists during the COVID-19 Pandemic: A national survey. *Clinical Gastroenterology and Hepatology*, April, 19(4), 836-838.e3. <https://doi.org/10.1016/j.cgh.2020.11.043>.
- Shao, Y., Nijstad, B. A., & Täuber, S. (2019). Creativity under workload pressure and integrative complexity: The double-edged sword of paradoxical leadership. *Organizational Behavior and Human Decision Processes*, 155, 7-19.
- Sharif, S. P., Mostafiz, I., & Guptan, V. (2018). A systematic review of structural equation modelling in nursing research. *Nurse Researcher*, 26(2), 28-31. DOI: 10.7748/nr.2018.e1577.
- Shepherd, D. A., & Suddaby, R. (2017). Theory building: A review and integration. *Journal of Management*, 43(1), 59-86. <https://doi.org/10.1177/0149206316647102>.
- Shirey, M. R., McDaniel, A. M., Ebright, P. R., Fisher, M. L., & Doebbeling, B. N. (2010). Understanding nurse manager stress and work complexity: factors that make a difference. *Journal of Nursing Administration*, 40(2), 82-91. DOI: 10.1097/NNA.0b013e3181cb9f88.
- Shung-King, M., Gilson, L., Mbachu, C., Molyneux, S., Muraya, K. W., Uguru, N., & Govender, V. (2018). Leadership experiences and practices of South African health managers: what is the influence of gender? – a qualitative, exploratory study. *International Journal for Equity in Health*, 17(1), 148. DOI: 10.1186/s12939-018-0859-0.
- Sickles, R. C., & Zelenyuk, V. (2019). *Measurement of productivity and efficiency*. Cambridge: Cambridge University Press.
- Siggelkow, N., & Levinthal, D. (2003). Temporarily divide to conquer: centralized, decentralized, and reintegrated organizational approaches to exploration and adaptation. *Organization Science*, 16(5), 650-669.
- Sijtsma, K. (2009). On the use, the misuse, and the very limited usefulness of Cronbach's alpha. *Psychometrika*, 74(1), 107-120. DOI: 10.1007/s11336-008-9101-0.
- Simon, H. A. (1996). *The sciences of the artificial*. Cambridge, MA: MIT Press.
- Singhal, S., Kayyali, B., Levin, R., & Greenberg, Z. (2020). The next wave of healthcare innovation: The evolution of ecosystems. Retrieved from <https://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/the-next-wave-of-healthcare-innovation-the-evolution-of-ecosystems>
- Small, M. L. (2011). How to conduct a mixed methods study: Recent trends in a rapidly growing literature. *Annual Review of Sociology*, 37, 57-86. DOI: 10.1146/annurev.soc.012809.102657.

- Snowden, D. J., & Boone, M. E. (2007). A leader's framework for decision making. *Harvard Business Review*, 85(11), 68-76.
- Solanki, G. C., Cornell, J. E., Besada, D., Morar, R. L., & Wilkinson, T. (2020). The Competition Commission Health Market Inquiry Report: An overview and key imperatives. *South African Medical Journal*, 110(2), 88-91. DOI: 10.7196/SAMJ.2020.v110i2.14455.
- Solanki, G. C., Kelly, G., Cornell, J., Daviaud, E., & Geffen, L. (2019). Population ageing in South Africa: trends, impact, and challenges for the health sector (pp. 175-182). In: T. Moeti, & A. Padarath (Eds). *South African Health Review, 2019*. Durban: Health Systems Trust. Retrieved 18 September 2020 from https://www.hst.org.za/publications/South-African-Health-Reviews/SAHR_2019_14012020_Updated-web.pdf.
- South African Government. (2020). *Disaster Management Act: Regulations: Alert level 4 during Coronavirus COVID-19 lockdown*. Retrieved 10 December 2020 from <https://www.gov.za/covid-19/about/disaster-management-act-regulations-alert-level-4-during-coronavirus-covid-19-lockdown>.
- South African Government News Agency. (2020, 13 August). 240 healthcare workers die of COVID-19. *SANews.gov.za*. Retrieved 16 December 2020 from <https://www.sanews.gov.za/south-africa/240-healthcare-workers-die-covid-19>.
- South African Medical Research Council (SAMRC). (2018, 19 October). *A silent killer: Why South Africa's health could crumble under pressure from non-communicable diseases*. Retrieved 11 December 2020 from <https://www.samrc.ac.za/media-release/silent-killer-why-south-africa's-health-could-crumble-under-pressure-non-communicable>.
- SPSS. (2020). *IBM SPSS Statistics*. Retrieved 10 June 2020 from <https://www.ibm.com/products/spss-statistics>.
- Staff Writer. (2018, 26 September). How much medical aid fees have increased since 2006 in South Africa. *BusinessTech*. Retrieved 19 March 2020 from <https://businesstech.co.za/news/lifestyle/273777/how-much-medical-aid-fees-have-increased-since-2006-in-south-africa/>.
- Staff Writer. (2019, 30 October). South African healthcare workers say they are emigrating because of the NHI. *BusinessTech*. Retrieved 19 March 2020 from <https://businesstech.co.za/news/business/350061/south-african-healthcare-workers-say-they-are-emigrating-because-of-the-nhi/>.
- Staff Writer. (2020a, 3 September). Government prepares for move to South Africa's new NHI – but there's a hitch. *BusinessTech*. Retrieved 19 March 2020 from <https://businesstech.co.za/news/government/430934/government-prepares-for-move-to-south-africas-new-nhi-but-theres-a-hitch/>.

- Staff Writer. (2020b, 7 January). NHI would force 40% of doctors to leave South Africa. *BusinessTech*. Retrieved 19 March 2020 from <https://businesstech.co.za/news/lifestyle/364206/nhi-would-force-40-of-doctors-to-leave-south-africa/>.
- Staff Writer. (2020c, 2 September). South Africa faces massive healthcare worker shortage. *BusinessTech*. Retrieved 16 March 2020 from <https://businesstech.co.za/news/lifestyle/430618/south-africa-faces-massive-healthcare-worker-shortage/>.
- Stargell, L. F., & Heatherly, S. L. (2018). Managing what is measured: a rural hospital's experience in reducing patient harm. *The Journal for Healthcare Quality*, 40(3), 172-176. DOI: 10.1097/jhq.0000000000000139.
- Statistics South Africa. (2018). *Mid-year population estimates*. Retrieved 14 March 2020 from http://www.statssa.gov.za/?page_id=1854&PPN=P0302
- Statistics South Africa. (2019). *Medical aid and transport costs nudge inflation higher*. Retrieved 14 March 2020 from <http://www.statssa.gov.za/?p=11999>.
- Statistics South Africa. (2020, 9 July). *2020 Mid-year population estimates*. Retrieved 11 December 2020 from <http://www.statssa.gov.za/?p=13453>.
- Stokes, Y., Vandyk, A., Squires, J., Jacob, J.-D., & Gifford, W. (2019). Using Facebook and LinkedIn to recruit nurses for an online survey. *Western Journal of Nursing Research*, 41(1), 96-110. <https://doi.org/10.1177/0193945917740706>.
- Stray, V., Moe, N. B., & Sjøberg, D. I. (2018). Daily stand-up meetings: start breaking the rules. *IEEE Software*, 37(3), 70-77. DOI: 10.1109/MS.2018.2875988.
- Streiner, D. L. (2003). Being inconsistent about consistency: When coefficient alpha does and doesn't matter. *Journal of Personality Assessment*, 80(3), 217-222. DOI: 10.1207/S15327752JPA8003_01.
- Suryaatmaja, K., Wibisono, D., Ghazali, A., & Fitriati, R. (2020). Uncovering the failure of Agile framework implementation using SSM-based action research. *Palgrave Communications*, 6(1), 1-18. DOI: 10.1057/s41599-019-0384-9.
- Tan, F. T. C., Tan, B., Wang, W., & Sedera, D. (2017). IT-enabled operational agility: An interdependencies perspective. *Information & Management*, 54(3), 292-303. DOI: 10.1016/j.im.2016.08.001.
- Tashakkori, A., & Creswell, J. W. (2007). Editorial: The new era of mixed methods. *Journal of Mixed Methods Research*, 1(1), 3-7. <https://doi.org/10.1177/2345678906293042>.
- Teece, D., Peteraf, M., & Leih, S. (2016). Dynamic capabilities and organizational agility: Risk, uncertainty, and strategy in the innovation economy. *California Management Review*, 58(4), 13-35. <https://doi.org/10.1525/cmr.2016.58.4.13>.
- Teece, D., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533.

- Temkin, E. (Collaborators: Healthcare Worker COVID-19 Surveillance Working Group). (2020). Extremely low prevalence of asymptomatic COVID-19 among healthcare workers caring for COVID-19 patients in Israeli hospitals: a cross-sectional study. *Clinical Microbiology and Infection*, 27(1), 130.e1-130.e4. DOI: 10.1016/j.cmi.2020.09.040.
- . Ten Ham-Baloyi, W., Minnie, K., & Van der Walt, C. (2020). Improving healthcare: a guide to roll-out best practices. *African Health Sciences*, 20(3), 1487-1495.
- Thaler, K. M. (2017). Mixed methods research in the study of political and social violence and conflict. *Journal of mixed methods research*, 11(1), 59-76.
- The Presidency Republic of South Africa. (2013). Protection of Personal Information Act. Act No 4 of 2013. *Government Gazette*, 581(37067/912), 26 November. Cape Town: Government Printers. Retrieved 24 August 2019 from https://www.gov.za/sites/default/files/gcis_document/201409/3706726-11act4of2013protectionofpersonalinforcorrect.pdf.
- Theophanides, A., & Omar, T. (2020). *The impact of COVID-19 on medical schemes*. [SI]: Deloitte. Retrieved 10 December 2020 from <https://www2.deloitte.com/za/en/pages/life-sciences-and-healthcare/articles/the-impact-of-COVID-19-on-medical-schemes.html>.
- Thompson, B. (2006). *Foundations of behavioral statistics: An insight-based approach*. New York: Guilford Press.
- Timeslive. (2020, 29 December). Nurses union endorses. *Sunday Times*. Retrieved 16 January 2021 from <https://www.timeslive.co.za/news/south-africa/2020-12-29-nurses-union-endorses-booze-ban/>.
- Tolf, S. (2017). *Lean, agile, and lean and agile in hospital management: Responses to introducing choice and competition in public health care*. PhD thesis. Department of Learning, Informatics, Management and Ethics, Karolinska Institutet [Institute], Stockholm, Sweden. Retrieved 22 December 2020 from https://openarchive.ki.se/xmlui/bitstream/handle/10616/45887/Thesis_Sara_Tolf.pdf.
- Tolf, S., Nyström, M. E., Tishelman, C., Brommels, M., & Hansson, J. (2015). Agile, a guiding principle for health care improvement? *International Journal of Health Care Quality Assurance*, 28(5), 468-493. DOI: 10.1108/IJHCQA-04-2014-0044.
- Tortorice, J. (2020, 13 October). The deadliest pandemics in history. *CEUfast Blog*. Retrieved 12 February 2021 from <https://ceufast.com/blog/the-deadliest-pandemics-in-history>.
- Tourish, D. (2019). Is complexity leadership theory complex enough? A critical appraisal, some modifications and suggestions for further research. *Organization Studies*, 40(2), 219-238. <https://doi.org/10.1177/0170840618789207>.

- Tracy, S. J. (2010). Qualitative quality: Eight “big-tent” criteria for excellent qualitative research. *Qualitative Inquiry*, 16(10), 837-851.
<https://doi.org/10.1177/1077800410383121>.
- Tsai, M. H., Sanford, J. A., Black, I. H., Boggs, S. D., & Urman, R. D. (2017). Operating room management at the edge of order and chaos. *Journal of Medical Practice Management*, 32(4), 250-255.
- Tsang, S., Royse, C. F., & Terkawi, A. S. (2017). Guidelines for developing, translating, and validating a questionnaire in perioperative and pain medicine. *Saudi Journal of Anaesthesia*, 11(5), 80-89. DOI: 10.4103/sja.SJA_203_17.
- Turetken, O., Stojanov, I., & Trienekens, J. J. M. (2017). Assessing the adoption level of scaled agile development: a maturity model for Scaled Agile Framework. *Journal of Software: Evolution and Process*, 29(6), e1796, 1-18.
<https://doi.org/10.1002/smr.1796>.
- Turner, P. (2018). *Leadership in Healthcare: Delivering Organisational Transformation and Operational Excellence*. Cham, Switzerland: Palgrave Macmillan.
- Uhl-Bien, M. (2016). *Complexity leadership: the order response*. Neeley School of Business, Texas Christian University, Fort Worth, Texas.
- Uhl-Bien, M. (2020a). *Complexity leadership: Understanding the adaptive process*. Neeley School of Business, Texas Christian University. Fort Worth, Texas.
- Uhl-Bien, M. (2020b, 24 September 2020) *Discussing complexity leadership and the adaptive space*/Interviewer: K. Nel.
- Uhl-Bien, M., & Arena, M. J. (2017). Complexity leadership: enabling people and organizations for adaptability. *Organizational Dynamics*, 46(1), 9-20.
DOI:10.1016/J.ORGDYN.2016.12.001.
- Uhl-Bien, M., & Arena, M. J. (2018). Leadership for organizational adaptability: A theoretical synthesis and integrative framework. *The Leadership Quarterly*, 29(1), 89-104.
<https://doi.org/10.1016/j.leaqua.2017.12.009>.
- Uhl-Bien, M., Marion, R., & McKelvey, B. (2007). Complexity Leadership Theory: Shifting leadership from the industrial age to the knowledge era. *The Leadership Quarterly*, 18(4), 298-318. DOI: 10.1016/j.leaqua.2007.04.002.
- Uhl-Bien, M., Meyer, D., & Smith, J. (2020). Complexity leadership in the nursing context. *Nursing Administration Quarterly*, 44(2), 109-116. DOI: 10.1097/NAQ.0000000000000407.
- Ungureanu, P., Bertolotti, F., & Macri, D. (2018). Brokers or platforms? A longitudinal study of how hybrid interorganizational partnerships for regional innovation deal with VUCA environments. *European Journal of Innovation Management*, 21(4), 636-671.
Retrieved 26 March 2019 from DOI: 10.1108/EJIM-01-2018-0015.

- United Nations. (2015). *Transforming our world: the 2030 agenda for sustainable development*. Retrieved 12 January 2021 from www.sustainabledevelopment.un.org.
- United Nations. (2020a). *Prevailing against pandemics by putting people at the centre*. Retrieved from https://www.unaids.org/sites/default/files/media_asset/prevailing-against-pandemics_en.pdf
- United Nations. (2020b). *Sustainable Development Goals*. Retrieved from <https://www.un.org/sustainabledevelopment/>
- United Nations (2017). *Joint United Nations Programme on HIV/AIDS (UNAIDS): 90-90-90: an ambitious treatment target to help end the AIDS epidemic*. Geneva: UNAIDS. Retrieved 18 March 2019 from <https://www.unaids.org/en/resources/documents/2017/90-90-90>.
- Vaishnavi, V., & Suresh, M. (2020). Assessment of healthcare organizational readiness for change: A fuzzy logic approach. *Journal of King Saud University – Engineering Sciences*. Retrieved 16 October 2020 from <https://doi.org/10.1016/j.jksues.2020.09.008>.
- Vaismoradi, M., & Snelgrove, S. (2019). Theme in qualitative content analysis and thematic analysis. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research*. 20(3), Art 23. Retrieved 2 January 2021 from <https://www.qualitative-research.net/index.php/fqs/article/view/3376/4471>.
- Van den Heever, A. (2019, 9 August). Will the National Health Insurance Bill go far enough to prevent corruption? *Bhekisisa*. Retrieved 24 July 2020 from <https://bhekisisa.org/opinion/2019-08-09-four-pitfalls-on-the-road-to-the-national-health-insurance/>.
- VanGeest, J., & Johnson, T. P. (2011). Surveying nurses: identifying strategies to improve participation. *Evaluation & the Health Professions*, 34(4), 487-511. DOI: 10.1177/0163278711399572.
- Varela, F., Maturana, H., & Uribe, R. (1974). Autopoiesis: The organization of living systems, its characterization and a model. *Biosystems*, 5(4), 187-196. [https://doi.org/10.1016/0303-2647\(74\)90031-8](https://doi.org/10.1016/0303-2647(74)90031-8).
- VersionOne. (2018). *12th Annual state of agile report*. [SI]: Agile Business Builders. Retrieved from <https://agilebb.nl/wp-content/uploads/2018/04/versionone-12th-annual-state-of-agile-report.pdf>.
- Viero, A., Barbara, G., Montisci, M., Kustermann, K., & Cattaneo, C. (2020). Violence against women in the Covid-19 pandemic: a review of the literature and a call for shared strategies to tackle health and social emergencies. *Forensic Science International*, 319 (2021), 110650. <https://doi.org/10.1016/j.forsciint.2020.110650>.

- Vlaanderen, F., Tanke, M., Bloem, B., Faber, M., Eijkenaar, F., Schut, F., & Jeurissen, P. (2019). Design and effects of outcome-based payment models in healthcare: a systematic review. *The European Journal of Health Economics*, 20(2), 217-232. <https://doi.org/10.1007/s10198-018-0989-8>.
- Waldrop, M. M. (1992). *Complexity: The emerging science at the edge of order and chaos*. New York: Simon & Schuster.
- Walton-Roberts, M., Runnels, V., Rajan, S. I., Sood, A., Nair, S., Thomas, P., Packer, C., MacKenzie, A., Murphy, G. T., Labonté, R., & Bourgeault, I. L. (2017). Causes, consequences, and policy responses to the migration of health workers: key findings from India. *Human Resources for Health*, 15(1), Art 28, 1-18. DOI: 10.1186/s12960-017-0199-y.
- Wang, L. (2018). *Research on risk management for healthcare supply chain in hospital*. PhD thesis, Liverpool John Moores University, Liverpool. Retrieved 16 November 2020 from <https://core.ac.uk/download/pdf/161097932.pdf>.
- Wang, X., Cao, G., Mao, W., Lao, W., & He, C. (2020). Robot-assisted versus laparoscopic surgery for rectal cancer: A systematic review and meta-analysis. *Journal of Cancer Research and Therapeutics*, 16(5), 979-989. DOI: 10.4103/jcrt.JCRT_533_18.
- Ward, M., Meade, A. W., Allred, C. M., Pappalardo, G., & Stoughton, J. W. (2017). Careless response and attrition as sources of bias in online survey assessments of personality traits and performance. *Computers in Human Behavior*, 76, 417-430. DOI: 10.1016/j.chb.2017.06.032.
- Wasserman, H. (2019, 12 August). Here's how the NHI will affect you - including new rules about seeing a specialist. *Business Insider South Africa*. Retrieved 18 September 2020 from <https://www.businessinsider.co.za/nhi-health-medical-aid-2019-8>.
- Watkins, D. C. (2017). Rapid and rigorous qualitative data analysis: The "RADaR" Technique for Applied Research. *International Journal of Qualitative Methods*, 16, 1-9. Retrieved 18 August 2020 from DOI: 10.1177/1609406917712131.
- Weberg, D. R., & Fuller, R. M. (2019). Toxic leadership: three lessons from complexity science to identify and stop toxic teams. *Nurse Leader*, 17(1), 22-26. DOI: 10.1016/j.mnl.2018.09.006.
- Weis, D., & Willems, H. (2017). Aggregation, validation, and generalization of qualitative data – methodological and practical research strategies illustrated by the research process of an empirically based typology. *Integrative Psychological and Behavioral Science*, 51(2), 223-243. <https://doi.org/10.1007/s12124-016-9372-4>.
- Weller, J. M., & Long, J. A. (2019). Creating a climate for speaking up. *British Journal of Anaesthesia*, 122(6), 710-713. DOI: 10.1016/j.bja.2019.03.003.

- Wikner, J., Yang, B., Yang, Y., & Williams, S. J. (2017). Decoupling thinking in service operations: a case in healthcare delivery system design. *Production Planning & Control*, 28(5), 387-397. <https://doi.org/10.1080/09537287.2017.1298869>.
- Will, T. E. (2016). Flock leadership: Understanding and influencing emergent collective behavior. *The Leadership Quarterly*, 27(2), 261-279. <https://doi.org/10.1016/j.leaqua.2016.01.002>.
- Williams, M., Krugel, L., Grove, J., Dreyer, E., & Krugel, J. (2018). *Refereeing the patient game: Regulating for universal healthcare in South Africa*. PricewaterhouseCoopers (PwC). Retrieved 20 February 2020 from <https://www.pwc.co.za/en/assets/pdf/refereeing-the-patient-game.pdf>.
- Williams, S. J. (2017). *Improving healthcare Operations: the application of lean, agile and leagility in the Care Pathway Design*. Cham, Switzerland: Palgrave Macmillan.
- Winchester, M. S., & King, B. (2018). Decentralization, healthcare access, and inequality in Mpumalanga, South Africa. *Health & Place*, 51, 200-207. DOI: 10.1016/j.healthplace.2018.02.009.
- Witges, K. A., & Scanlan, J. M. (2014). Understanding the role of the nurse manager: The full-range leadership theory perspective. *Nurse Leader*, 12(6), 67-70. <https://doi.org/10.1016/j.mnl.2014.02.007>.
- Wofford, J. C. (1971). Managerial behavior, situational factors, and productivity and morale. *Administrative Science Quarterly*, 16(1), 10-17. <https://doi.org/10.2307/2391281>.
- Womack, J. P., & Jones, D. T. (1990). *The machine that changed the world: The story of lean production*. New York: Harper Perennial.
- Womack, J. P., & Jones, D. T. (1996). Beyond Toyota: how to root out waste and pursue perfection. *Harvard Business Review*, 74(5), 140-158. Retrieved 18 July 2020 from <https://hbr.org/1996/09/how-to-root-out-waste-and-pursue-perfection>.
- Wong, S. I., & Giessner, S. R. (2018). The thin line between empowering and laissez-faire leadership: An expectancy-match perspective. *Journal of Management*, 44(2), 757-783. <https://doi.org/10.1177/0149206315574597>.
- World Health Organization. (2007). *Everybody's business--strengthening health systems to improve health outcomes: WHO's framework for action*. Geneva, Switzerland: WHO document production services. Retrieved 14 August 2020 from https://www.who.int/healthsystems/strategy/everybodys_business.pdf.
- World Health Organization. (2010). *Monitoring the building blocks of health systems: a handbook of indicators and their measurement strategies*. Geneva, Switzerland: WHO Document Production Services. Retrieved 14 August 2020 from https://www.who.int/healthinfo/systems/WHO_MBHSS_2010_full_web.pdf.

- World Health Organization. (2015). *WHO global strategy on people-centred and integrated health services: interim report*. Geneva: WHO Press. Retrieved 14 August 2018 from https://apps.who.int/iris/bitstream/handle/10665/155002/WHO_HIS_SDS_2015.6_eng.pdf.
- World Health Organization. (2017). *Global strategy and action plan on ageing and health*. Geneva: World Health Organization. Retrieved 18 May 2020 from <https://www.who.int/ageing/WHO-GSAP-2017.pdf>.
- World Health Organization. (2018). *Ageing and health*. Fact Sheet, 5 February. Retrieved 18 May 2020 from <https://www.who.int/news-room/fact-sheets/detail/ageing-and-health>.
- World Health Organization. (2019a). *Addressing the 18 million health worker shortfall – 35 concrete actions and 6 key messages*. Geneva: WHO News Release, 28 May. Retrieved 12 March 2020 from <https://www.who.int/hrh/news/2019/addressing-18million-hw-shortfall-6-key-messages/en/>.
- World Health Organization. (2019b). *Malaria*. Retrieved 19 May 2019 from <https://www.who.int/news-room/fact-sheets/detail/malaria>.
- World Health Organization. (2019c). *Universal health coverage (UHC)*. Retrieved 26 September 2018 from [https://www.who.int/en/news-room/fact-sheets/detail/universal-health-coverage-\(uhc\)](https://www.who.int/en/news-room/fact-sheets/detail/universal-health-coverage-(uhc)).
- World Health Organization. (2019d). *Cholera*. Retrieved 19 May 2019 from <https://www.who.int/news-room/fact-sheets/detail/cholera>.
- World Health Organization. (2020a). *Global spending on health 2020: weathering the storm*. Geneva: World Health Organization. Retrieved 19 May 2019 from <https://www.who.int/9789240017788-eng.pdf>.
- World Health Organization. (2020b). *Global tuberculosis report 2020*. Retrieved 19 May 2019 from <https://www.who.int/publications/i/item/9789240013131>.
- World Health Organization. (2020c). *Infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected*. Retrieved 12 May 2021 from <https://www.who.int/publications/i/item/10665-331495/9789240013131-eng.pdf>.
- Worldometers.info. (2021). *COVID-19 Coronavirus pandemic*. Retrieved 31 March 2021 from <https://www.worldometers.info/coronavirus/>.
- Wu, M., Peng, Z., & Estay, C. (2018). How role stress mediates the relationship between destructive leadership and employee silence: The moderating role of job complexity. *Journal of Pacific Rim Psychology*, 12(19), 1-11. <https://doi.org/10.1017/prp.2018.7>.
- Yadav, D. V. (2018). Robotics in health care: who is liable? *International Journal of Basic and Applied Research*. 8(12), 631-363.

- Yeganeh, H. (2019). An analysis of emerging trends and transformations in global healthcare. *International Journal of Health Governance*. 24(2), 169-180.
<https://doi.org/10.1108/IJHG-02-2019-0012>.
- Young, M. (2016). *Private vs. Public Healthcare in South Africa*. Western Michigan University, Retrieved from http://scholarworks.wmich.edu/honors_theses
- Yue, C. A., Men, L. R., & Ferguson, M. A. (2019). Bridging transformational leadership, transparent communication, and employee openness to change: The mediating role of trust. *Public Relations Review*, 45(3), 101779. Retrieved 22 March 2019 from <https://www.sciencedirect.com/science/article/pii/S0363811119300360>.
- Zou, P. X., Xu, X., Sanjayan, J., & Wang, J. (2018). A mixed methods design for building occupants' energy behavior research. *Energy and Buildings*, 166, 239-249.
DOI: 10.1016/j.enbuild.2018.01.068.
- Żytniewski, M. (2018, 6-7 September). Use of the autopoiesis in business process oriented knowledge management system development (pp. 974-973). In: E. Bolisani, E. Di Maria, & E. Scarso (Eds.), *Proceedings of the 19th European Conference on Knowledge Management*. Padua, Italy: Academic Conferences and Publishing International.

APPENDICES

APPENDIX A: ETHICS CLEARANCE CERTIFICATE



Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)
R14/49 Nel

CLEARANCE CERTIFICATE**PROTOCOL NUMBER: H19/10/25****PROJECT TITLE**

Complexity-based leadership to achieve improvement methodologies (Lean, Agile, Leagile) in private hospitals in South Africa: A mixed methods study

INVESTIGATOR(S)

Mrs K Nel

SCHOOL/DEPARTMENT

Wits Business School/

DATE CONSIDERED

18 October 2019

DECISION OF THE COMMITTEE

Approved
Permission letters required before data collection can commence

EXPIRY DATE

12 November 2022

DATE 13 November 2019**CHAIRPERSON**

 A handwritten signature in black ink, appearing to be "J Knight", written over a horizontal line.

(Professor J Knight)

cc: Supervisor : Professor M Qobo

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10004, 10th Floor, Senate House, University. Unreported changes to the application may invalidate the clearance given by the HREC (Non-Medical)

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to completion of a yearly progress report.**

Signature _____

Date _____

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

APPENDIX B: INITIAL LETTER TO THE CEO

XXXXXXXX

XXXXXXXX

XXXXXXXX

Att: xxxxxxxxxxxx

xxxxxxxxxxxxxxxx

xxxxxxxxxxxxxxxx

xxxxxxxxxxxxxxxx

Dear xxxxxxxxxx

Request for assistance with PhD study: Complexity Leadership and Operational Systems and Structures

I am a PhD student from the Wits Business School in my second year of studies. The topic for my PhD is:

Positioning private hospitals in South Africa for adaptability: a mixed methods study considering complexity leadership and operational systems and structures (agile, lean and leagile)

The purpose of this study is to critically examine whether private hospitals in South Africa are positioned for adaptability considering CL and OSS (agile, lean and leagile). Therefore, the objective of this research is to investigate the relationship between the HDL and HOSS, identify whether it is aligned to the framework of CL and OSS, understand why the result occurred, and recommend what can be done to enhance the alignment of these factors for private hospitals adaptability. This study has two phases. Phase 1 is a Quantitative study and Phase 2 is a Qualitative study. Please refer to Annexure A for a detailed explanation of the elements of the study.

The purpose of this letter is to request kindly that your organisation participate in this study. Should permission be obtained, the participation will be in two phases: First, will a larger sample of the participants complete an online questionnaire, followed with a telephonic interview with a smaller sample of purposefully selected participants (that can contribute to this study). For practical reasons, I will appreciate it if you can direct me to a staff member at the head office level and at hospital level who could assist in the logistics of selecting the appropriate participants and providing me with the e-mail addresses and cell phone numbers of these individuals.

I want to specifically mention that this study will NOT compare the different private hospital groups in South Africa with each other but will analyse the industry as a whole and report the data at an aggregate level to ensure that no specific hospital group will be mentioned or be identifiable in the results.

A copy of my thesis will be made available to you upon completion. I can come and present the results to the board/senior management if requested.

With this letter, I am respectfully requesting permission to gather data for this study from selected staff working at the xxxxxxxxx head office and the xxxxxxxxx hospitals. Annexure A contains specific sample details.

Please note I am a permanent employee at xxxxxxxxxx in the position of xxxxxxxx. I am doing this study in my personal capacity with my own funding and no involvement from xxxxxxxxxx.

Please contact me on my cell xxxxxxxxxx or per e-mail xxxxxxxxx should any questions arise.

Looking forward to hearing from you soon

Kindest regards



Karen Nel

APPENDIX C: EXPLANATION OF THE STUDY TO EXCO

Topic: Positioning private hospitals in South Africa for adaptability: a mixed methods study considering complexity leadership and operational systems and structures (agile, lean and leagile)

University of the Witwatersrand, Wits Business School, Faculty: Law, Commerce and Management

EXECUTIVE SUMMARY

The leadership of private hospitals in South Africa is functioning in a complex and challenging environment with legislative changes, slow economic growth, medical inflation and changing customer needs. Complexity leadership is a suggested leadership approach for organisations functioning in an industry experiencing major challenges. This study will specifically explore the relationship between complexity leadership and operational systems and structures displayed in private hospital groups in South Africa and attempt to find explanations for these relationships.

The researcher will share the results of the study with the management of hospital groups/independent hospitals that officially endorse and support the study. Supporting hospitals can, therefore, obtain an overview of the current leadership and operational systems and structures trends in private hospitals in South Africa (at an aggregate level¹). Furthermore, will the individual results of the supporting hospital groups be compared with the industry at an aggregate level and shared with the specific hospital group management. Lastly, will the leadership approaches in the private hospital industry for the successful execution of processes and internal changes be shared with the group management. Supporting hospital groups can, therefore, gain valuable industry information and specific information regarding the industry and its own hospital group, that could help guide strategic decision-making going forward.

BACKGROUND TO THE STUDY

The private hospital industry in South Africa is currently experiencing various challenges with legislative changes, poor economic growth, cost pressures and changing customer needs, with the result that the leadership of private hospitals function in an overly complex and challenging environment. A wide range of stakeholder needs must be satisfied while displaying clinical best practices and innovation. Innovative solutions with the implementation of operational systems and structures (agile, lean and leagile) are imperative. Understanding the relationship between leadership and operational systems and structures will assist in transforming organisations to meet these new challenges. Complexity leadership (entrepreneurial, operational, and enabling leadership)

NB. It is important to note that all data will be processed at aggregate (industry) level and that no comparative results between individual hospitals will be published.

is the suggested leadership approach for organisations functioning in an industry experiencing challenges?

The purpose of the study is, therefore, to understand the impact complexity leadership has on Operational Systems and Structures in private hospitals in South Africa (Phase 1) and understand what the contributing factors to influence this impact are (Phase 2). Figure 1 displays the conceptual framework of this study.

Figure 1: Conceptual framework of the study

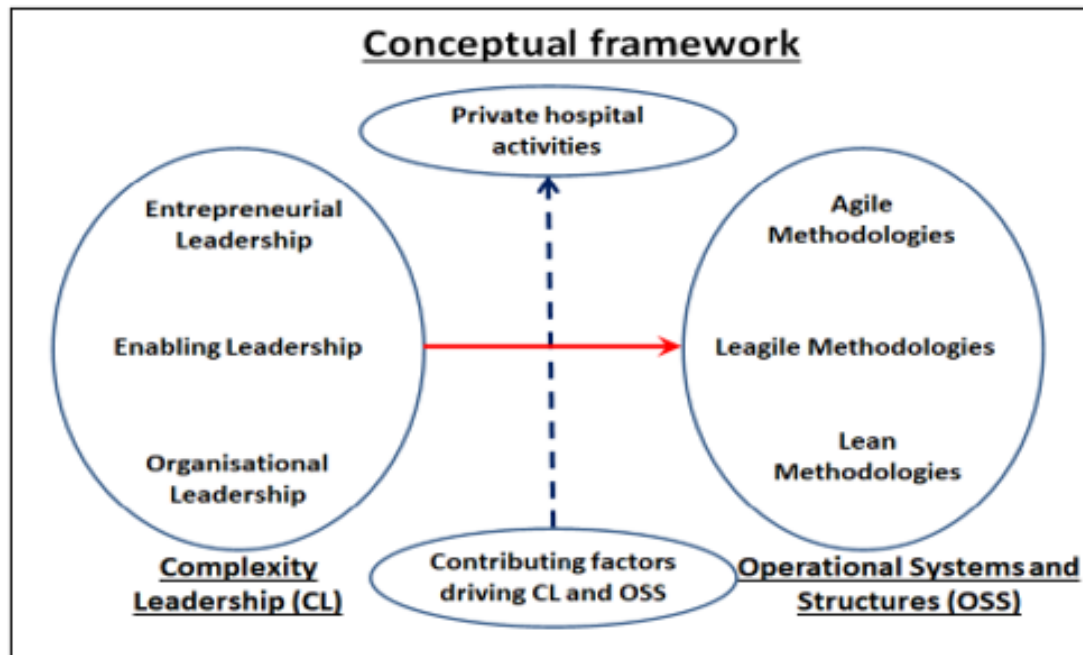


Figure 1 illustrates the conceptual framework, for investigating the impact that complexity leadership (which includes entrepreneurial, operational, and enabling leadership) has on implementing operational systems and structures (which includes agile, lean and leagile). Furthermore, will the contributing factors that influenced this impact (if proven), also be explored?

BENEFITS TO INDEPENDENT PRIVATE HOSPITALS AND HOSPITAL GROUPS FOR PARTICIPATING IN THIS LEADERSHIP STUDY

High-level benefits to private hospitals and private hospital groups for participating in the study:

1. Provide an overview of the current leadership trends in private hospitals in South Africa (at an aggregate level).
2. Provide an overview of the current approach to operational systems and structures (lean, agile, leagile) in private hospitals in South Africa (at an aggregate level).
3. Provide the leadership of the group with an understanding of the various relationships between leadership and operational systems and structures.

4. The researcher can provide the private hospitals and private hospital groups with an overview of the results of the group, compared to the aggregate results for the industry (no individual comparisons between hospital groups).
5. Provide the leadership of the group with guidelines to approaches in leadership for the successful execution of processes and internal changes within the group.

DETAILS OF THE STUDY RESEARCH METHOD

The research is to be conducted in two phases, namely: Phase 1 (Quantitative analysis), where managers in the organisation will fill in an online questionnaire (15-20 mins). This will be followed by Phase 2 (Qualitative study), wherein a small sample of personal, telephonic interviews will be conducted. Only a few personal interviews will be conducted (20-30 mins).

Ethics committee approval has been obtained from the University of the Witwatersrand. Kindly note that the study includes research at decision-maker level, middle-level and senior-level employees. No clinical/patient-related data whatsoever is involved.

DECLARATION OF INTEREST

The researcher is a permanent employee at xxxxxxxxx (medical aid and insurance administrators) in the position of xxxxxxxxxxxxxx. The researcher is performing this study in her personal capacity as a PhD leadership study at the University of the Witwatersrand, Wits Business School, under supervision of Prof Mzukisi Qobo. This study is financed with her own personal funding and with no involvement/influence whatsoever from any institution within the healthcare industry. No conflict of interest is hereby declared.

WHY IS IT IMPORTANT FOR PRIVATE HOSPITALS AND HOSPITAL GROUPS TO PARTICIPATE?

This study is expected to contribute to the rapidly evolving body of knowledge in the field of complexity leadership and operational systems and structures in the healthcare industry. This study's focus is specifically upon private hospitals.

The contribution of this study is expected to benefit the following areas of interest:

- Assist private hospital groups in especially developing countries in becoming more adapt to the rapidly changing market environment and to become increasingly agile, lean and leagile in dealing with healthcare challenges.

- Private hospitals in developing countries, dealing specifically with strategic planning in a rapidly changing legislative, policy, technology, funding and patient environment.
- This study will further contribute to a better understanding of the changing leadership landscape in the private hospital industry.
- Finally, this study aims to provide insights into new leadership frameworks and new guidelines for the transitioning process of applying complexity leadership in private healthcare for the implementation of agile, lean and leagile solutions.

The analysis and results of this study will occur at an aggregate level for the industry only, and the study report will not disclose any individual hospital or the internal initiatives within any hospital group. Participating hospitals can request the specific results for their respective hospital group, as well as a comparison to the aggregate industry level results.

Researcher contact details: Ms Karen Nel, email: xxxxxxxxxxxxxxxxxxxx_Mobile: xxxxxxxxxxxx
Study Leader: Prof Mzukisi Qobo, Associate Professor: International Business and Strategy

APPENDIX D: DIRECT SAMPLE STAFF MEMO

Dear Staff Member

We as a group/hospital are fortunate to have been selected as a facility that will participate in a PhD study exploring the impact leadership has on the implementation of operational systems and structures in private hospitals in South Africa.

Karen Nel is performing the study. She is a PhD student from the Wits Business School in her second year of studies. The topic for her PhD is:

Positioning private hospitals in South Africa for adaptability: a mixed methods study considering complexity leadership and operational systems and structures (agile, lean and leagile)

This study aims to understand the impact the display of complexity leadership has on the implementation of operational systems and structures (agile, lean and leagile) in private hospitals in South Africa, as well as understanding the contributing factors that influenced this impact. This study has two phases. Phase 1 is a quantitative study where it will be requested that certain selected staff complete an online questionnaire. Phase 2 is a qualitative study where telephonic interviews will be conducted with participants that participated in Phase 1, following the results from the first Phase.

The staff that agree to participate in the study and for their details to be shared with the Karen Nel will receive a personal invitation by e-mail to participate in Phase 1 of this study. Phase 2 will only commence in 2020.

Please note that all results of the study will be confidential and go to Karen Nel only. No results or answers will be shared with the hospital management at an individual level. All results of the study will only be analysed at an aggregate level and therefore, will no individual or hospital-specific information be made available to anyone.

With this letter, I am respectfully requesting that everyone that receives an invitation to participate, please do so. You are welcome to contact Karen Nel on xxxxxxxx or xxxxx in the event of any questions.

Hospital Management

APPENDIX E: DIRECT SAMPLE REQUEST TO SHARE INFO

Dear Staff Member

The document is to give the hospital permission to share your details with the researcher.

TITLE: Positioning private hospitals in South Africa for adaptability: a mixed methods study considering complexity leadership and operational systems and structures (agile, lean and leagile)

RESEARCHER: Karen Nel

I agree to participate in this research project, and I consent to my employer to provide the researcher with my contact details for the purpose of the research study.

Should you have any questions regarding the study, please contact Karen Nel directly on xxxxxxxx (WhatsApp) or xxxxxxxxx (email)

Site: _____

Manager Name and Number: _____

First Name	Surname	Email address	Cell Number	Signature

Please scan and email to xxxxxxxx

Thanks so much for making a difference – Karen

APPENDIX F: LINKEDIN SAMPLE CONNECTION REQUEST

Dear xxxxxxxx, please help change the: '*Heartbeat of healthcare, one heartbeat at a time*'. I am doing my PhD on Leadership in private hospitals. Please participate by completing a 20-min online questionnaire. Please provide your private e-mail address.

For more details please visit: <https://www.karennel.co.za/phd-2/>

APPENDIX G: LINKEDIN MESSAGE WHEN CONNECTION REQUEST WAS ACCEPTED

Dear XXXX

I want to thank you for accepting my connection request. I want to thank you for helping to Change the Heartbeat of Healthcare, One Beat at a Time by considering participating in my PhD study.

May I please request that you provide me with your personal email address as my agreement with the hospital group and the University was that employees of the group will not complete the questionnaire using a work email address.

Please be reminded that your participation is completely confidential and 100% anonymous to your hospital or group. ONLY I will know that you have participated in the study and furthermore, your personal details will never be identifiable, published or shared under any circumstances. Your honest opinion is highly appreciated. All results of the study will only be analysed at an aggregate (industry) level and therefore, will no individual or hospital-specific information be made available to anyone. Please note I am not employed by any Private Hospital Group, and I am performing this critical study in my private time with my own personal funding – no corporate sponsorships.

I have attached a document with an additional explanation of the study. Here is also a video of myself to put your mind at ease <https://vimeo.com/398337615>. Additionally, please feel welcome to have a look at my website <https://www.karennel.co.za/> to get to know me better. I do hope all of this will put your mind at ease and that I can trust you to assist me with this especially important initiative. Please contact me if you experience any challenges in completing the questionnaire. Have a great week and stay safe!

Karen ❤️

APPENDIX I: QUANTITATIVE PARTICIPANT INFORMATION DOCUMENT



Dear XXXXXX,

Thanks so much for providing me with your e-mail address and for being prepared to consider participation in my study.

As mentioned before, I am Karen Nel, a PhD student in Leadership, studying through the University of the Witwatersrand. The topic of my study is:

Positioning private hospitals in South Africa for adaptability: a mixed methods study considering complexity leadership and operational systems and structures (agile, lean and leagile)

This study aims to understand the relationship between the leadership and operational systems and structures in private hospitals in South Africa.

You are invited to participate in the study by answering a 15–20-minute online questionnaire. You are eligible to participate in this study if you are employed in any private hospital group in South Africa. *This link can be opened on any smartphone, tablet, or computer, (recommended).*

Click here to participate

The results of phase 1 (the questionnaire) will be used to select the sample for phase 2 (a small sample of interviews). The results of the study will be reported at the industry level, which means that your individual answers will not be shared with any hospital or hospital group. The completion of the questionnaire will, therefore, be confidential. I will be the only person that has access to your personal details and responses. Furthermore, will all data obtained during the study be securely stored.

This study will be written up as a research report which will be available online through the University of the Witwatersrand library website. If you wish to receive a summary of this report, I will be happy to send it to you. If you have any questions at any time about this research, feel free to contact me,

You will not receive any direct benefits from participating in this research, and there are no disadvantages or penalties for not participating. You may withdraw at any time or choose not to answer any question. You will be able to contact me (the researcher) afterwards, should you decide to change an answer.

If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), Telephone +27(0) 11 717 1408 email shaun.Schoeman@wits.ac.za.

Yours sincerely,

Karen Nel

Principal Researcher

Telephone +27 (0)83 600 9725; email 1975101@students.wits.ac.za

Prof Mzukisi Qobo: telephone +27 (0)11 717 3597; email Mzukisi.Qobo@wits.ac.za

APPENDIX J: QUANTITATIVE RESEARCH QUESTIONNAIRE



Questionnaire

In this questionnaire, you will be presented with three sections. The first section is a short demographic questionnaire (your job title, hospital group, etc.), followed with a section on the leadership displayed in the group/facility where you work, with the last section on the operational systems and structures displayed in the group/facility where you work. Completing all three sections will take 15 - 20 minutes of your time. Please complete the questionnaires, not specifically considering the department you work in, but rather give your view on the group (if you work at Head Office level) or the hospital where you work. Please read all the questions very carefully to ensure you provide the right answer for you. Please complete all the information below. Your participation is highly appreciated.

Name and Surname:

Section 1: Demographic Section

1. For which hospital group do you work? (Not applicable if you work for an independent hospital)

.....

2. For which hospital do you work? (Not applicable if you work at Head Office and not at a hospital)

.....

3. What is your position in the group/hospital?

.....

4. How many people report to you directly?

.....

5. How many people report to you indirectly (they report to people that report to you)?

.....

1. What is your age?

20-29 years

30-39 years

40-49 years

50-59 years

60-69 years

70 years and older

2. What is your gender?

Male
Female
Other

3. How long have you been working for the group?

0-5 years
6-10 years
11-15 years
16-20 years
21-25 years
26-30 years
More than 30 years

4. How long have you been in this position?

0-5 years
6-10 years
11-15 years
16-20 years
21-25 years
26-30 years
More than 30 years

Section 2: Leadership Questionnaire

This is the second section of the questionnaire, and this section relates to the leadership displayed in the group/facility where you work. Please complete this section not considering the department where you work, but rather give your view on the group (if you work at head office level) or the hospital where you work.

Please read all questions carefully as questions may appear similar or to repeat but are actually different. Sometimes keywords will be different.

The following categories apply to all answers:

Strongly disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
☐	☐	☐	☐	☐	☐

Please complete all the information below by selecting an answer that is closest to your view on the display of leadership in the group/hospital where you work. Your participation is highly appreciated.

1. The group/hospital engages staff with initiatives that involve new products, services, processes or markets.
2. The group/hospital has a strong focus on proactively developing/enhancing new products/services/processes ahead of its competitors, e.g., new internal communication processes.
3. The group/hospital has a culture where all staff is encouraged to contribute to the decision-making process.
4. Management is focussed on improving current products/services by realignment with global best practices, e.g., enhanced maternity programme or stock control process.

5. The group/hospital management is transparent and open regarding future plans.
6. Different departments work independently from one another with very little collaboration.
7. There are sufficient resources (time, staff) in the division to release staff for training purposes.
8. The group/hospital implemented several initiatives that required new skills and knowledge from the employees, e.g., new technologies or processes.
9. The hospital/group generally does not regularly add new products and services to its current range as clients are generally satisfied with what is offered.
10. Teams are allowed to find appropriate solutions for complex problems without instruction from senior management/leadership.
11. The group/hospital ensures the different departments/teams are operationally aligned to ensure the smooth running of processes.
12. There is a high level of trust amongst staff in the group.
13. Employees at all levels are encouraged to build relationships with employees from other hospital groups, e.g., by joining industry forums.
14. The group/hospital is focussed on upskilling all staff.
15. The group/hospital often focuses on improving the existing products/services that are offered to internal customers.
16. The group/hospital has a strong focus to streamline the current internal departmental processes.
17. Authority and decision-making are mainly situated in the senior management team.
18. The hospital/group is maintaining a dual focus between improving current services/products and finding new creative solutions.
19. Several of the day-to-day processes are still taking long, e.g., the end-to-end process when patients go for radiology interventions.
20. Depending on the situation, the group/hospital allows joint decision-making between leaders and teams.
21. The hospital/group leadership is successful in solving operational problems quickly and efficiently.
22. The group/hospital has a strong focus on existing skills and knowledge.
23. The group adopts newly developed services/products to improve profitability.
24. The leadership team often requests the input of staff members for decision-making purposes.
25. The hospital/group uses analysed data, collected from suppliers and patients, for strategic decision-making.
26. The group/hospital is supportive when an employee makes a mistake.
27. Employees are encouraged to build a network with employees from other hospital facilities within the same group.
28. Staff is encouraged to develop the knowledge of the team informally, without input from the training department.
29. The hospital/group is focussed on changing internal processes/services/products in reaction to changes in the healthcare market, e.g., an online mobile application for clients to engage with the facility 24/7.

Section 3: Operational Systems and Structures Questionnaire

This is the third section of the questionnaire, and this section relates to the operational systems and structures displayed in the group/facility where you work. Please complete this section not considering the department where you work, but rather give your view on the group (if you work at head office level) or the hospital where you work. Please read all questions carefully as questions could appear similar, but are very different.

The following categories apply to all answers:

Strongly disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
☐	☐	☐	☐	☐	☐

Please complete all the information below by selecting an answer that is closest to your view on the display of operational systems and structures in the group/hospital where you work. Your participation is highly appreciated.

Please read all questions carefully as questions may appear similar or to repeat, but are actually different. Sometimes keywords will be different.

1. New technologies and services are often adopted and implemented.
2. The hospital/group is focussed on offering standard products/processes in different ways, e.g., preventative care offering.
3. The group/hospital business processes are designed to respond to resources' demand variations, e.g., fluctuation in the number of theatres needed at any given time.
4. The group/hospital does comprehensive planning with projects, coupled with the quick implementation of processes.
5. Seasonal healthcare demand has an impact on stock level management by the hospital, e.g., the higher demand for certain medicines in winter.
6. Staff is generally encouraged to share experiences with colleagues from other hospital groups, regarding day-to-day challenges they face.
7. Junior staff is allowed to attend industry training days.
8. In this group/hospital, there is a good balance between the levels of care patients need, and the nursing staff on duty.
9. Departments that service patients use the latest available technologies.
10. Business processes and steps are evaluated regularly to enhance effectiveness, e.g., reducing unnecessary paperwork.
11. The group/hospital is successful in combining proven clinical care methods with modern technology, e.g., the implementation of the electronic health records.
12. The group/hospital monitors and effectively responds to business opportunities in the external environment, e.g., a general shortage of beds in other hospitals.
13. The group/hospital can easily reassign resources (staff, assets, theatre time, equipment) when a need arises, without impacting the quality of other services negatively.
14. New technologies are introduced regularly, parallel with proven older technologies.

15. Patient service expectation is the driving force of change interventions within the hospital.
16. Group/hospital processes are planned in detail, and only a very limited variation is allowed during execution.
17. The group/hospital prefers to implement new solutions for a complex problem in small steps, and not all at once.
18. Stock levels are managed with an automated inventory management system between the group/hospital and medical suppliers.
19. Departments/teams assist one another to minimise the impact of staffing shortages, without management intervention.
20. Staff representatives from all levels are part of an internal forum, intending to improve organisational methodologies.
21. The group/hospital runs on tight, known and predictable schedules.
22. Detail planning is done before any change interventions are implemented.
23. The flow of patients through the hospital has been optimised to minimise the waste of time and resources.
24. Clients/patients have to follow the agreed group/hospital processes.
25. Departments are open to suggestions to change agreed business processes, e.g., flexible rounds of a doctor.
26. Protocols on hospital processes and activities are defined upfront, with little flexibility allowed.
27. All staff suggestions are investigated through an extensive process before possible implementation.
28. Processes are end-user needs-driven, e.g., a surgeon can decide on the instruments he will use shortly before the surgery.
29. Regular informal development opportunities exist where individual team members (not only leaders) are allowed to present a talk on a relevant topic to other team members
30. Limited changes to an agreed solution are allowed if it does not impact the planned expected outcome.
31. Stock level management, ordering, control, and distribution are a paper-based manual process.
32. Departments/teams share medicines or equipment when a need arises.
33. The hospital/group offer different technologies/medicines to choose from to execute similar procedures.

Is there any additional information, feedback or comments regarding the topics of the questionnaire that you would like to share with the researcher?

.....

.....

.....

.....

APPENDIX K: COMPLEXITY LEADERSHIP QUESTIONNAIRE SCHEDULE WITH CONSTRUCTS, ELEMENTS AND SUB-ELEMENTS

Quest #	Element	Sub-element	Question	Concepts
11.1: A	Ambidexterity	Exploration	11.1: A: The group/hospital engages staff with initiatives that involve new products, services, processes or markets.	Entrepreneurial Leadership
11.9: A	Ambidexterity	Exploration	11.9: A: The group/hospital implemented several initiatives that required new skills and knowledge from the employees, e.g., new technologies or processes.	Entrepreneurial Leadership
11.17: A	Ambidexterity	Exploitation	11.17: A: The group/hospital often focuses on improving the existing products/services that are offered to internal customers e.g., improving the ward admission process.	Operational Leadership
12.9: B	Ambidexterity	Exploitation	12.9: B: The group/hospital has a strong focus on further developing the existing skills, knowledge and technology.	Operational Leadership
11.2: A	Development focus	Endogenous entrepreneurship	11.2: A: The group/hospital has a strong focus on proactively developing/enhancing new products/services/processes ahead of its competitors, e.g., new internal communication processes.	Entrepreneurial Leadership
11.10: A	Development focus	Endogenous entrepreneurship	11.10: A: The hospital/group generally does not regularly add new products and services to its current range, as clients are generally satisfied with what is offered. (REV)	Entrepreneurial Leadership
12.1: B	Development focus	Operating core	12.1: B: The group/hospital has a strong focus to streamline the current internal departmental processes.	Operational Leadership
12.5: B	Development focus	Operating core	12.5: B: Several of the day-to-day processes are still taking long, e.g., the end-to-end process when patients go for radiology interventions. (REV)	Operational Leadership
11.3: A	Decision making	Decentralised	11.3: A: The group/hospital has a culture where all staff is encouraged to contribute to the decision-making process.	Entrepreneurial Leadership
11.11: A	Decision making	Decentralised	11.11: A: Teams are allowed to find appropriate solutions for complex problems without instruction from senior management /leadership.	Entrepreneurial Leadership
12.11: B	Decision making	Centralised	12.11: B: The leadership team often request input of staff members for decision-making purposes. (REV)	Operational Leadership
12.2: B	Decision making	Centralised	12.2: B: Authority and decision-making are mainly situated in the senior management team.	Operational Leadership
11.5: A	Capabilities	Dynamic capabilities	11.5: A: Management is focus on improving current products/services by realignment with global best practices, e.g., enhanced maternity programme or stock control process.	Entrepreneurial Leadership
12.13: B	Capabilities	Dynamic capabilities	12.13: B: The hospital/group uses analysed data, collected from suppliers and patients, for strategic decision-making.	Entrepreneurial Leadership
12.8: B	Capabilities	Operational capabilities	12.8: B: The hospital/group leadership is successful in solving operational problems quickly and efficiently.	Operational Leadership
11.13: A	Capabilities	Operational capabilities	11.13: A: The group/hospital ensures the different departments/teams are operationally aligned to ensure the smooth running of processes.	Operational Leadership
11.6: A	Trust and Transparency	Trust and transparency	11.6: A: The group/hospital management is transparent and open regarding future plans.	Complexity Leadership
12.14: B	Trust and Transparency	Trust and transparency	12.14: B: The group/hospital is supportive when an employee makes a mistake.	Complexity Leadership
11.14: A	Trust and Transparency	Trust and transparency	11.14: A: There is a high level of trust amongst staff in the group.	Complexity Leadership
11.7: A	Collaboration	Collaboration	11.7: A: Different departments work independently from one another with very little collaboration. (REV)	Complexity Leadership

12.15: B	Collaboration	Collaboration	12.15: B: Employees are encouraged to build a network with employees from other hospital facilities within the same group.	Complexity Leadership
11.15: A	Collaboration	Collaboration	11.15: A: Employees at all levels are encouraged to build relationships with employees from other hospital groups, e.g., by joining industry forums.	Complexity Leadership
11.8: A	Continuous Improvement	Continuous improvement	11.8: A: There are sufficient resources (time, staff) in the division to release staff for training purposes.	Complexity Leadership
11.16: A	Continuous Improvement	Continuous improvement	11.16: A: The group/hospital is focus on upskilling all staff.	Complexity Leadership
12.16: B	Continuous Improvement	Continuous improvement	12.16: B: Staff is encouraged to develop the knowledge of the team informally, without input from the training department.	Complexity Leadership
12.4: B	Ambidexterity	Ambidexterity	12.4: B: The hospital/group is maintaining a dual focus between improving current services/products and finding new creative solutions.	Enabling Leadership
12.10: B	Development focus	Absorptive capacity	12.10: B: The group adopt newly developed services/products to improve profitability.	Enabling Leadership
12.6: B	Decision making	Temporary decentralisation	12.6: B: Depending on the situation, the group/hospital allows joint decision-making between leaders and teams.	Enabling Leadership
12.17: B	Capabilities	Adaptive capabilities	12.17: B: The hospital/group is focussed on changing internal processes/services/products in reaction to changes in the healthcare market, e.g., an online mobile application.	Enabling Leadership

APPENDIX L: OPERATIONAL SYSTEMS AND STRUCTURES QUESTIONNAIRE SCHEDULE WITH CONSTRUCTS, ELEMENTS AND SUB-ELEMENTS

Quest #	Element	Sub-element	Question	Concepts
13.1: C	Predictability	Unpredictable projection	13.1: C: The group/hospital business processes are designed to respond to resources' demand variations, e.g., fluctuation in the number of theatres needed at any given time.	Agile
13.14: C	Predictability	Unpredictable projection	13.14: C: The group/hospital can easily reassign resources (staff, assets, theatre time, equipment) when a need arises, without impacting the quality of other services negatively.	Agile
14.5: D	Predictability	Predictable projection	14.5: D: The group/hospital runs on tight, known and predictable schedules.	Lean
14.10: D	Predictability	Predictable projection	14.10: D: Protocols on hospital processes and activities are defined upfront, with little flexibility allowed.	Lean
13.2: C	Life Cycle	Short-life cycle	13.2: C: New technologies and services are often adopted and implemented.	Agile
14.11: D	Life Cycle	Short-life cycle	14.11: D: All staff suggestions are investigated through an extensive process before possible implementation.	Agile
13.10: C	Life Cycle	Long life cycle	13.10: C: Departments that service patients use the latest available technologies.	Lean
14.6: D	Life Cycle	Long life cycle	14.6: D: Detail planning is done before any change interventions are implemented.	Lean
14.12: D	Orientation	Service orientated	14.12: D: Processes are end-user needs-driven, e.g., a surgeon can decide on the instruments he will use shortly before the surgery.	Agile
13.16: C	Orientation	Service orientated	13.16: C: Patient service expectation is the driving force of change interventions within the hospital.	Agile
14.7: D	Orientation	Eliminate waste (cost) orientated	14.7: D: The flow of patients through the hospital has been optimised to minimise the waste of time and resources.	Lean
13.11: C	Orientation	Eliminate waste (cost) orientated	13.11: C: Business processes and steps are evaluated regularly to enhance effectiveness, e.g., reducing unnecessary paperwork.	Lean
13.4: C	Focus	Production variety focus	13.4: C: The hospital/group is focussed on offering standard products/processes in different ways, e.g., preventative care offering.	Agile
14.13: D	Focus	Production variety focus	14.13: D: Limited changes to an agreed solution are allowed if it does not impact the planned expected outcome.	Agile
13.17: C	Focus	Production uniformity focus	13.17: C: Group/hospital processes are planned in detail, and only a very limited variation is allowed during execution.	Lean
14.8: D	Focus	Production uniformity focus	14.8: D: Clients/patients have to follow the agreed group/hospital processes.	Lean
13.13: C	Execution approach	Quick change	13.13: C: The group/hospital monitors and effectively responds to business opportunities in the external environment, e.g., a general shortage of beds in other hospitals.	Agile
14.1: D	Execution approach	Quick change	14.1: D: The group/hospital prefers to implement new solutions for a complex problem in small steps, and not all at once.	Agile
14.9: D	Execution approach	Planned scheduled change	14.9: D: Departments are open to suggestions to change agreed business processes, e.g., flexible rounds of a doctor. (REV)	Lean
13.6: C	Supply chain	Integrated supply chain	13.6: C: Seasonal healthcare demand has an impact on stock level management, e.g., the higher demand for certain medicines in winter.	Improvement Methodologies

14.2: D	Supply chain	Integrated supply chain	14.2: D: Stock levels are managed with an automated inventory management system between the group/hospital and medical suppliers.	Improvement Methodologies
14.15: D	Supply chain	Integrated supply chain	14.15: D: Departments/teams share medicines or equipment when a need arises.	Improvement Methodologies
13.7: C	Collaboration	Collaboration	13.7: C: Staff is generally encouraged to share experiences with colleagues from other hospital groups, regarding day-to-day challenges they face.	Improvement Methodologies
14.3: D	Collaboration	Collaboration	14.3: D: Departments/teams assist one another to minimise the impact of staffing shortages, without management intervention.	Improvement Methodologies
14.16: D	Collaboration	Collaboration	14.16: D: Regular informal development opportunities exist where individual team members (not only leaders) are allowed to present a talk on a relevant topic to other team.	Improvement Methodologies
13.8: C	Continuous Improvement	Continuous improvement	13.8: C: Junior staff are allowed to attend industry training days.	Improvement Methodologies
14.4: D	Continuous Improvement	Continuous improvement	14.4: D: Staff representatives from all levels are part of an internal forum, intending to improve organisational methodologies.	Improvement Methodologies
14.17: D	Continuous Improvement	Continuous improvement	14.17: D: The hospital/group offer different technologies/medicines to choose from to execute similar procedures.	Improvement Methodologies
13.9: C	Predictability	Decoupling point	13.9: C: In this group/hospital, there is a good balance between the levels of care the patients need, and the nursing staff on duty.	Leagile
13.15: C	Life Cycle	Decoupling point	13.15: C: New technologies are introduced regularly, parallel with proven older technologies.	Leagile
13.3: C	Orientation	Integrative orientation	13.3: C: In comparison to other hospitals/facilities, clients/patients are getting excellent service at a lower cost.	Leagile
13.12: C	Focus	Decoupling point	13.12: C: The group/hospital is successful in combining proven clinical care methods with modern technology, e.g., the implementation of the electronic health records.	Leagile
13.5: C	Execution approach	Decoupling point	13.5: C: The group/hospital does comprehensive planning with projects, coupled with the quick implementation of processes.	Leagile

APPENDIX M: QUALITATIVE PARTICIPANT INVITATION EMAIL

Dear XXXXXX

Thank you for participating in the first phase of my study, especially during the peak of the COVID-19 pandemic. I much appreciate the time you gave to me and the contribution you made to my research. I am now in the second phase of my study and would like to request your assistance in understanding some of the results. This second phase aims to understand from your view the reasons for my Phase 1 findings. Your views will be unbelievably valuable to me, and I will appreciate your participation.

I, therefore, want to request that you please participate in this second phase by allowing me to have a 30-40-minute confidential interview with you?

The attached Participant Information Sheet contains more information regarding the interview, the consent, and the available times for the interview. Should you agree to participate in this study, please confirm the following via return e-mail:

- I give full consent to participate in the study as per the participant information sheet
- I want to do my interview on (Date)..... (Time).....
- You can WhatsApp me on (nr).....
- You can call me on (nr).....

I am looking forward to speaking with you soon.

Karen Nel

PhD Student Wits Business School

Cell: XXX

Email: XXX



APPENDIX N: QUALITATIVE PARTICIPANT INFORMATION DOCUMENT



2 St Davids Pl & St Andrew Road
Parktown
Johannesburg
2193
September 2020

Dear Sir / Madam,

As you know, I am Karen Nel, a PhD student in Leadership at the University of the Witwatersrand in Johannesburg, studying through the WITS Business School. The topic of my study is:

Positioning private hospitals in South Africa for adaptability: a mixed methods study considering complexity leadership and operational systems and structures (agile, lean and leagile)

The study aims to understand the impact that the display of leadership has on the successful implementation of operational systems and structures in private hospitals in South Africa. I have gathered exciting results from the first phase, and I am now in the second phase of my study, where I want to clarify some of the findings. I want to get your view on my findings, understand whether it is a concern to you or not and what you think can be done to change these findings in the healthcare industry. Your views will be very valuable to me, and I, therefore, want to request if you will please participate in this second phase of my study by allowing me to have a 30–40-minute confidential interview with you? I will greatly appreciate your participation.

You will not receive any direct benefits from participating in this research, and there are no disadvantages or penalties for not participating. You may withdraw at any time or not answer any question if you do not want to. You will be able to contact me afterwards should you decide to change an answer after the interview. The answers provided during the interview will be confidential. However, the interview will not be anonymous. I will be the only person that has access to your details, and all data obtained during the study will be securely stored.

Should you agree to participate in this study, you agree to the following:

- You understand the purpose of the research as contained in this document.
- You voluntarily agree to participate in a 30-40-minute confidential telephonic interview.
- You understand that your participation is voluntarily.
- You understand that your answers will not be disclosed at any time in the research report.

- You agree that I may use anonymous quotes in the research report.
- You agree that the interview may be audio recorded.
- You agree that the information you provide may be used anonymously by other researchers following this study.

Please consent to all the above bullets via return email.

The interview time can be arranged at a time that is convenient for you. I am available from 04h00 in the morning to 23h00 weekdays or weekends. Please provide a WhatsApp number on which I will contact you to arrange the interview, as well as the telephone number on which I will call you for the interview.

This study will be written up as a research report which will be available online through the university library website. If you wish to receive a summary of this report, I will be happy to send it to you on request. If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email Shaun.Schoeman@wits.ac.za. If you have any questions at any time about this research, feel free to contact me or my supervisor on the details listed below.

Yours sincerely,



Karen Nel: telephone XXX; email XXX

Prof Qobo: telephone XXX; email XXX

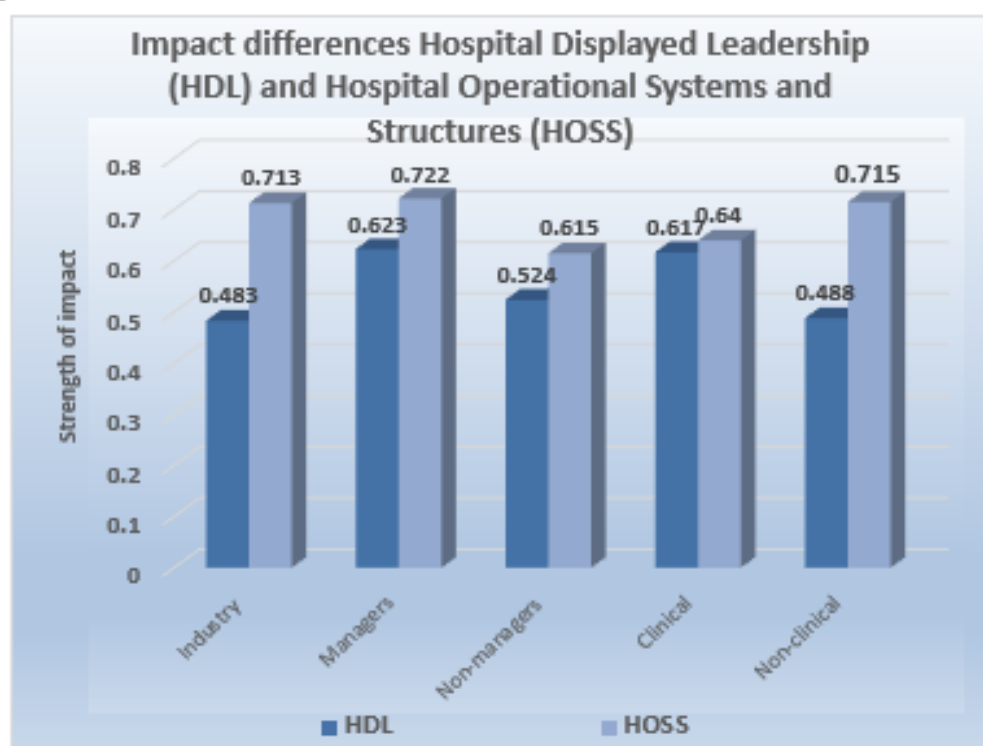
APPENDIX O: ADDITIONAL INFORMATION BEFORE INTERVIEW



Dear Participant

Please keep this information sheet close by as you will want to refer to it during the interview.

Section 1:



Section 2: Concepts to clarify

Co-operation: is working together to create something new or improve something in support of a shared vision

Centralised decision-making: when the senior people make all the decisions, and the staff implements them

Decentralised decision-making: staff at all levels can provide input into the decision-making process, as well as be empowered to implement their own decisions in certain situations.

Quick implementation: implementations of smaller changes that often occur without complex planning.

Scheduled implementation: carefully planned changes according to a strict schedule with little change to the initial plan

COVID-19 impact: We will discuss the impact in the hospital.

Looking forward to the telephonic interview with you

Yours sincerely,

Karen Nel: telephone xxxxxxxxxxxxxxxx; email xxxxxxxxxxxxxxxxxxxxxx

APPENDIX P: QUALITATIVE INTERVIEW GUIDELINE



Opening and Introduction

- For the purposes of the audit trail of research, please state your name. Your name will be stored in line with data protection ethics and anonymised in the research. Should you not wish to give your name, kindly state that it should be anonymised at this stage:
- Do you confirm that you received the documents for the informed consent?
- Do you give your informed consent for the record?
- What is your position in the hospital? You may state specifically or provide a generic level on the organogram (management, staff etc...). Please explain a bit about what you do.

As you will remember, the study is focusing on the impact of leadership on the successful implementation of operational policies and procedures in the hospital. With the first phase of the study, some exciting insights were gathered, but because the study is not complete yet, I cannot share the insights yet. Would you want me to forward you a summary report of the study once I completed it?

I would like to please ask you a few questions relating to these insights. Please tell me if you received the additional document that I sent you on email and WhatsApp with some information for the interview? This interview will have two sections. In the first section, which refers to the graph I have sent you, we will focus on the relationship between the hospital displayed leadership and the successful implementation of hospital operational policies and procedures. In the second section, which will refer to the second section in the document, we will clarify some concepts. Are you comfortable for us to continue? Great thanks so much.

Section 1

1. Looking at the first two bars in the graph, it indicates that in general, in the hospital, the display of leadership is regarded as less impactful than the successful implementation of operational policies and procedures? What do you think is the reason for this?
2. Is this a concern to you? Please explain your answer.
3. What do you think can be done to increase the impact of the display of leadership in the hospital/group in general?
4. Referring to the second set of bars, we are now specifically looking at managers. What do you think is the explanation of why even managers regard the display of leadership as less impactful than the successful implementation of operational policies and procedures?
5. Is this a concern to you? Please explain your answer.
6. What do you think can be done to improve the view that managers have of the impact of leadership?
7. The third set of bars displays the values of staff members. It is evident that staff members also regard the display of leadership to be less impactful than the successful implementation of operational policies and procedures?
8. Is this a concern to you? Please explain your answer.

9. What do you think can be done that will result in the staff members regarding the display of leadership as more impactful?
10. The fourth set of bars refer to the clinical staff, which includes, for example, the clinical leaders, such as Unit Managers and the Nursing Services manager, as well as nurses. Focusing on the clinical staff, what do you think could be the explanation of why clinical staff regard the impact of leadership and the successful implementation of operational policies and procedures remarkably similar?
11. Do you view this finding as positive or negative, and why?
12. Lastly, let us look at the values for non-clinical staff, which includes, for example, people from all levels working in accounting, marketing, human resources, as well as the hospital general manager. This group, therefore, includes all staff from head office as well. The non-clinical staff regard leadership to have much less impact than the view of clinical staff. What do you think can be the explanation for this?
13. The non-clinical staff furthermore regard the impact of the successful implementation of operational policies and procedures to have significantly more impact than the view of clinical staff. What do you think can be the explanation for that?
14. What would you say is the explanation for this disconnect between clinical and non-clinical staff at all levels?
15. Do you think there are any risks associated with this situation?
16. What do you think can be done that will create more alignment between the views of the clinical and non-clinical staff?

Section 2

1. Referring to the document I sent you, co-operation is the action of working together to create something new in support of a shared vision. Within a hospital, co-operation can be promoted on different levels. You can have co-operation between the staff of different wards in the same hospital, co-operation between the staff of different hospitals within the same group and co-operation between the staff of different groups. Could you please explain, with an example, how you experience the level of co-operation in your hospital or group?
2. What do you think is the reason why this is the current approach?
3. Do you think the approach of the hospital towards co-operation needs to change or not, and why?
4. The next concept we need to clarify is decision-making. Centralised decision-making is when the senior people make all the decisions, and the staff implements them. Decentralised decision-making is where staff at all levels can provide input into the decision-making process, as well as be empowered to implement their own decisions in certain situations. Could you please indicate which type of decision-making happens more often in your hospital, and can you please provide me with an example?
5. What do you think is the reason why this type of decision-making is displayed more often?
6. How does this type of decision-making influence your view of the leadership in the hospital or group?
7. Is decentralised decision-making possible in a hospital and how will it look?
8. Next, we are going to focus on the implementation of change. In the hospital, change to operational policies and procedures can either be implemented as quick implementations of smaller changes that often occur without complex planning or, alternatively, as scheduled implementations with carefully planned changes according to a strict schedule with very little change to the initial plan. Could you please explain, with an example, which of the two ways of implementation occurs most often in your hospital?
9. Please explain if you think that this type of implementation has a positive or a negative effect on the successful implementation of operational policies and procedures in general? Please provide a reason for your answer.

10. As you know, most of the data gathering of this study occurred at the peak of the COVID-19 pandemic. Can you explain in what way, if any, the COVID-19 pandemic impacted the leadership approach in the hospital?
11. What do you think is the reason for this?
12. Do you think the current way of leadership will be lasting or not?
13. What is your view on the quality/level of leadership in your hospital/group?
14. Is there anything else you want to add? Thank you for your time.

APPENDIX Q: PERMISSION LETTER: ADVANCED HEALTH



15 January 2020

Karen Nel
PhD Student Wits Business School

Dear Karen

RE: REQUEST TO CONDUCT PhD RESEARCH STUDY

It is a pleasure to inform you that, your request to conduct a study at Advanced Health for your intended PhD programme at Wits Business School, is approved.

The purpose of this letter is to confirm that you may commence with the study. You will be required to schedule a further meeting with the Group Human Capital Manager, Kgomotso Makeni; for the purpose of confirming dates and confirmation of the assistance that you will require during the various phases of the study.

We hope that you will enjoy interacting with Advanced Health employees and the executives alike and wish you all the best with your research study!

Sincerely,

Bibi Goss-Ross

Bibi Goss-Ross
Chief Operations Officer

APPENDIX R: PERMISSION LETTER: BUSAMED

Reg No: 2007/017076/07

Phone +27 (031) 277 2100

Fax +27 (031) 201 2545

Physical Address 260 Peter Mokaba Ridge Road,
Berea, Durban, 4007

Postal Address PO Box 37623, Overport, 4067, South Africa

E-Mail info@busamed.co.za

Web www.busamed.co.za



23rd January 2020

To whom it may concern,

THESIS BY KAREN NEL

This is to confirm that the Executive Team of Busamed Hospital Group, hereby grant permission for Karen Nel to conduct her research at our facilities. The research is based upon complexity – based leadership to achieve improvement methodologies.

Yours sincerely



GLENN DE VILLIERS
CHIEF OPERATIONS OFFICER

APPENDIX S: PERMISSION LETTER: CURE DAY HOSPITALS

Cure Day Hospitals Holdings (Pty) Ltd
Reg no: 2007/013270/07
Tel: 012 003 2000
Email: assistant@curedayclinics.co.za
www.cure.co.za
VAT nr: 4510 258 63 7
Address: Block G
Castle Walk Corporate Park
C/o Swakop and Nossob str
Erasmuskloof, 0153

25 November 2019

Dear Karen

This letter serves as confirmation that you, Karen Nel, are hereby authorised to conduct your PhD study in our Cure Day Hospitals in the Gauteng region and at Cure Day Hospital Bloemfontein, as per the agreed terms and conditions.

All employees have the right to be excluded from the study. Employees chosen at random may not have email access and therefore paper surveys may be required.

Hospital Managers at our Gauteng hospitals contact details will be provided for you to liaise directly with them

Cure Day Hospitals employees time involvement must not be to the detriment of our daily operational function

Hospital Managers at our Gauteng hospitals contact details will be provided for you to liaise directly with them for hospital- based surveys.

I will be the contact person for EXCO involvement in the study.

Kind regards

A handwritten signature in black ink, appearing to read "N. vd. h" followed by a long horizontal stroke.

Nicola van der Westhuizen
Group Operations Manager

APPENDIX T: PERMISSION LETTER: LENMED GROUP



9 January 2020

Ms Karen Nel
76 Blandford Road
Northriding
Johannesburg
Faculty: Law, Commerce and Management
Institution: University of the Witwatersrand, Wits Business School
Email: 1975101@students.wits.ac.za

Dear Karen

Permission to conduct PhD research study at Lenmed Hospitals

This letter serves to confirm that you are authorized to conduct your PhD research study in all Lenmed hospitals in South Africa, as per the agreed terms and conditions. These hospitals include:

- ❖ Ahmed Kathrada Private Hospital
- ❖ Daxina Private Hospital
- ❖ Randfontein Private Hospital
- ❖ Zamokuhle Private Hospital
- ❖ Royal Hospital & Heart Centre
- ❖ Kathu Private Hospital
- ❖ Ethekwini Hospital & Heart Centre
- ❖ Shifa Private Hospital
- ❖ La Verna Private Hospital

Please note that whilst we will encourage all the selected employees and management to participate in your research study, they have the right to decline their involvement and to be excluded at their own request. Not all our employees have access to email, therefore please bear this in mind when making your selection. Employees at a Unit Manager/Head of Department level and higher usually have access to terminals/desktops/laptops and have an email address, therefore we recommend that employees from this population be selected.

Contact information of all Hospital Managers will be provided for you for to liaise with them directly. We will inform Hospital Managers of your research study prior to you getting in touch with them and give you the go ahead to contact them. Please note that these managers have numerous competing priorities, therefore they may not be able to speak to you immediately. Our employees' time involvement must not be to the detriment of their daily operational responsibilities.

Samantha Hall will be your direct contact person – she can be contacted on **+27 82 558 0516** and via email: samantha.hall@lenmed.co.za

Yours faithfully

Dr Nilesh Patel
Group Chief Medical Officer

APPENDIX U: LANGUAGE EDITING CONFIRMATION LETTER

Prof. ANTHONY MINNAAR

(BA BA(Hons) MA DLitt et Phil)

622 Mias St Garsfontein Pretoria

PO Box 916-1861 GARSFONTEIN 0060

Email: anthony.minnaar@gmail.com Cell: 0838949485

TO WHOM IT MAY CONCERN

LANGUAGE EDITING CONFIRMATION LETTER

This letter serves to inform you that I have done a language edit (including checking correctness of List of References) on the following doctoral thesis:

Student: Ms KAREN NEL

Degree: PhD in Leadership

University: Wits Business School, The University of the Witwatersrand, Johannesburg

Thesis Title: *Positioning private hospitals in South Africa for adaptability: a mixed-methods study considering complexity leadership and operational systems and structures (agile, lean and leagile)*

No. of Pages: 291 (of text / word count: 94 461)

 (Prof)

Ade V. Minnaar

Date: 31 March 2021

APPENDIX V: TURNITIN REPORT FIRST PAGE

1975101:PhD_Std_no_1975101_Karen_Nel_final_for_examinatio

ORIGINALITY REPORT

8%

SIMILARITY INDEX

6%

INTERNET SOURCES

3%

PUBLICATIONS

2%

STUDENT PAPERS

PRIMARY SOURCES

1

Submitted to University of Pretoria

Student Paper

1%

2

Submitted to Mancosa

Student Paper

<1%

3

scholarworks.waldenu.edu

Internet Source

<1%

4

uir.unisa.ac.za

Internet Source

<1%

5

hdl.handle.net

Internet Source

<1%

6

Johan Marx, Ronald H Mynhardt. "PRIVATE HOSPITALS IN SOUTH AFRICA: A COMPLIANCE FRAMEWORK", Corporate Ownership and Control, 2012

Publication

<1%

7

www.tandfonline.com

Internet Source

<1%

8

Submitted to University of Witwatersrand

Student Paper

<1%

This turn-it-in report is acceptable
MJ Qobo 14 April 2021

