

**Digital Transformation: Towards a model for competency-based  
governance of digital transformation for boards of directors in  
South Africa**

Thesis submitted in fulfilment of the requirements for the degree

of

Doctor of Philosophy in Business Leadership and Management

at

**South Valley University**

By

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## DECLARATION

I Nandipha Daphne Siwahla-Madiba hereby declare that this study was submitted for fulfilment of the requirements for the degree of Doctor of Philosophy in Business Leadership and Management at South Valley University, through the Global Centre for Academic Research. I further declare that it is my own work and that all the sources consulted and used have been acknowledged by means of references. I have not previously submitted this work at any other university or institution of higher learning.



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Signature

25<sup>th</sup> June 2022

Date

## ABSTRACT

The requirement for directors of boards to attain competencies in relation to governance of digital transformation is evidently increasing at global level. South Africa, as a player within the global economic landscape, cannot afford to have directors who do not understand the requisite competencies required for governance of digital transformation. Whereas many organisations and boards have implemented new corporate governance codes, principles, and standards, as well as new company legislation, frameworks or models on governance of digital transformation are not yet integrated into functional board activities.

This study was hinged upon an interpretivist epistemology, with a case study design used as a strategy for inquiry. Using purposive sampling approach, a total of seven participants were interviewed using a semi-structured interview guide. Ethical considerations were followed in terms of the institutional requirements and participants were requested to sign consent forms for participating in this study. Implications of participations were clearly articulated to participants and their right to discontinue participation at any time was proffered. In this study, their participation is referred to as “Participant” followed by a number, which does not reflect the order of their participation, but to provide anonymity. Data was analysed through a thematic approach, using the COSTA QDA technique on webQDA software.

The study findings culminated in three main themes as follows:

- There is no standard definition of competence-based models for governance of digital transformation
- Governance of digital transformation is perceived as governance of information technology (IT)

- There is a need for digital transformation competence at board level

Discussion of the meanings attached to these themes resulted in a development of a model entitled MADIBA Model, which is an acronym for six constructs that could be used to guide establishment of a competency model for governance of digital transformation by directors of different boards. Study limitations were mainly due to the fact that only a subjective approach to the inquiry was followed, justified by the fact that the researcher sought to explore in-depth views and perspectives of boards of directors in relation to governance of digital transformation competency model. The study further recommended that there could be another study focussing on pragmatic approaches or even positivistic perspectives, to obtain generalised perspectives on the phenomenon.

**Key words:** Competency-Based Model, Directors of Boards, Digital Transformation, Digitalization, Governance, Technology

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## TABLE OF CONTENTS

<b>DECLARATION</b> .....	<b>i</b>
<b>ABSTRACT</b> .....	<b>ii</b>
<b>ACKNOWLEDGEMENTS</b> .....	<b>iv</b>
<b>TABLE OF CONTENTS</b> .....	<b>vi</b>
<b>LIST OF TABLES</b> .....	<b>ix</b>
<b>LIST OF FIGURES</b> .....	<b>x</b>
<b>LIST OF ACRONYMS</b> .....	<b>xi</b>
<b>CHAPTER ONE - ORIENTATION</b> .....	<b>1</b>
1.1 INTRODUCTION .....	1
1.2 BACKGROUND .....	2
1.3 PROBLEM STATEMENT .....	5
1.4 RESEARCH QUESTIONS .....	7
1.4.1 Main research question .....	7
1.4.2 Sub-questions question .....	7
1.5 RESEARCH OBJECTIVES .....	7
1.5.1 Primary research objective .....	7
1.5.2 Secondary research objectives .....	7
1.6 Significance of the study .....	8
1.7 Chapter arrangement .....	8
1.9 Conclusion .....	9
<b>CHAPTER TWO – LITERATURE REVIEW</b> .....	<b>11</b>
2.1 Introduction .....	11
2.2 Directors’ Role in Digital Transformation Governance .....	11
2.3 Board Responsibilities towards Digital Transformation (Dx) .....	12
2.4 Concept of Digital Transformation at Board Level .....	15
2.5 Evolution of Corporate Governance and Director Responsibilities .....	17
2.5.1 Lehman Brothers Bank .....	18
2.5.2 Enron Corporation .....	19
2.5.3 Toshiba .....	21
2.6 The Concept of Governance and its Variabilities .....	23

2.7 Theoretical framework.....	26
2.7.1 Justification for use of theory in research .....	26
2.7.2 Theoretical Foundation .....	27
2.7.3 Chosen Theoretical Framework for this Inquiry .....	29
2.9 Conclusion .....	31
<b>CHAPTER THREE.....</b>	<b>32</b>
3.1 Introduction .....	32
3.2 Research paradigm.....	32
3.3.1 Positivism.....	34
3.3.2 Interpretivism .....	35
3.3.3 Pragmatism.....	35
3.3.4 Chosen Paradigm and Justification .....	36
3.4 Reasoning approach.....	37
3.4.1 Introduction .....	37
3.4.2 Deductive reasoning .....	38
3.4.3 Inductive reasoning.....	38
3.4.4 Abductive reasoning .....	39
3.4.5 Chosen Reasoning Approach and Justification .....	39
3.5. Research design .....	39
3.5.1 Quantitative research.....	39
3.5.2 Qualitative research.....	42
3.5.3 Multiple Case Study in the context of current investigation.....	48
3.5.6 Chosen Design and Justification.....	48
3.6 Population and sampling.....	49
3.6.1 Introduction .....	49
3.6.3 Sampling.....	49
3.8. Data collection .....	52
3.8. Data Analysis .....	54
3.9. Rigor Determination (Validity, Reliability and Trustworthiness).....	55
3.10. Elimination of Bias .....	57
3.11 Ethical Considerations .....	58
3.12 Conclusion .....	60
<b>CHAPTER FOUR.....</b>	<b>61</b>
4.1 Introduction .....	61

4.2 Profile of Study Participants .....	61
4.3 Analytic Procedures .....	64
4.4 Presentation of Results .....	68
4.5 Examination of the Code List .....	94
4.6 Representation of Participants Views on Dx Competency Model .....	99
4.7 Emerging Themes.....	104
4.8 Conclusion .....	107
<b>CHAPTER FIVE.....</b>	<b>108</b>
5.1 Introduction .....	108
5.2 Findings .....	108
5.2.1 Thematic Expressions .....	108
5.2.2 Nexus between findings/themes and literature .....	109
5.2.3 Competency Model for Governance of Digital Transformation .....	121
5.3 Contributions to Professional Practice .....	126
5.4 Study Limitations.....	126
5.5 Recommendations .....	127
5.5.1 Recommendations for Professional Practice .....	127
5.5.2 Recommendations for Further Research.....	128
5.6 Conclusions .....	128
<b>REFERENCES.....</b>	<b>129</b>
<b>APPENDICES.....</b>	<b>137</b>

## LIST OF TABLES

Table 3.1 Research Instrument.....	53
Table 3.2 the Belmont Principles of Ethics.....	59
Table 4.1: Sector Participants Representation.....	62
Table 4.2: First cycle codes and participant’s statements.....	70
Table 4.3: Mapping Emerging Themes to Research Objectives.....	107
Table 5.1: Constructs of MADIBA Model.....	123

## LIST OF FIGURES

Figure 2.1: Theoretical Framework - Adapted to Costa (2020) .....	30
Figure 3.1: Mapping the Research DESIGN Approach (Created by researcher).....	34
Figure 3.2: Configuration and typology of Sample of this study .....	50
Figure 4.1: Coding structure .....	66
Figure 4.2 Analytic Process.....	66
Figure 4.3: Steps in Thematic Analysis .....	67
Figure 4.4: Word frequency and density.....	69
Figure 4.5: Extract of Analytic procedures from webQDA Software .....	95
Figure 4.6: Participant One's views .....	99
Figure 4.7: Participant Two's views .....	100
Figure 4.8: Participant Three's views .....	101
Figure 4.9: Participant Four's views .....	102
Figure 4.10: Participant Five's views .....	102
Figure 4.11: Participant Six's views.....	103
Figure 4.12: Participant Seven's views.....	104
Figure 4.13: Emerging Themes.....	105
Figure 5.1: M.A.D.I.B.A. Model for Governance of Digital Transformation .....	122

## LIST OF ACRONYMS

Acronym	Descriptor
BoDs	Boards of Directors
CCA	Constant Comparative Analysis
CEO	Chief Executive Officer
CIO	Chief Information Officer
CG	Corporate Governance
COBIT	Control Objectives for Information and Related Technologies
DEP	Department of Public Enterprises
DPS	Department of Public Service
DTC	Digital Transformation Competency
DTG	Digital Transformation Governance
DT	Digital Transformation
Dx	Digital Transformation
EA	Enterprise Architecture
ETG	Enterprise Technology Governance
ESG	Environmental, Social and Governance
GEIT	Governance of Enterprise IT
IODSA	Institute of Directors in South Africa
IoT	Internet of Things
IT	Information Technology
ITG	Information Technology Governance
ISO	International Standards Organisation
MADIBA	Model, Approach, Dimensions, Integration, Boards, Assessments
NYSE	New York Stock Exchange
OECD	Organisation for Economic Co-operation and Development
POPIA	Protection of Personal Information Act
RO	Research Objectives
RQ	Research Questions
SESC	Securities and Exchange Surveillance Commission
SETA	Sector Education and Training Authority
TA	Thematic Analysis
TMT	Tech, Media and Telecom
US	United States
USA	United States of America
UK	United Kingdom

## **CHAPTER ONE - ORIENTATION**

### **1.1 INTRODUCTION**

In the twenty-first century, corporate governance has become a key focus and source of worry for businesses. The 1997 East Asian financial crisis, as well as business scandals and failures, most notably the Enron catastrophe in the United States in 2002, saw a significant shift in corporate governance systems around the world, particularly in emerging nations (Dbe, 2003; Hopt, 2003; Tricker, 2009). Following then, the financial market saw significant modifications in terms of rules and strict guidelines. Many countries have implemented new corporate governance codes, principles, and standards, as well as new company legislation. Furthermore, regulatory agencies have worked to improve business regulations and create a better framework in order to avert corporate disasters and crises (Black et al., 2001; Afsharipour, 2009; Tricker, 2009; Claessens & Yurtoglu, 2013). Well-governed companies have the potential to attract more investments that aid economic development (Shleifer & Vishny, 1997; Khanna & Palepu, 2000; Claessens, 2006; Tricker, 2009), improved shareholder protection, and rights, particularly for minority investors and other stakeholders (Shleifer & Vishny, 1997; Khanna & Palepu, 2000; Claessens, 2006; Tricker, 2009). (Shleifer & Vishny, 1997; La Port et al., 2000; Aguilera & Jackson, 2003; Daily et al., 2003; Klapper & Love, 2004). Many studies have found a link between effective corporate governance procedures and the company's long-term wealth generation, sustainability, and well-being (Lazonick & O'sullivan, 2000; Kirkpatrick, 2009; Kocmanová et al., 2011; Lipton et al., 2016).

## 1.2 BACKGROUND

Corporate governance is defined as a set of processes, policies, laws and the conduct that influences the way in which organisations are managed, (IoD, 1994; Smeardon, 1998; Rossouw et. al., 2002). In the past, research in corporate governance had a tendency of focussing more on financial performance, corporate finance (Roy, 2016), the reforms in the corporate governance and legislation which were responding to the transgressions of the major corporations. In the US, research focus was on large-scale scandals and accounting fraud of 2002. One of the well-known examples of the scandals and accounting fraud is the Enron Case that led to the scrutiny of auditor independence (although the independence of Audit Committees, director competencies and the composition of the boards of directors was overlooked) (Kecskés, 2017).

This is the basis of the argument that these reforms still neglected some of the key foundations of corporate governance. While it is acknowledged that there had been studies about board independence, and recently in relation to director competence, competence-based governance of digital transformation has not been given the attention it deserves, especially in this digital era (Valentine, 2016).

Furthermore, Valentine (2016), in acknowledging technology and digitisation disruption to organisations and industries, focussed on the study that examined personal competency and collective capability to provide effective information and technology Governance oversight and digital leadership, whereas this is only a tool within the digital transformation strategy that is applied to reform the enterprise business model, as argued by Van Dyk and Van Belle (2019). While previous research

dealt with Enterprise Technology Governance (ETG) capability within boards, it is argued that little was done to explain identified inadequacies (Groysberg & Bell, 2012; ITGI, 2011; PWC, 2013a), or develop an ETG competency set that is appropriate for directors, in line with the argument that the study could not find research done on technical competency development for boards (Valentine & Stewart, 2013).

Although Qahatan et al (2020) argue that it is acknowledged that Board of Directors have an oversight duty per Information Technology (IT) governance, as it relates to IT investment decisions (Ho et al., 2017), where the same oversight duty covers the mitigation and control of competitive threats and IT risks (Higgs et al., 2016; Ho et al., 2011; Parent & Reich, 2009; Xue et al., 2011; Yang et al., 2018), these findings give no guidance on the specific director competencies required. These findings only deal with Information Technology (IT) competencies and governance monitoring which are only components of digital transformation, without even mentioning either the Digital Transformation (DT) or the relevant competencies. In spite of the concession by the boards of directors in realizing inadequacy of their state of governance due to challenges relating to insufficient technical expertise, and lack of clarity and insufficient indicators to monitor progress in digital transformation (David & Farzan, 2021), there are neither recommended director competences nor mention of DT competencies.

Further ground covered in the study by Hellwig et al (2021), where the focus was the development of a comprehensive Digital Transformation Competency (DTC) Framework, the competencies defined relate to two hierarchical levels within a company: manager, and employee, with no reference made to Boards of Directors (BODs). However, further studies focus on the argument that there is a need to

develop a comprehensive DTC Framework that caters for different hierarchical levels within the company Hellwig et al., 2021). This is line with the finding that the human component plays a critical role in the process of digitalizing companies over and above infrastructural and technological problems (Majchrzak et al., 2016).

While Psaraftis and Poulimenakou (2019), in their study of the digital strategy for companies in the CPG or retail industry, found that a digital governance framework was established, which is useful for companies in the CPG or retail industry, where they recommended a future research direction in this field to study many companies and create a digital governance matrix for each company, they did not address the required director digital transformation competences. The gap identified relates to finding a more comprehensive approach to the digital transformation strategy model of "traditional" companies.

Valentine (2016) covers a perspective that addresses director competencies in investigating an Enterprise Technology Governance (ETG) competency. The study focussed more on Board Governance and Director Responsibilities, rather than digital transformation competencies and its governance thereof. It appears that this study does not assume that boards do possess capabilities and competencies to execute this process, as Valentine (2016) identifies future research relating to, inter alia, aligning board competency requirements with a digital leadership strategy.

Previous studies (Valentine and Stewart, 2013) also singled out generic competencies required for effective board ETG. This is not far from the perspective by Zaouia and Souissib (2020) that there is a need for a concerted effort to address the gap created by assumptions made by prior studies that the concept of Dx is understood. Studies

show consensus that the outlook of how boards operate and how they should look in future can no longer be the same (Bankewitz et al., 2016; Valentine, 2014), with a warning that delegation of technology governance by Boards to management is no longer affordable by Boards (Schipmann , 2013). These views support the proposition for the need for boards to be cautious of being in breach of their fiduciary duties, especially that of care (Carter et al 2010), and a duty to remain competent (Fairfax, 2005). It is for these reasons that this research investigation sought to examine and understand the competency dictionary required for board of directors as a collective and directors as individuals entrusted with responsibilities for both fiduciary and regulatory aspects of organisational direction in South Africa. Using a case study research within an interpretivist paradigm, the questions were structured to obtain in-depth perspectives from targeted population in order to ascertain the need for a competency-based model for governance of digital transformation. The following research question was formulated: How to develop a competency-based model for governance of digital transformation for boards of directors?

### **1.3 PROBLEM STATEMENT**

In this fourth industrial revolution age, industrial organizations demand revolutionary transformations in order to survive and compete (Smet, et al., 2018). There are various variables driving these changes in requirements, such as rising customer expectations and unparalleled rivalry, but exponential technology advancement remains the most important, particularly the phenomenon of digital transformation (Dx) (Agarwal, Johnson & Lucas, 2018; Gilchrist, 2016). To respond to this technological advancement, industrial organizations are dramatically reforming themselves in order to enhance operational efficiency by integrating new digital technologies and changing their social structures (Vial, 2019). Industrial companies, on the other hand, require strong

leadership at the helm (Kane, et al., 2019) to effectively drive this transformation. Strong leaders actively recognize when change is needed, understand the prerequisites for change, and promote an environment that fosters change (Das, et al., 2011).

Leaders also create a vision for the transition from an existing state to a new improved state and educate people to adapt enthusiastically in order to compete (Das, et al., 2011). Furthermore, they assess change resistance, gain support for change, involve people in decisions that affect them, provide clarity about behavioural expectations, create opportunities to practice new skills, use the feedback process to monitor implementation, reward and reinforce both progress and success, and align systems to support the new and desired behaviours (Gebelein, 2001). The same is true for those executives who are driving digital transformation shift (Dx). Dx is a technique that tries to improve companies by causing significant changes in their attributes by combining information, computer, communication, and connection technologies (Vial, 2019). It assists industrial organizations in making a fundamental transition from a traditional organization (based on the industrial economy) to a modern organization (adapted to today's digital economy) (Smet, Lurie, & George, 2018;Imran & Kantola, 2018). Furthermore, Dx enables industrial organizations to achieve agility, cooperation, innovation, improved customer experience, operational efficiencies, and new business models (Smet, et al., 2018). Organizations must, however, undertake company-wide activities (Singh & Hess, 2017) to modify the culture, structure, strategy, business processes, and business models (Agarwal, Johnson, & Lucas, 2018;Sainger, 2018).

As a result, Dx is more than just introducing new technology; it is also about taking holistic efforts to improve overall organizational qualities in order to enjoy the full benefits it provides. As a result, corporate leadership must act in concert to guarantee

that these new technical and social systems are optimized (Mumford, 2000). However, the literature indicates that industrial organizations are struggling to grasp the opportunities presented by Dx (Loebbecke & Picot, 2015). This discovery calls on organizational leaders to reinvent their competences in order to lead Dx in their organizations (Vial, 2019).

## **1.4 RESEARCH QUESTIONS**

### **1.4.1 Main research question**

How to develop a competency-based model for governance of digital transformation for boards of directors in South Africa?

### **1.4.2 Sub-questions question**

- i. What is a competency-based model?
- ii. What is the status of digital transformation governance?
- iii. What are the digital transformation skills levels of boards of directors in South Africa?

## **1.5 RESEARCH OBJECTIVES**

### **1.5.1 Primary research objective**

To develop a competency-based model for governance of digital transformation for boards of directors

### **1.5.2 Secondary research objectives**

- i. To define competency-based models

- ii. To examine governance of digital transformation
- iii. To evaluate the digital transformation skills levels of boards of directors in South Africa

## **1.6 Significance of the study**

The advent of globalisation and fast pacing of the fourth industrial revolution has changed the way strategic decisions are made at organisational governance levels in both South Africa and the world. A wide range of strategic, innovation, risk, and return leading experts have highlighted aspects linked to a board's capacity to drive digital transformation. The ability of a board of directors to drive and govern an enterprise's digital strategy is currently a hot topic (Bennis, 2013; Bhagat et al. 2013; Fitzgerald et al. 2014; Lim et al. 2013; Westerman et al. 2012). Following an over the decade-long proposition by scholars such as Van Grembergen and De Haes (2009), and recently by Costa (2021) boards can no longer afford to ignore or delegate digital transformation governance. In view of the above, directors in any organisational boards need to acquire requisite competencies to execute oversight responsibilities in relation to governance of digital transformation.

## **1.7 Chapter arrangement**

This report is divided into five chapters, of which the contents of each Chapter are summarized in the following list.

### **Chapter 1 - Orientation**

This chapter discusses the study's history and the major problem that justifies the examination. This chapter covers research questions, study objectives, an introduction to the research design, and delimitations, as well as the report outline.

## **Chapter 2 – Literature Review and Theoretical Framework**

This chapter reviews and discusses the literature on the requirement of the directors of boards in South Africa to attain competencies for governance of digital transformation (Dx) within the context of corporate governance (CG). Literature is reviewed and theories underpinning the phenomenon under investigation and theories influence the study design are graphically depicted and presented in Figure 2.1. The gaps in methodology, theory, and knowledge/practice are discussed.

## **Chapter 3 - Research Methodology**

This chapter focuses on a detailed explanation of the study's methodology, activities, procedures, and analytic approaches. The method of inquiry, which is based on Saunder's Research Onion (Saunders, Lewis, and Thornhill, 2019), is described in detail in regard to how it informed the investigation. This approach to methodological description integrates philosophical assumptions with techniques chosen and provides justification for choices made.

## **Chapter 4 – Presentation of Findings and Discussion**

The results of the data analysis are presented in this chapter. Each step of the analysis is explained in detail and connected to the results.

## **Chapter 5 – Theoretical Discussion of Findings, Recommendations and Model Presentation**

This chapter discusses the findings from Chapter 4 in the context of literature and finishes the study by stating the limitations and making recommendations for practice and further research.

## **1.8 Conclusion**

This chapter set the tone for the rest of the study. The study objectives and research questions were supplied alongside the backdrop and research problem statement. An

overview of the methodology employed was also provided, as well as a thorough study outline. This study is important for understanding the impact of digital transformation on boards' responsibilities and assisting organisations with selection of directors including evaluation of directors competencies and suitability. The following chapter examines the literature, theoretical, and conceptual frameworks in connection to the study's fundamental thesis.

## **CHAPTER TWO – LITERATURE REVIEW**

### **2.1 Introduction**

Chapter One provided an introduction to this report, orientating the reader to aspects such as the rationale for the study including associated questions, research objectives, hypothesis and the significance of this study. As mentioned in the previous chapter, this chapter reviews and discusses the literature on the requirement of the directors of boards in South Africa to attain competencies for governance of digital transformation (Dx) within the context of corporate governance (CG). Literature is reviewed and theories underpinning the phenomenon under investigation and theories influence the study design are graphically depicted and presented in Figure 2.1. The gaps in methodology, theory, and knowledge/practice are discussed.

### **2.2 Directors' Role in Digital Transformation Governance**

Granados and Gupta (2013) argue that in a digital-technology-saturated business environment, "current competitors and new entrants find fertile ground to develop creative business models and establish long-term competitive positions" (p. 638). Boards are responsible for developing strategy and evaluating performance versus strategic objectives (Johnson et al. 2011). Digital modes of engaging and transacting are increasingly becoming the accepted and expected way of doing business (Keen & Williams, 2013). Digital technologies and web-based applications are increasingly being used to describe information, communication, and operational technologies and applications (e.g., Bharadwaj et al. 2013a; Brynjolfsson & McAfee, 2014; Hirt & Willmott, 2014).

Dx and business information users include everyone: the board of directors, management and staff, important stakeholders, suppliers, and customers, in manners

that are suited to their needs. All of these stakeholders employ a growing number of DTs in their work and interactions with and inside their organizations (Fitzgerald et al. 2014). To initiate, support, or complete business and service delivery, as well as to monitor performance, digital technologies are used (Keller, Berlin, & Strott, 2012).

Large and small businesses, the public and private sectors of industry, trade, and government are all undergoing digital transformations (Fitzgerald et al. 2014; Peppard & Ward, 2004). Furthermore, the exceptional and disruptive rise of big data analytics, tablet computers, smart phones, and social marketing has been assisted by cloud computing and mobile (Bharadwaj et al. 2013b; Dearstyne, 2010; Zukis, 2012). This convergence of forces, according to industry analysts and researchers, will continue to revolutionize the way businesses of all types and sizes conduct business (e.g., Davis, 2012; Keen & Williams, 2013; Westerman et al. 2012).

### **2.3 Board Responsibilities towards Digital Transformation (Dx)**

Corporate boards have been subjected to scholarly investigation and research for many years. Their perceptions range from "ceremonious or ineffective bodies" to "important decision-making groups critical to business survival and performance" (Nicholson & Newton, 2010: 204). Boards, according to Carter and Lorsch (2004:7), are a "combination of old and new practices, some of which conflict, and which, when combined, provide the best design to perform their rising tasks." This appears to corroborate the idea that in the transition between old and new, new knowledge and abilities are beneficial.

The board, executive, and management sit at the pinnacle of firms that are required to obtain a license-to-operate in older, more traditional organizations, which are most often hierarchical in design (Steger & Amann, 2008). As part of total control, boards

perform governance. Governance is achieved at several levels throughout the hierarchy, regardless of size or legal status. Structures, systems, rules, and processes combine as the organization's business and compliance structures and governance mechanisms to achieve success (Steger & Amann, 2008). In this case, governance refers to the process through which management "is held accountable to people who have a real stake in the organization" (Johnson et al. 2011:123).

Organizations come in a wide range of types and sizes. There is no such thing as a "one-size-fits-all" approach to governance, whether it is public or private, for profit or not, huge, medium, or tiny (Steger & Amann, 2008). Boards have the authority to appoint management and personnel, assign authority and tasks to others. Boards have a critical role in determining direction, agreeing on long-term goals, and monitoring performance as part of their governance responsibility (Leblanc & Gillies, 2003; McAfee & Brynjolfsson, 2012). Directors, according to this description, establish and oversee strategy and business plans (typically in collaboration with management) before monitoring performance and risk (Parent & Reich, 2009). As a result, boards of directors lead and make decisions at the enterprise level (Hoogervorst, 2009).

These strategic role concerns emphasize that directors have ultimate power and a responsibility of care over the organization's affairs. The board's fiduciary duty of care and loyalty role revolves around their success in managing their legal responsibilities by directing and governing performance (Tunjic, 2013), as well as the appropriate implementation and usage of governance tools (Steger & Amann, 2008, Trope, 2005, Ali & Green, 2012).

Martyn (2014) claims that in a digital environment, competent decision-making necessitates a profound understanding of technology as well as all other technical

disciplines. At a high level, this understanding might include competitive data and information use (Marchand & Peppard, 2013), as well as competitive use of digital technologies (Marchand & Peppard, 2013; Fitzgerald et al. 2014; Westerman et al. 2012). Such information might theoretically give context for board decisions and underpin a stronger ability to analyze and criticize management reports and recommendations.

However, according to Nicholson and Kiel (2004), focusing on a single board job tends to perpetuate decision-making in isolation. Nicholson and Kiel suggest a

"construct of board intellectual capital to incorporate the leading theories of corporate governance and demonstrate how the board may drive business performance," (Nicholson & Kiel, 2004:5).

They give a "holistic framework" in their Corporate Governance Charter concept (Nicholson & Kiel, 2004:13). The approach addresses the requirements for defining governance roles, improving board procedures, defining main board processes, and "continuously improving board capabilities" (p. 27). As a result, defining roles and competence criteria has the effect of reducing role overlap and misunderstanding (French, Bell, & Zawacki, 2005; Willis, 2012).

Strategic Job Modelling (SJM), as one of the theories selected for explicating the phenomenon under investigation, is known for its emphasis on defining and clarifying responsibilities in order to improve capacity and performance (Schippmann, 2013). The application of the SJM lens, for example, underlines the need to distinguish between Dx governance as a management process as separate from, but interdependent with, board level governance as leadership, as argued by Chait, Ryan, and Taylor (2004) in this study. Because the relationship between board functions and

perceived board effectiveness changes between managers and directors, making such differences and providing clarity is critical (Huff et al., 2005). Perhaps the multiple, sometimes overlapping meanings that are frequently used interchangeably are the source of such variances. Dx governance (DTG), information technology (IT) management, governance of enterprise IT (GEIT), IT leadership, and digital leadership are only a few examples of such definitions. Perhaps the relative newness of any notion of board-level technology governance has contributed to a lack of clarity regarding whether or not boards should be involved in DTG capability development.

#### **2.4 Concept of Digital Transformation at Board Level**

It is only in the last decade or so that the term "Dx governance" has entered the common lexicon (Magnusson, 2012). When it comes to Dx governance, definitions have typically focused on creating the necessary conditions for the successful administration of technical infrastructure and IT departments prior to the year 2009 (Ali & Green; Robinson, 2007; Weill and Ross; Xue, Liang, & Boulton, 2008). In a very short amount of time, IT departments were expected to deal with a wide range of difficulties, including the rapid advancements in technology (Magnusson, 2012). "Technology was merely a tool to accomplish a plan, thus boards needed little or no expertise of it" (Carter & Lorsch, 2004:31). As a result, Dx governance's initial focus was on the organization's internal operations.

Scholars began to see Dx governance as a board-worthy topic from 2003 (Andriole, 2009; Borth & Bradley, 2009; Broadbent, 2003; Dehning & Stratopoulos, 2003; Huff, Maher, & Munro, 2006; Musson & Jordan, 2005). Because "new technologies themselves create strategic choice for firms worldwide," it is possible that the necessity to distinguish between governance and management has arisen (Carter & Lorsch,

2004:31). Others argued for a deeper connection between corporate governance and Information Technology Governance (ITG), arguing that board-level Dx governance should be an intrinsic part of broader corporate governance (e.g., Buckby et al. 2010; Jewer & McKay, 2012; Luftman, Ben-Zvi, Dwivedi, & Rigoni, 2012; Van Grembergen & De Haes, 2009; Van Grembergen & De Haes, 2012). Using "Dx" language in board level governance definitions could lead to definition overlap, which could lead to a muddled understanding of what Dx is and who is in charge of what.

It is important to make sure that both individual directors and the boards they serve on have a fiduciary duty of care to make sure that technology investment, risk, and performance are properly monitored (Trautman, 2012; Trautman & Altenbaumer-Price, 2011; Trope, 2005). They also have an ethical responsibility to be competent (Bayles, 1989; Norfolk, 2011). Also, it is suggested that any new definition should reflect the major changes in how business is done because of the new technologies and media that have come out and are coming together (Davis, 2012). This is because new technologies are making it easier for people to get more involved and get involved more deeply, through a wider, always-available range of ways to communicate, collaborate, share, and solve problems. This puts boards under more scrutiny. Information, data, and business technologies and how they are used by businesses and their customers and stakeholders would then be included in the governance of business technology. This would be in line with the addition of The Internet of Things (IoT) (Rheingold, 2012; Scott & Jacka, 2011). Further, it is suggested that any definition of digital transformation, including enterprise technology architecture should be aware of the strategic, integrative, and aligning parts of enterprise architecture (EA). Because EA helps "an enterprise to be agile enough to take advantage of new opportunities, while at the same time, stable enough to allow recovery and continuity

in the face of disaster, regulatory mandate, or a major shift in business focus," this might be a good thing to do (Hausman, 2011:7). The combination of stability and agility is important because it helps the board meet its fiduciary responsibilities. It also helps keep the widest strategic view of information and technology, rather than just Dx, in place, rather than putting Dx in the business. When the board has this kind of strategic orientation, it helps them lead the way for a data and information-use culture (Marchand, 2007).

## **2.5 Evolution of Corporate Governance and Director Responsibilities**

Without the 2008 financial crisis, many Corporate Governance scandals and failures would have gone unnoticed. The worst financial catastrophe since the Great Depression, which ran from 1929 to 1941, is considered to be underway (Creel et al, 2014:56, Lang & Jagtiani, 2010:124). More importantly, the crisis is widely blamed on corporate governance weaknesses (Erkens et al., 2012:1; Kashyap et al., 2008:437-440; Turnbull & Pirson, 2012:1-2). As a result, it is vital to analyze the 2008 financial crisis and its ramifications for Corporate Governance.

The financial crisis began in the United States of America (Isaksson & Kirkpatrick, 2009:3; Sun et al., 2011:1). Between 2006 and 2008, banks in the United States offered subprime mortgages to customers, causing the crisis. A subprime mortgage is a loan that is given to someone who has a credit problem, such as a bad credit history or a history of missing payments (Isaksson & Kirkpatrick, 2009:3; Sun et al., 2011:1). Offering subprime mortgages to clients created an environment where banks were ready to take more risks and sell these mortgages to raise their reported earnings. As a result, bank directors' salaries would climb, as they were based on the banks' performance (Moslein, 2011:285). The increased remuneration created an agency

problem in which directors were more concerned with their own interests than the banks' long-term sustainability, exposing the shareholders' and directors' goals being incompatible.

Lehman Brothers Bank was the fourth largest investment bank in the United States at the time of its bankruptcy filing in 2008, and it was considered "too big to fail" (Clarke, 2011:35; Wiggins et al., 2014:11). The bank declared bankruptcy because the United States government refused to bail it out (Wiggins et al., 2014:11). The US government determined that it lacked legal authority to bail out Lehman Brothers Bank (Gakpo, 2012:5). Instead, the government offered Lehman Brothers Bank three options: purchase by another firm, bailout by other commercial and investment banks, or insolvency (Gakpo, 2012:5). Other banks and corporations that could have bought Lehman Brothers Bank declined because it was too hazardous (Wiggins et al., 2014:11; Financial Crisis Inquiry Commission, 2011:325), and the board of directors filed bankruptcy as a result.

### **2.5.1 Lehman Brothers Bank**

The board of directors of Lehman Brothers Bank was harshly reprimanded after the bank's downfall for being inefficient, lacking necessary banking abilities, and being irresponsible (Staff Reporter, 2011b:1-3; Levin, 2014:1; Gillespie & Zweig, 2010:1). The board's structure, on the other hand, was unaffected, as eight of the ten directors were deemed independent and met the New York Stock Exchange (NYSE)'s independence requirements (Larcker and Tayan, 2010:12). The board in particular was criticised for lacking a solid understanding of financial markets (Financial Crisis Inquiry Commission, 2011:327). Only one of the ten directors of Lehman Brothers

Bank had banking experience that was considered relevant for a bank board member prior to the bank's demise (Gillespie & Zweig, 2010:1; Klepczarek, 2017:62).

"The board did not adequately oversee senior management's decisions or appreciate the dangers that the company was exposed to as a result of those decisions," according to Larcker and Tayan (2010:12). Establishing executive compensation structures that rewarded excessive risk-taking was one such tactic (Bebchuk et al., 2009:258). Furthermore, between 2000 and 2008, the Lehman Brothers Bank board of directors is claimed to have received a total salary of one billion dollars in cash bonuses and stock sales. (2010:257) (Larcker & Tayan). As a result, it is estimated that the fall of Lehman Brothers Bank resulted in a loss of \$10.2 trillion in GDP in the United States alone (Pirson & Turnbull, 2015:81). The agency issue, however, is not unique to the Lehman Brothers Bank case. Enron is another American company that went bankrupt due to the self-interest of its board of directors.

### **2.5.2 Enron Corporation**

The Enron Energy Corporation (Enron), a US-based company, went bankrupt in 2001, culminating in one of the worst corporate scandals in history (Li, 2010:37; Peavler, 2016:1; Staff Reporter, 2002:1; Pugliese, Minichilli & Zattoni, 2014:1189). The world's largest audit failure occurred as a result of Enron's demise, according to reports (Li, 2010:37; Titcomb, 2014:1; Farrell, 2015:2). "The failure of Arthur Anderson... sparked suspicions about the firm's Corporate Governance processes," to put it another way (Sauviat, 2006:143). When the audit firm's Corporate Governance processes are called into question, it raises doubts about its ability to provide consumers with reasonable assurance about their financial accounts. Despite declaring \$100 billion in sales for the fiscal year 2001, it was later determined that "...its claimed financial condition was considerably sustained by institutionalized, systematic, and ingeniously

devised accounting fraud" (Li, 2010:37). In other words, the financial statements of the company did not adequately reflect its current financial status and performance (Cunningham & Harris, 2006:34). Arthur Anderson, the external auditor, was also accused of failing to properly audit Enron, allowing Enron to conceal its losses. Arthur Anderson (Naylor, 2014:1). After restating its financial statements for the previous five years in 2001, Enron lost \$586 million (Li, 2010: 37).

Enron's demise was influenced by a number of factors other than accounting fraud. On the other hand, this study focuses solely on those that are relevant to corporate governance. The company's demise was aided by the board's lack of transparency, management's and the board's self-interest, and the board's failure to fulfil its fiduciary duties (Lieberman, 2002:11; Li, 2010:37-38; Peavler, 2016:2; Staff Reporter, 2002b:2; Cunningham and Harris, 2006:40-44).

Abelson (2002:1) argued that the Enron Board was significantly involved in the decisions that led to Enron's downfall and had a significant effect on them shortly after the crisis erupted in 2002. Enron's board of directors violated its ethics code "to allow the establishment of partnerships between Enron and its Chief Financial Officer" because of its own ethical standards (Jennings, 2014:298; Abelson, 2002:1-3; Navran & Pittman, 2009:9). These alliances were crucial in keeping debt off Enron's books and concealing much of what was really going on at the company (Abelson, 2002:2; Baker, 2013:12; Rimkus, 2016:3-8). According to Arthur Anderson, an error in judgment by Enron's external auditors resulted in Enron's profits being overestimated by more than \$600 between 1997 and 2000 (Miller, 2004:20; Naylor, 2014:1).

According to American corporate norms, "Enron executives were generously compensated, enjoying not only above-market wages but also unrestricted expense

accounts and staggeringly massive bonuses" (Lieberman, 2002:3-4; Lease, 2006:7). One could argue that the company's long-term performance justified such a significant investment. Even while there is evidence that the board used illegal accounting procedures and collaborated with its external auditors, the profits were overstated, contradicting this judgment (Lieberman, 2002:57- 57; Miller, 2004:20; Cunningham & Harris, 2006:43-44).

Furthermore, board members got personal loans from Enron and sold their shares back to Enron, all this happened as the company was on the verge of bankruptcy, all in order to profit themselves. According to Lease (2006:7), as a result of this manoeuvre, the CEO was able to resell Enron at \$52 million.

The collapse of Enron had severe consequences for all of the company's stakeholders. As a result, almost 5,500 jobs were lost, as well as the retirement benefits of the employees. Furthermore, the company's value plummeted by \$60 billion (Hargreaves, 2013:2; Staff Reporter, 2011a:1-2). SOX was enacted in the United States as a result of a failure of corporate governance (Act of 2002) (Congress of the United States of America, 2002:745) to improve the accuracy and dependability of firm disclosures.

### **2.5.3 Toshiba**

Toshiba was determined in 2015 to have engaged in deceptive accounting for more than seven years, starting in 2008 (Staff Reporter, 2016:1, 2016:1; Carpenter,2015; Farrell,2015). Toshiba's accounting errors were disclosed in a 2015 independent investigation report (Ueda et al., 2015:17). The investigation was regarded independent because it was carried out by experts who were not affiliated with Toshiba (Ueda et al., 2015:17).

A request from Japan's Securities and Exchange Surveillance Commission (SESC) to look into Toshiba's revenue recognition declarations in its financial statements for the 2013 fiscal year initiated the investigation (Ueda et al., 2015:17; Nagata, 2015:2). During the tenures of Toshiba's three prior Chief Executive Officers (CEOs), inappropriate accounting handling of transactions was identified, according to the investigation (Ando, 2015:1; Inagaki, 2015:1; Staff Reporter, 2015b:1). By purposely understating production costs and, purposefully inflating pricing for Toshiba's inter-related party sales, inappropriate accounting practices were carried out (Nagata, 2015:2). While the three former CEOs did not instruct their subordinates to falsify financial statements, the investigation revealed that they were aware of such falsifications and exerted tremendous pressure on their subordinates not to correct the improper accounting treatment of overstated revenues and understated costs (Inagaki, 2015:1; Ueda et al., 2015:307-308).

Profits were pre-empted under pressure from high management, with losses and expenses deferred to subsequent fiscal years in the financial reports. When business units were asked to attain unreasonable profit targets, which the firm eventually failed to meet, management applied pressure (Ueda et al., 2015:309). Toshiba named these targets "challenges" since they were only focused on current quarter or current year profits, not the company's long-term profitability (Ueda et al., 2015:308). Historically, when achieving profit and improving targets became difficult, a challenge would be issued to a business unit to achieve an overstated budget that exceeded the unit's capabilities. This would in turn put pressure on the business unit, which ultimately ended up in inappropriate accounting practices (Ueda et al., 2015:308-309). As a result, when top management issued a challenge, subordinates used false accounting practices to show that profit targets had been met in their reported financial results

(Bhattacharyya, 2015:1; Inagaki, 2015:1; Staff Reporter, 2015b:1; Ueda et al., 2015:309).

Finally, an independent investigation found that Toshiba overstated its profits by at least \$1.2 billion (Ando, 2015:1; Bhattacharyya, 2015:1; Nagata, 2015:1; Staff Reporter, 2015:1, 2015:1). Toshiba's CEO and eight of the company's sixteen board members resigned as a result of the incident (Ando, 2015:1). Furthermore, two former CEOs who had moved on to different positions inside the company resigned (Du, 2015:1). While some commentators suggest that the Toshiba scandal was caused by Toshiba's corporate culture of demanding unreachable profit objectives and not allowing employees to question orders, others argue that the scandal is indicative of a failure of Japanese corporate governance (Iljazi, 2017:2).

## **2.6 The Concept of Governance and its Variabilities**

Depending on the type and size of the organization, how governance is done and what governance models are used to keep an eye on and control an organization will change (Nanka-Bruce, 2011). As Wilkin and Chenhall (2010) say, the need for corporate governance is based on the need to keep an eye on an organization's work. The board's job is to better meet shareholder or stakeholder expectations for financial and environmental prudence, a good reputation, a competitive edge, and risk management. People on boards use a wide range of governance structures (Van Grembergen & De Haes, 2009) that are both traditional and legal (Andriole, 2009b; Bennis, 2013; Bharadwaj et al, 2013a; Nicholson & Newton, 2010). Corporate governance rules are meant to help management and the board of directors make decisions that will help the company do well for its shareholders (Nanka-Bruce, 2011). Mechanisms can be internal, external, or a mix of both.

These internal approaches can include control policies and procedures, decision-making rights and auditing, board of director's structures into levels of responsibility, and the structure of ownership (Ali & Green, 2012; Jensen, 1993; Nanka-Bruce, 2011). This group of tools is used to plan and organize the work of an organization, as well as to keep an eye on and control how things are going. The board and management can take action if the business is not doing well, and these tools help them do that (Johnson, Scholes, & Whittington, 2011).

Internal mechanisms are designed to make sure things run smoothly, have clear reporting lines, and measure performance (Nanka-Bruce, 2011). External governance mechanisms are usually set up to make sure people follow rules and regulations. People outside of the company, like regulators, governments, industry associations, and industry compliance bodies (Jensen, 1993), set external control mechanisms. Government regulators and industry compliance bodies usually set and enforce standards in their own fields. When it comes to things like air travel, medical care, building and construction, and finance, regulated professional standards have long been in place. External compliance-body goals include debt management, ethical, legal, and health and safety compliance, among other things. External control mechanisms are often put in place by people outside of an organization, like in the form of professional standards or regulatory guidelines (Jensen, 1993). Compliance with more government rules has made organizations more accountable, even with Dx (Buckby et al. 2010).

External groups, such as industry associations and peak bodies, may also give advice on how to do things right. It is also possible for companies to choose to follow these best-practice rules or not (Nanka-Bruce, 2011). Companies usually tell outsiders about

how well their external corporate governance mechanisms work and how well they work.

Some types of machines can do two things at the same time. Auditing the company's financial statements serves both internal and external stakeholders at the same time, so it is important to do it. As part of the overall corporate governance structure, a company's financial statements need to be checked by an outsider. Investors, employees, shareholders, and regulators can use an audited financial statement and the auditor's report to figure out how well the company is doing financially (Vieira & Traill, 2008). In this exercise, you get to see many different parts of the world.

Challenges and intricacies related to corporate governance over the years, across different geographical locations, have led to production of three critical documents. These documents talk about how to show that you have good governance. These documents are:

- The Cadbury Report (Cadbury, 1992).
- The Principles of Corporate Governance (OECD, 1999-2004), and
- The Sarbanes-Oxley Act of 2002 are the three that make up these three groups (Sarbanes, 2002).
- The Sarbanes-Oxley Act, also known as Sarbox or Sox, is an effort by the federal government in the United States to put into law some of the ideas in the Cadbury and OECD reports.

Individuals who own shares and other people who have a stake in a company are covered in these reports, including the rights and fair treatment of shareholders (Musson & Jordan, 2005; Nanka-Bruce, 2011; Trautman & Altenbaumer-Price, 2011). Here, it is important to talk about the role and responsibilities of boards, especially the

emphasis on boards needing enough and relevant skills and knowledge. Such a requirement means that boards would have more power to review and challenge management performance. It is also important to have a certain level of IT governance maturity in order to effectively use these principles and understand governance requirements for Dx.

## **2.7 Theoretical framework**

Since then, deliberateness in the selection of theory-appropriate theories has become a significant and persistent feature of knowledge progress (Collins and Stockton, 2018). Conceptual frameworks, theoretical frameworks, paradigms, and epistemologies have all been employed in qualitative research to distinguish different study methodologies. Costa (2020) suggests a technique that has been widely used in academic research for both theory formation and conceptual inquiry. Theories spelled within a well-defined and confined theoretical framework, according to Saldaa and Omasta (2018), can be utilized to achieve the following:

- Ontological and epistemological perspectives of the researcher
- Justifications for methodological decisions
- Literature searches and study findings provide the necessary framework for theory formulation
- A framework that will serve as the foundation for the entire investigation

### **2.7.1 Justification for use of theory in research**

A theory is a set of interconnected constructs (concepts), definitions, and propositions that provide a systematic view of phenomena by finding links between variables with the objective of explaining and predicting them (Kerlinger, 1970). A theory is essentially

a hypothesis, a guess, or a guess that could explain reality. Theories should guide the study process in both qualitative and quantitative research (Morse & Field, 1995). Inductive research is used by qualitative researchers, who look for "patterns and correlations" in data and then generate and test hypotheses to build theories or use theories that have already been developed to explain the data (Morse & Field, 1995). The qualitative researcher creates the study questions, and data is collected in the participant's context. Data analysis is developed inductively, from specific (particulars) to broader ideas (generating categories and themes). Finally, the researcher applies his or her interpretation to the themes (Creswell, 2014). However, qualitative researchers may use a deductive strategy in the early stages of qualitative data processing. They can develop a template (codebook) that arranges the qualitative data in a theoretical framework for interpretation. However, these categories may not accurately reflect the participants' impressions of the topic under investigation. Fereday and Muir-Cochrane (2006) presented an intriguing hybrid technique that combined inductive and deductive reasoning. Thus, this inquiry will be theoretically hinged upon a mixed methods approach, as explicated in Figure 2.1 below and further detailed in Chapter 3 of this report.

### **2.7.2 Theoretical Foundation**

A theoretical framework acts as a 'roadmap' or set of guidelines for undertaking research (Grant & Osanloo, 2014). It is a theoretical framework based on a well-established theory in a field of study that is connected to and/or reflects the study's hypothesis. It is a blueprint that the researcher commonly 'borrows' to build his or her own home or study project. It serves as a base for doing research. The theoretical framework's function has been compared to that of a map or a voyage itinerary by

Sinclair (2007), Fulton, and Krainovich-Miller (2010). As a result, the map serves as a guide for navigating to a given spot. Similarly, the theoretical framework directs the researcher to keep within the confines of accepted concepts in order to ensure a scholarly and academic final output. As a result, Brondizio, Leemans, and Solecki (2014) concur that a theoretical framework is a specific theory or group of ideas about a specific component of human effort that may be applied to the analysis of events. The theoretical framework is made up of the basic principles, constructs, concepts, and tenants of a theory (Grant & Osanloo, 2014).

A theoretical framework benefits a research effort in a variety of ways. It establishes the philosophical, epistemological, methodological, and analytical foundation for defining a researcher's study (Grant & Osanloo, 2014). The theoretical framework, according to Ravitch and Carl (2016), acts as a guide for researchers as they place and contextualize formal theories in their research. This places their findings in a scholarly and scientific perspective.

Furthermore, the theoretical framework serves as a focus for the study and is linked to the research subject. As a result, the researcher's choice of research design and data analysis approach is guided by it. The theoretical framework has an impact on the type of data that should be collected for a certain study (Lester, 2005). As a result, the theoretical framework aids the researcher in identifying the best research method, analytical tools, and processes for his or her particular research issue. It contributes to the study's meaning and generalizability (Akintoye, 2015). Imenda (2014) stated unambiguously that research conducted without a theoretical framework lacks sufficient guidance for discovering relevant literature and scholarly discussion of the findings. The theoretical framework offers a shared worldview or lens through which

other researchers in the field of inquiry can understand the problem and undertake data analysis (Grant & Osanloo, 2014).

The theoretical framework acts as a guide and should be consistent with all elements of the research process, including the framing of the problem, literature evaluation, methodology, presentation and discussion of the findings, and the conclusions drawn. According to Eisenhart (1991), a theoretical framework allows a researcher to analyze alternative hypotheses that may contradict his or her own, so strengthening the study's strengths. Theoretical frameworks, according to Simon and Goes (2011) and Maxwell (2004), serve to clarify the study's goal. As a result, research funding bids must clearly illustrate the theoretical framework on which the proposed research is based. It convinces funders that the research is worthwhile. The correct selection and availability of a theoretical framework reveals to both professionals in the field and readers that the study is not based on the researcher's personal convictions, but is firmly embedded in an established theory determined through reliable studies (Akintoye, 2015).

### **2.7.3 Chosen Theoretical Framework for this Inquiry**

As shown in Figure 2.1, this part begins with a schematic flow of this study based on the findings of literature, which establishes the essential framework that drives the investigation. This framework is a collection of theories for methodological principles, methods, and standards; a representation of theories that underpin both corporate governance and ethical leadership; and a classification of key factors that show how the study issue was addressed. The COSTA Postgraduate Research Model serves as the foundation for this theoretical framework (Costa, 2020).

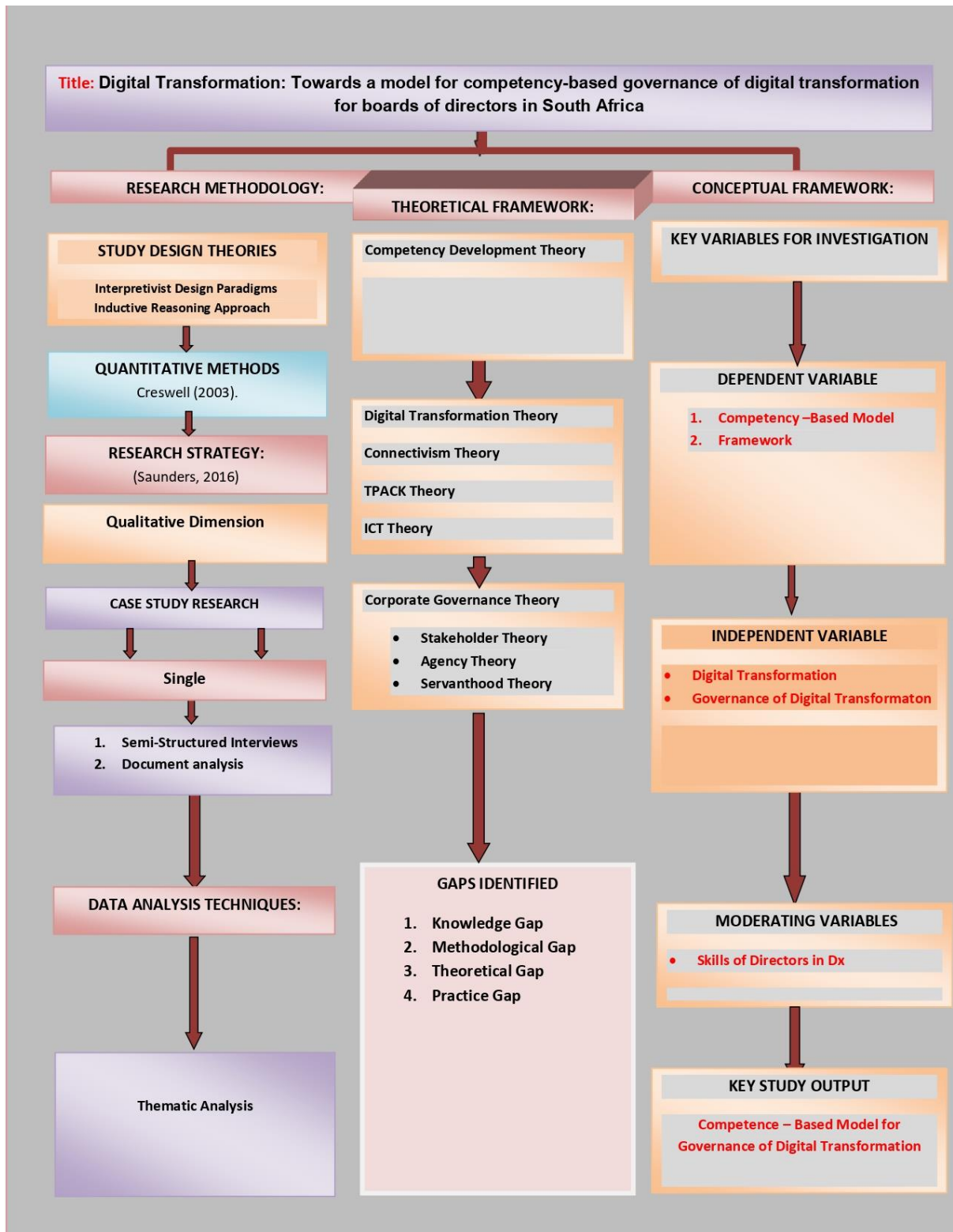


Figure 2.1: Theoretical Framework - Adapted to Costa (2020)

## **2.9 Conclusion**

This section concludes both empirical and theoretical literature review of this study.

The purpose of the review focused on a discussion regarding competences in relation governance of digital transformation in the context of corporate governance by board of directors in South Africa. The review conducted a survey of literature across key economies the globe such as the USA, UK, Japan and China amongst others. Furthermore, the review conducted a comparative analysis of past corporate scandals and the role of directors with a specific intent to avoid such occurrences. A theoretical framework depicting both design theories and those explaining the phenomenon under investigation where presented together with the demarcation of variables. The next chapter will focus on Research Methodology.

## CHAPTER THREE

### 3.1 Introduction

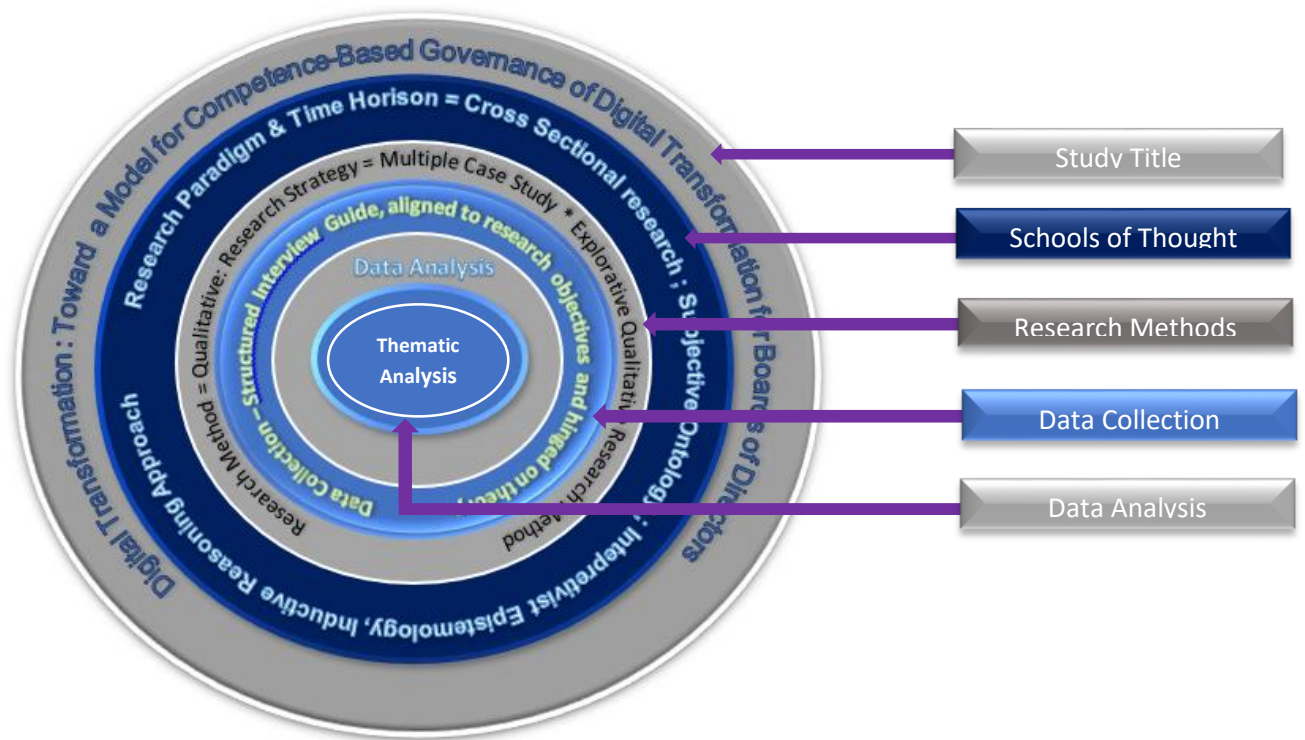
This chapter gives a process-based explanation of the research methods that were used in this study to try to answer the research question. Research methodology is the study of the different ways to do research to answer the research question. Methodology, on the other hand, is a set of rules for collecting data (Singh & Walwyn, 2017). The definition of research methodology involves the methods and rules used to conduct this study. In addition, it is a methodical way of collecting and analyzing data to get the results or findings of a study (Creswell, 2013). Research methodology is, without a doubt, one of the most important parts of the research process. It explains what the researcher did, how data was collected, and how it was analysed at the end. This section covers aspects of methodology such as philosophical paradigms, reasoning approaches, research traditions and activities such as data collection and data analysis. Quality criteria for rigor determination and ethical considerations are extensively covered as well.

### 3.2 Research paradigm

Kuhn (1962) coined the term paradigm to describe a philosophical way of thinking and rationalizing the world. The word's etiological underpinnings are used to signify a pattern in Greek. In educational research, the term paradigm refers to the researcher's point of view on the topic under investigation (Mackenzie & Knipe, 2006). While Candy (1989 apud Kivunja & Kuyini, 2017) proposes three main research paradigms in educational research: positivist, interpretivist, and critical, business researchers have recommended replacing the critical paradigm with Morgan's pragmatic school of

thought (2007, apud Brierley, 2017). In both educational and business research, positivism influences quantitative research methods, whereas interpretivism influences qualitative research, and pragmatism influences mixed methods research. As a result, research procedures are philosophical expressions, whereas paradigms are metaphysical scientific abstractions. The parts that follow will provide you a fast rundown of positivism, interpretivism, and pragmatism.

The term paradigm was coined by Kuhn (1962) to denote a philosophical way of thinking about and rationalizing the cosmos (Kekeya, 2019). The Greek phrase's etiological foundations are employed to describe a pattern. The term "paradigm" refers to the researcher's preconceptions about the phenomena being studied in educational research (Mackenzie & Knipe, 2006). Whereas Candy (1989 apud Kivunja & Kuyini, 2017) recommends three main research paradigms in the field of educational research: positivist, interpretivist, and critical, market researchers propose that the critical paradigm be replaced with Morgan's pragmatic school of thinking (2007, apud Brierley, 2017). Quantitative analysis procedures are influenced by positivism in both educational and corporate research, whereas qualitative research is influenced by interpretivism, and mixed methods research is best served by pragmatism. Research methods, on the other hand, are physical expressions of metaphysical ideas, whereas paradigms are scientific metaphysical abstractions. Brief examples of positivism, interpretivism, and pragmatism will be shown in the following sections. Figure 3.1 is a graphical representation of choices made to conduct this investigation.



**Figure 3.1: Mapping the Research DESIGN Approach (Created by researcher)**

### 3.3.1 Positivism

Howell (2012) defines positivism as the concept that information can only be produced or developed through the application of quantifiable and observable scientific methods, procedures, and observation. It dismisses the notion of analyzing, observing, measuring, and describing the metaphysical or abstract. The attitudes and beliefs of participants in a sample should not be identified and should consequently be discarded, according to the positivist school of thought (Howell, 2013). Empiricism regards scientific experience as generated from empirical data and reasoning (McNamee, 2005), and argues that objective facts are the only relevant characteristics that the researcher must accept. Positivism is strongly tied to empiricism. The positivist approach emphasizes the researcher's objectivity and necessitates the researcher's seclusion or restricted contact with the study/object. Human behavior is handled the same way as objects in an experiment in a positivist study; external stimuli produce

different responses, and there are immutable laws that can be observed and understood to help predict future events (Howell, 2013).

### **3.3.2 Interpretivism**

According to Hay (2011), interpretivism as a philosophy encompasses a range of descriptive perspectives that overlap with constructivism and hermeneutics. On the other hand, hermeneutics is concerned with the interpretation of concerns that arise as a result of the reading of human behaviour (Stanford Encyclopaedia of Philosophy, 2016). Human people develop their own knowledge and sense of truth through their lived experiences, according to Elliot et al. (2000, apud McLeod, 2019). This implies that the lens through which people observe and relate to the world has a substantial impact on the way they generate meanings that serve as the basis for their perceptions of those meanings / views. Interpretivism is a pluralistic approach to the social world / reality (Creswell, 2011). In terms of research philosophy, interpretivism is a central epistemological philosophy based on the work of Saunders et al. (2012) that is concerned with knowledge generation. Qualitative research initiatives are included in interpretivist epistemology.

### **3.3.3 Pragmatism**

Pragmatism is drawn from the works of researchers such as Pierce (1905), James (1907), and Dewey (1909) as a paradigm and lens for evaluating scientific discourse (1920). Instead of choosing between positivism / post-positivism and constructivism, this framework is better suited to this analysis because it avoids relying on metaphysical constructs (interpretivism and positivism) and instead focuses on "what works" to provide answers to the research study (Johnson & Onwuegbuzie, 2004).

While mono-methods rely on well-established logical channels within traditional paradigms to connect facts to theory, such as deduction in positivist and post-positivist

paradigms and inference in constructivist / interpretivist paradigms, pragmatic paradigms take an abductive approach. The researcher would use deductive reasoning at one time in the study, judging it vital to refrain from engaging with study participants, and then use induction at a later point in the study to communicate with study participants and construct their realities (Teddlie & Tashakkori, 2003). As a result, pragmatism focuses on identifying shared values and meanings, as well as common understandings and actions, from a variety of perspectives (Morgan, 2007). This paradigmatic approach simplifies mixed-methods research.

### **3.3.4 Chosen Paradigm and Justification**

The chosen paradigm for this study was interpretivism. The researcher sought to understand in-depth experiences of board members/directors regarding the governance of digital transformation as integral part of board's oversight responsibilities. This paradigm draws its strength from its ability to focus on subjective views, opinions and beliefs of participants, which was fundamental to this report as the director's views regarding the subject of investigation were deemed vital.

By its very nature, interpretivism supports the importance of qualitative data in the search for knowledge (Kaplan & Maxwell, 1994). This philosophical and research paradigm is essentially interested in the particularity of a given circumstance, which contributes to the overarching goal of contextual depth (Myers, 1997). While the usefulness of contextual richness provided by interpretive research is acknowledged, results are frequently criticized for their validity, reliability, and generalizability (Perry, 1998; Eisenhardt, 1989). A few academics have therefore proposed a novel idea to mix quantitative and qualitative methodologies, commonly referred to as "triangulation," in order to avoid this philosophically motivated critique when examining the social environment (Silverman, 2004; Hammersley, 2003). For instance, Denzin

(1970) claimed that several, independent procedures should be more reliable than a single methodical approach to a topic if they lead to the same findings. The synthesis and triangulation of qualitative and quantitative approaches may not always coincide, according to Bryman (2006, 2007), who looked at the justifications provided for using them and made the case that researchers should exercise caution when conducting such studies. However, Layder (1994) suggested that the interpretivism epistemology's humanistic approach gives action precedence over structure, making it the objective of qualitative researchers to attempt to view the world through the eyes of human actors. In order to evaluate the entire scenario in a natural context for qualitative research purposes and to obtain the thoughts and feelings of people being questioned or observed (Layder, 1994). Additionally, the history of the interpretivist approach to comprehending the social world has drawn increasing interest. Weber's position was of particular interest due to his integration of both qualitative and quantitative methods. Weber's interpretive sociology is the science that combines "verstehen" and causal analysis (Kuckartz, 1991). His theoretical notion of interpretive sociology as the field that blends casual and verstehen analysis demonstrates this integration.

### **3.4 Reasoning approach**

#### **3.4.1 Introduction**

The use of logical reasoning or argumentation to support the formation of research findings is referred to as "approach to research." The deductive, inductive, and abductive logical frameworks of reasoning, as well as the metaphysical ontology of research investigations, are the result of three separate techniques (Trochim, 2006; Paschal, 2016).

### **3.4.2 Deductive reasoning**

Deductive reasoning, often known as top-down reasoning, is concerned with drawing conclusions from theoretical assumptions (Gabriel, 2013). Its research style is primarily based on generalizations that have been observed as a result of a specific event or phenomenon. It is founded on universal generalizations, sometimes referred to as propositions, and begins with a simple statement or prediction conveying a specific premise (Malhotra, 2017). The past dominance of hypothetico-deductive (H-D) techniques in business and organizational research, with their focus on validation, as discussed in Locke, is worth mentioning (2007). It is also important to note that the deductive role is better suited for analyzing theory rather than progress (Mantere & Ketokivi, 2013). The method belongs to the positivist epistemological school of thought, and was not selected as an approach for this inquiry.

### **3.4.3 Inductive reasoning**

According to inductive methods of reasoning approach, all investigations is based on observers' perceived ideas about their empirical environment, which is premised on the concept that viewpoints may differ (Malhotra, 2017). Also known as 'bottom-up' approach, inductive reasoning technique is sometimes referred to as interpretivist or constructivist inquiry paradigms are linked with this methodology (Saunders, et al., 2012). In this school of thought for reasoning, assumptions are taken directly from the provided premises throughout the argumentation process (Dowden, 2019). The approach gives high levels of credibility substantiation to support conclusions (Linholm & Guba, 1984).

#### **3.4.4 Abductive reasoning**

The relationship between theory formation and theory testing is enabled by a pragmatic method based on abductive epistemology as a rationale for reasoning (Behfar & Okhuysen, 2018). Abductive reasoning, according to Psillos (2011), is a form of reasoning that is adopted as a result of causal effects. The abductive technique differs from deductive reasoning in that it contains inductive reasoning concepts, whereas deductive reasoning is based on observations of consequences from causes (Rapanta, 2018).

#### **3.4.5 Chosen Reasoning Approach and Justification**

As opposed to the deductive reasoning approach, inductive reasoning starts with observations and then generate theory based on what is observed. This process is centred around identification of patterns across observed data, and generation of themes. This was critical approach to reasoning as it supports theory generation (Borgstede & Scholz, 2021).

### **3.5. Research design**

#### **3.5.1 Quantitative research**

According to Saunders et al. (2016), the quantitative research method, often known as the positivist or deductive approach, explores the relationship between quantitatively measured and analyzed variables using a variety of graphical and statistical approaches. The researcher is considered as separate from the people being studied, and the data's validity is assured by regularly inserting controls to verify that it is accurate.

Quantitative study began approximately 1250 A.D., and it was prompted by the desire to quantify data. Since then, quantitative research has dominated western culture as a means of generating new knowledge and meaning. A numeric or statistical approach to research design is what defines a quantitative research method. Quantitative research, according to Leedy and Ormrod (2001), is specific in its surveying and experimentation since it builds on existing hypotheses. The premise of an empiricist worldview is maintained throughout the approach of quantitative research (Creswell, 2003). The research is self-contained and unaffected by the researcher's actions. As a result, data is utilized to measure reality objectively. Quantitative research gives significance to the data it collects by revealing objectivity. Quantitative research can be used to answer questions about the relationships between variables in a study. "Quantitative researchers are looking for explanations and forecasts that can be applied to other people and places. The goal is to establish, confirm, or validate correlations, as well as to develop generalizations that will help to advance theory" (Leedy & Ormrod, 2001). Quantitative research starts with a problem description and includes developing a hypothesis, doing a literature study, and analyzing quantitative data. Quantitative research, according to Creswell (2003:18), "employs inquiry methodologies such as experiments and surveys, and collects data on specified instruments that provide statistical data". Quantitative research findings can be predictive, explanatory, and confirmatory. The methodology of quantitative research is the subject of the next section/paragraph.

According to Leedy and Ormrod (2001:14), research methodology is "the broad strategy the researcher uses in carrying out the research endeavor". Quantitative research is gathering data in order to quantify information and apply it to statistical analysis in order to support or deny "alternative knowledge assertions" (Creswell, 2003:

153). According to Creswell (2002), quantitative research began in the physical sciences, specifically chemistry and physics. As a data analysis methodology, the researcher employs mathematical models. Research design, test and measurement methodologies, and statistical analysis are three historical themes in quantitative research. Quantitative research also entails the collection of quantitative data, with the researcher often employing mathematical models as a data analysis tool. In addition, the researcher use inquiry methods to guarantee that statistical data gathering approach is followed. Quantitative research is divided into three categories: descriptive, experimental, and causal comparative (Leedy & Ormrod, 2001). The descriptive research technique is a fundamental research method that looks at the situation as it is right now. Descriptive research entails identifying characteristics of a phenomenon based on observation or investigating the relationship between two or more occurrences. The researcher explores the treatment of an intervention into the study group and then measures the treatment's outcomes during the experimental research. Pre experimental, real experimental, and quasi-experimental are the three categories of exploratory techniques (Leedy & Ormrod). The pre-experimental design includes a constant independent variable or a non-randomly selected control group. Campbell and Stanley (1963) advocated for the real experimental design, which provides a better level of control and validity in the experiment. True experimental designs lead to a holistic approach to quantitative data collecting and analysis that includes mathematical models. The quasi-experimental approach, on the other hand, incorporates a non-random selection of study participants. As a result, control is limited, and actual experimentation is ruled out. Validity may be sacrificed since the variable cannot be controlled. The researcher studies how the independent variables are affected by the dependent variables in causal comparative research, which involves

cause and effect linkages between the variables. In contrast to the dependent variable, the factorial design concentrates on two or more categories with the independent variables (Vogt, 1999). The causal comparative study design allows the researcher to look at how independent variables interact with one another and how that influences dependent variables.

### **3.5.2 Qualitative research**

#### **3.5.2.1 Introduction**

Qualitative research is a holistic approach to learning that entails exploration. Qualitative research may also be defined as an unfolding model that takes place in a natural setting and allows the researcher to build a level of detail through active participation in the actual events (Creswell, 1994). The social phenomenon being researched from the participant's perspective is one identifier of qualitative research. There are various sorts of qualitative research designs that are used to frame the study strategy. As a result, the various methodologies have a significant impact on the study tactics investigated. Qualitative research entails the utilization of obtained data for the purpose of describing, explaining, and interpreting it. Qualitative research, according to Leedy and Ormrod (2001), is less organized in description since it formulates and establishes new theories. Qualitative research is also known as an effective approach that takes place in a natural setting and allows the researcher to develop a level of detail by being deeply involved in the actual experiences (Creswell, 2003). A poststructuralist paradigm is used to perform qualitative research. Case study, ethnographic study, phenomenology study, grounded theory study, and content analysis are the five types of qualitative research. These five domains are illustrative of inductive reasoning and associated methodologies-based research.

The premises of qualitative research are based on inductive rather than logical reasoning. The researcher's attempt to explain comes from the observational aspects that generate questions. In contrast to quantitative research, where the researcher is totally outside of the phenomena being researched, qualitative research has a strong association between the observer and the data. There are no predefined assumptions or a starting point for the researcher to work from (Leedy and Ormrod, 2001).

This empirical research uses evidence gathered via the senses to explain phenomena related to social behaviour in new and emerging theories. Aside from the obvious contrasts between quantitative and qualitative research methods, important variances in each research methodology have also been observed. The qualitative research approach will be briefly described in the following parts.

Within qualitative research methods, five (5) common research strategies (Creswell, 2009) or designs (Kothari, 2011) are commonly referred to as Phenomenology, Case Studies, Ethnographic Research, Narrative Inquiry, and Grounded Theory. In the following sections, a quick description of each strategy will be provided, followed by explanation for the strategy / design chosen for this study.

### **3.5.2.2 Phenomenology**

This study approach, which has its origins in philosophy and articulated in psychology, focuses on describing participants' lived views of phenomena as participants (Padilla-Diaz, 2015) experience them. According to Moustakas (1994) and later validated by Giorgi, subjective essences and the meaning of participants' interactions about social phenomena are of particular relevance in this design (2009). This approach would not be suitable as a strategy in this study as the researcher is interested in studying more

than experiences, but to explore views and opinions of directors regarding competencies required for governance of Dx.

### **3.5.2.3 Ethnographic research**

This common type of research in business and sociology investigates features of a cultural group's shared social norms, attitudes, languages, and held values in their natural environment. Interviews and observations of participant behaviour within a given community are used to obtain data in this method, which necessitates extensive fieldwork by researchers (Astalin, 3013).

### **3.5.2.4 Narrative Inquiry**

This examination of the form is firmly rooted in the humanities. The methodology is more of a scientific story in which researchers examine people's lives in relation to genuine events or phenomena that are partially or completely involved in their lives (Riessman, 2008). The essential component of this research methodology is the meta-reclassification of manifest details into a narrative chronology, which typically culminates in a cumulative narrative exposition of interlinks between the researcher's and participant's lives.

### **3.5.2.5 Grounded Theory**

This approach, which was first presented in social anthropology (Howard-Paynem, 2016), derives the hypothesis from abstractions based on new data gathered through participatory engagement with study participants. In an iterative process, the theory creation process involves reciprocal multi-step processes from data collecting, data processing, and theory formulation, with each stage informing the next (Neethlinh,

2016). Glaser and Strauss (1967) invented this strategy almost a half-century ago, and it has evolved since then (Charmaz, 2006; Corbin & Strauss, 2007).

### **3.5.2.6 Case Studies**

This technique of enquiry is quite common in academic research. The research or appraisal of a single or multi-bounded case in which persons, situations, policies, projects, organizations, or unique structures are units of study exemplifies its classification (Astalin, 2013; Yin, 2012; Yin, 2009).

Researchers must decide whether it is wise to do a single case study or whether it is preferable to conduct numerous case studies in order to fully understand the phenomenon. This is in addition to identifying the case and the exact type of case study that will be used. The context is yet another crucial factor to take into account (Yin, 2003). A multiple case study is required when a study involves many single cases. This often involves a number of experiments. A multiple case study differs from a single case study in that the researcher examines a number of cases in order to comprehend the differences and similarities between the cases (Baxter & Jack, 2008; Stake, 1995). The researcher's ability to analyze data both within each context and across situations is another distinction (Yin, 2003). It is possible to use several case studies to predict either differing results for anticipated causes or comparable findings in the studies (Yin, 2003). The author can then determine if the findings are worthwhile or not (Eisenhardt, 1991). The researcher can also give the literature a significant influence from the contrasts and similarities when the case studies are compared to one another (Vannoni, 2014;2015). It is a universal truth that evidence derived from several case studies is solid and trustworthy (Baxter & Jack, 2008). Another benefit of using several case studies is that they help to develop a more compelling theory when

the proposals are more thoroughly supported by a variety of empirical data. Multiple cases so enable deeper exploration of research issues and advancement of theory (Eisenhardt & Graebner, 2007). The researcher doing a multiple case study will face both benefits and challenges, which must be taken into account. Implementing many case studies can be extremely expensive and time-consuming (Baxter & Jack, 2008). Siggelkow (2007) asserts that a single case study can amply explain a phenomenon's existence. Dyer & Wilkins (1991) contend that single case studies are preferable to several case studies for producing high-quality theory since a single case study generates more and better theory. Additionally, the amount of time the author spent observing the case studies decreases with the number of case studies in a scholarly study. However, the case studies are more certain of their representativeness, the more likely (Gerring, 2004). A single case study is the best option if the researcher just wishes to examine one thing (for instance, a person from a particular group) or one group (for instance, a group of people) (Yin, 2003). A more thorough investigation is conducted when a single case study is used since it allows the researcher to explore new theoretical linkages and challenge old ones. As a result, the researcher gains a greater comprehension of the subject (Dyer & Wilkins, 1991). The researcher has the option to conduct an embedded single-case study. This indicates that the researcher can investigate the case while having the ability to analyze the data both within and between case analyses and while conducting a cross-case analysis. As a result, the researcher is empowered to examine components that are part of a bigger instance (Yin, 2003). Eisenhardt (1991) asserts that the length of a case study relies on how much new knowledge the instances contribute and how much is already known. According to Dyer & Wilkins (1991), the number of instances, the length of the researchers' stay in the field, or the page length per se are not the main concerns.

Instead, the crucial concern is whether the researcher can adequately describe, comprehend, and explain the context of the relevant scene to the reader while also producing theory in respect to that context. Further, Dyer and Wilkins (2016) point out that examining a single case study in depth does not ensure the production of rich theoretical insights, and researching many case studies does not ensure the production of this kind of insight.

According to Chowdhury, Faisal, and Hossain (2020), a qualitative case study design follows the interpretivism tradition, which is based on the belief that understanding human behavior may be attained by immersing oneself in or near other worlds and seeing how they think, act, and feel. This form of research was defined by one of the primary proponents (Yin, 2009) and authorities in case studies as

"...an empirical investigation into a current phenomenon in depth and within its real-life context, particularly when the boundaries between phenomenon and context are blurred"

From this statement, it is clear that case studies aim to uncover more information about the topic under investigation (Willis, 2014). This necessitates the researcher becoming completely immersed in the procedural activities in order to gain in-depth perspectives, opinions, insights, and trends concerning the phenomenon being examined, in this case, how established organizations might foster an entrepreneurial culture in the digital era (Rashid, et al., 2019).

This study's research strategy was a case study research. This was a multiple case study (Lobo, Moeyaert, Baraldi, & Babik, 2017), focusing on directors of boards as cases to be studied. According to Gerring (2006), another major expert on case study research methodologies, a single case study denotes that the investigation is

constrained and confined to a single phenomenon with both synchronic (spatial) and diachronic (time) features.

### **3.5.3 Multiple Case Study in the context of current investigation**

A multiple-case design, as described by Cresswell (2013), investigates a real-world multiple bounded system by gathering extensive, in-depth data from a variety of sources. This approach assisted the researcher to gain a better grasp of the similarities and variations in the information across multiple-cases director perspectives in relation to competence-based narrative for governance of digital transformation (Eisenhardt & Graebner, 2007). Participants' comments, inputs and viewpoints enabled the researcher to be better enabled to tackle the difficult topics that needed to be investigated thoroughly and grasp the behavioural conditions of such players within the corporate governance context. Using a multiple-case design, the researcher could provide a more complete and nuanced explanation of information management, moving beyond the quantitative statistical results of other research methods and instead gaining insight into the behavioural conditions from the perspectives of the participants who are directly involved as directors of various boards (Zainal, 2007).

### **3.5.6 Chosen Design and Justification**

Subjective views and opinions of participants in relation to governance of digital transformation and requisite competencies could be appropriately investigated through the use of an in-depth inquiry that allows interpretive discourse. In terms of available perspectives within academic research and in context with ontological background of this study, a qualitative method of inquiry was suitable, using a case study method as a research design. In terms of explications by according to Stakian

Theory, the typology of the case study chosen converges both Stake and Yin theories of both explorative and instrumental case study.

### **3.6 Population and sampling**

#### **3.6.1 Introduction**

Scholars defined a study population as an indicator of a total number of elements sharing a set of characteristics relevant to a research project, while a sample is a relatively small subset of that population (Hair, Celsi, Money, Samouel & Page, 2016). The population for this study was made up of directors of boards in South Africa, across different sectors including information technology, banking industry, telecommunications industry, public sector and regulatory authorities.

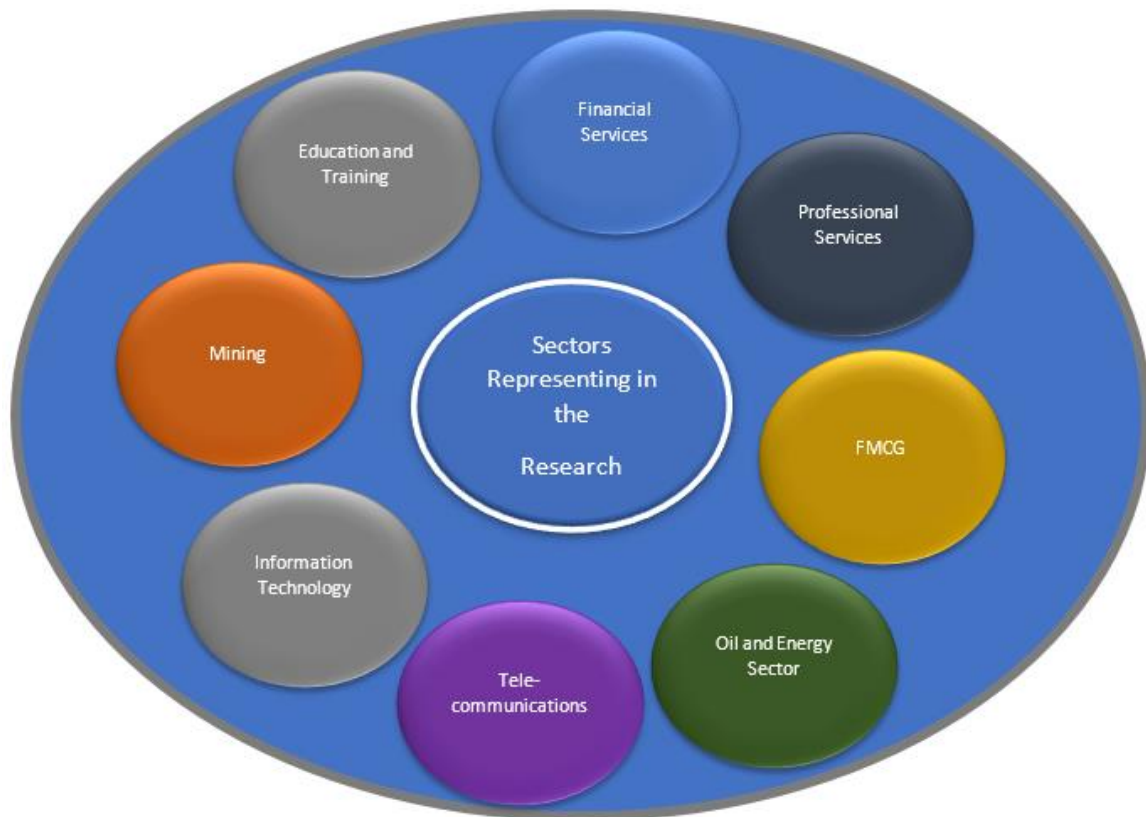
#### **3.6.2 Sampling**

A sample frame is a list of elements in the population from which the sample is drawn (Cooper & Schindler, 2014). There are two methods or techniques of sampling in research, viz purposive (non-probability), which is a technique for interpretive epistemology, and probability (random) sampling, which is a technique for positivist epistemology. A sample frame for this study was drawn out of the population as indicated above, focussing on interpretivist approaches.

##### **3.6.3.1 Sample configuration and typology**

Participants of this study were directors of boards from a diverse setting, covering different economic sectors such as mining, financial services, professional services, Fast Moving Consumer Goods, oil and energy sectors, information technology and communication sector, education and public sector. The purpose of this wide representation was to gain understanding and perspective of director's views, thoughts

and opinions regarding the governance of digital transformation and associated requisite competencies.



**Figure 3.2: Configuration and typology of Sample of this study**

The method of inquiry in this study was case study research; 15 participants were selected. Furthermore the researcher selected participants for interviews, allowing for saturation as a measure of the number of participants to be interviewed (Creswell, 2008; Yin, 1994).

### **3.6.3.2 Sampling strategy**

Purposive sampling is also referred to as judgemental, subjective or selective sampling. This strategy/technique of sampling relies hugely on the judgement of the researcher to select the participants from the research population. These purposive

sampling techniques include extreme (or deviant) case sampling, maximum variation sampling, homogeneous sampling, typical case sampling, total population sampling and expert sampling. These techniques can be applied either individually or in conjunction with other purposive sampling techniques throughout the study. While in certain cases the sample selection may not be a fair representation of the research population, it is not regarded as a weakness, but rather depends on the choice of the researcher.

It is important to note that in qualitative research, the key indicators of data collection maximisation are the concept of information redundancy as postulated by Guba and Lincoln (1985). The concept of information redundancy originates from grounded theory where Glaser and Strauss (1967) formerly introduced it as saturation. This means that there is no more new information to be collected, as data remain the same henceforth.

Application of this concept is a little different in other forms of qualitative research, such as the case study, which is the chosen strategy in this investigation. In grounded theory, analysis is performed during the process of data collection, whereas the tendency in case studies is to collect information within a case and then to analyse this. The case is itself a sample. The case may then have multiple factors and subjects of interest for data collection. That is applicable in this current study, where the case is the public sector organisation and factors within the case are individuals (Patton, 2002).

Therefore, information power measurement was considered within the single case study being investigated (Malterud, Siersma and Guassora, 2015). This information power concept is the one commonly known as saturation in qualitative research.

### **3.7. Data collection**

The research instruments that were used when employing the qualitative method first acknowledged the researcher as the main instrument (Pezella, et al., 2012). Qualitative research often uses semi-structured in-depth interviews, and these interviews are the most prevalent source of qualitative data in social and management science research. In this method, the researcher and participant engage in a conversation led by a flexible interview protocol and augmented by other questions, probes, and comments (Salmons, 2010). To collect open-ended data, investigate participant thoughts, feelings and opinions about a certain topic, and go deep into personal, sometimes sensitive matters, the method allows the researcher to collect data in a naturalistic setting where interview questions are linked to research objectives. In this study, these ideals were achieved through the use of an instrument reflected in Table 3.1 below. Each question on the instrument was linked to literature source that underpinned the secondary data in the previous chapter. The purpose of linking interview questions with current references was justified through the need for triangulating primary data with secondary data.

**Table 3.1 Research Instrument**

Objective	1. To define competency-based models	2. To examine governance of digital transformation	3. To evaluate the digital transformation skills levels of boards of directors in South Africa
Literature Review / Question	What is a competency-based model?  Q1	Is there a dx governance framework?  Q4	What is the overview of the dx skills at board level? Is this overview meeting the perspective of where you as a collective should be?  How do dx governance competencies influence CG from the BoDs performance perspective?  Q7
	(Škrinjarić, 2022;Elatia & Ipperciel, 2015)	(Pearce, 2022;Mulyana, et al., 2021;Ako-Nai & Sing, 2019)	(Pearce, 2022;Haes & Grembergen, 2016;Durão, et al., 2018;Weill, et al., 2019) (Alexander, et al., 2014)
	In your view, what meaning can you attach to current competency-based model within your board?  Q2	In terms of oversight procedures, how does your board integrate digital transformation?  Q5	How does your competency dictionary guide you regarding dx governance?  Q8
	(Boshoff, 2016)	(David & Farzan, 2021; DPE, 2021) (Pearce, 2019)	(Mohamad, et al., 2015;Bankewitz & Åberg, 2016)
	What is the impact of the current competency-based model at your board of director’s level?  Q3	What security and intelligence measures are in place to guard against potential dx risks?  Q6	How would you describe your commitment to dx governance?  Q9
	(Qahatan, et al., 2020;Wu, et al., 2015)	(Cremer, et al., 2022)	
	CAQDAS	Process	Strategy
	webQDA	Thematic Analysis	Analytic Codes

### **3.8. Data Analysis**

The data collected was interpreted using thematic analysis in this study. Although the purpose of qualitative data analysis is to draw a meaningful conclusion from a big amount of data, it is more challenging than quantitative data analysis due to a few well-established and recognised standards and guidelines. Three basic approaches have been established: data reduction through iterative coding and categorization, data display, and conclusions. Coded qualitative data is displayed in graphs, commonly used phrases, diagrams, and matrices using words, sentences, paragraphs, and themes. Qualitative data conclusions must be reliable, accurate, and credible (Sekaran & Bougie, 2016).

Using the WebQDA application, this study used thematic analysis to translate raw data (Costa, Breda, Pinho, Bakas, & Duro, 2016). WebQDA is a user-friendly cloud-based technology that enables qualitative data to be generated in a consistent and organized manner, as well as offering quick and reliable data management and analytical clarity (Machado and Vieira, 2020; Pope et al., 2020). The core of the analytic methodology entails analyzing participant experiences with data transcriptions and then coding those transcriptions to provide thick, detailed descriptions.

As a result of human interpretation of others' experiences, the researcher quickly assumes a large position as a crucial study instrument (Bahrami, Soleimani, Yaghoobzadeh & Ranjbar, 2016). As he or she works toward answering the research question and defining a specific event as a research instrument, the researcher is tasked with making subjective judgments about data collection, data processing, coding, themeing, and contextualization of data. Data analysis is, after all, the most

challenging element of qualitative research, and it is also vital for establishing that the study's objectives were attained (Nowell, Norris, White & Moules, 2017; Thorne, 2000).

### **3.9. Rigor Determination (Validity, Reliability and Trustworthiness)**

The trustworthiness of the study findings requires researchers to make sound judgments of the research methods applied in the investigation and the integrity of the conclusions (Noble & Smith, 2015; Lincoln & Guba, 1986). These scholars added that qualitative research is criticised in academia for its perceived lack of scientific rigour and for the often-poor justification of the research methods adopted, its analysis of data not being transparent and the findings being simply a collection of personal opinions of participants, which is subject to research bias. The process of demonstrating rigour when undertaking qualitative research is challenging because there appears to be no standards widely accepted by which such research is judged (Noble & Smith, 2015). Lincoln and Guba (1986) offered alternative criteria to demonstrate rigour in the qualitative research paradigm. These are:

- **Credibility** – recognises that multiple values exist; the researcher is transparent to explain possible methodological bias; clearly and accurately presents participants' perspectives without contamination to demonstrate truthfulness and believability. Credibility in qualitative research represents internal validity. In this study, this was mapped to TACU (Costa, 2020) and established the truth value through peer debriefing and triangulation. This is a fundamental concept for spreading the trustworthy philosophy. The tacit recognition that the researcher is a tool was part of the TACU inquiry methodologies (Bahrami, Barati, Ghoroghchian, Montazer-Alfaraj, Ranjbar & Ezzatabadi, 2016). During an interview, the researcher repeats

or clarifies the response in order to validate the data. This is known as peer debriefing or proof verification (Forero, Nahidi, De Costa, Mohsin, Fitzgerald, Gibson, McCarthy & Aboagye-Sarfo, 2018). The truth value established the credibility quality criteria of this study.

- **Transferability** – This criteria corresponds with the *applicability* value as part of the TACU method, which establishes the concept of inter-generalisation within the principle of transferability (Loh, 2013; Onwuegbuzie and Leech, 2010; Smith, 2018). This view is often used to obtain conclusive results and plausibility implicitly through qualitative study (Guba & Lincoln, 1985). This research will enhance the applicability benefit by explaining the participant's demographics. The researcher is aware of knowledge maturation and saturation in terms of data (Malterud, Siersma & Guassora, 2016). The value of applicability sets out the transferability principle criterion at the centre of this investigation. This could be established through audit trail and member checking as well.
- **Dependability** – these quality criteria establishes the principle of *consistency* value in TACU, which helps to obtain a participant's validation of data (member checking). The methods that have been undertaken to collect data by the researcher must demonstrate transparency. The acid test is that an independent researcher should be able to arrive at similar or comparable findings to demonstrate the reliability of the data. This stands for the quality criteria of dependability in qualitative research, which is equivalent to internal reliability in quantitative research (Sekaran & Bougie, 2016; Malterud, Siersma & Guassora, 2016). After completion of interviews, the researcher checked with the participants if they were in agreement with data they provided.

- **Confirmability/Neutrality** – these criteria establishes the principle of *unbiasness value* within the TACU framework. It is achieved when truth value, consistency, and applicability have been addressed by the researcher; the periods of engagement with participants must be acknowledged; the methods undertaken and findings are intrinsically linked to the researchers' philosophical position, experiences, and perspectives and should be differentiated from participants' accounts (Nowell, Noris, White & Moules, 2017; Saldana, 2015; Sandelowski, 2004). Neutrality refers to the quality criteria of confirmability in qualitative research that seeks to ensure that data can be auditable and reflects the true essences of participants whereby the researcher remains neutral. This stands for external reliability in quantitative research.

### **3.10. Elimination of Bias**

The researcher understood that for qualitative investigation, the researcher is the main instrument and that is likely to contribute to bias in terms of processes and conclusions. Two approaches were employed to eliminate bias by firstly engaging the supervisor in virtual data collection meetings. This helped ensure that the method of data collection was not influenced by the researcher's experience as a director of a number of boards.

Secondly, bias was eliminated through the method of analysis, which supports rigor and verification of data sets. Concepts such as researcher triangulation and responded validation also helps to eliminate bias. It is for that reason that the TACU principle of the COSTA Model was employed (Costa, 2020). Through this principle, the research was able to bracket preconceived ideas about the setting of the research and the population. In terms of researcher's positionality, biased phrases related to gender and race or ethnicity were not used as they were not part of the inquiry, except

where participants were providing their demographic details only in completion of forms.

### **3.11 Ethical Considerations**

Any study involving humans and animals requires ethical consent in the research before the launch of the research project (Tolich, 2016). In fact, the Institutional Ethical Review Committee must approve it before it begins. In order to address ethical issues in the field of social science research, it is critical that the institutions of higher education have an independent commission, which is a key player in the institution where this research is being supervised. It is the purpose of the study for meeting the requirements of the institutional ethics committee. Hammersley (2015) argued that research ethics codes need not be specific directives and prescriptions but should be ideal. Fundamental and generally accepted principles of ethics in research should guide decisions to good code of conduct for any intended research that involves human beings. The author (Hammersley, 2015) concluded in this regard that principles are useful and should be respected in ethical science.

Given the postulations made by scholars and well-known experts on ethics and moral philosophy, the researcher was aware of her ethical responsibility to be honest and respectful to anyone affected by their research or reporting on the results of their work (Knezek, Morreale, Keddis & James, 2015). Costa (2020) observes four main values, in line with the Belmont Principles on ethical conduct in research, as seen in Table 3.1 below. The compilation states the following key principles which were cautiously adhered to during this study:

- a) Autonomy and regard for human dignity
- b) Nonmaleficence,

- c) Beneficence,
- d) Justice.

The following parts of the ethics subject specifically address these key and fundamental principles.

**Table 3.2 the Belmont Principles of Ethics**

	Principle	Descriptor	Application in this study
1	Duty toward human dignity and respect	According to the Belmont Report, respect for persons is founded on two separate principles: individuals should be considered as autonomous, but those with impaired autonomy should be entitled to extra safeguards. The concept of respect for individuals is taken to indicate that researchers should get informed permission from participants wherever feasible, and the Belmont Report defines informed consent as consisting of three elements: information, comprehension, and voluntariness. That is, respect for individuals requires that participants be given with pertinent information in an understandable style and then consent to engage willingly.	This was achieved first by requesting ethical approval both from the Global Centre for Academic Research and targeted individuals, not any specific board they represented. The researcher was aware that there was ample possibility that individual participants could be members of a number of boards.  Secondly, participants were asked to consent to participation and were informed that they could terminate participation anytime without providing a reason.  Documents supporting these are attached as annexures to this report.
2	Nonmaleficence	The Nonmaleficence principle states that we have a commitment not to harm others. This principle is grounded on the maxim of <i>primim non nocere</i> , which means, 'first do not harm.' Researchers are expected not to: <ul style="list-style-type: none"> <li>• do harm anyone</li> <li>• inflict harm on others</li> <li>• make somebody unable to function</li> <li>• cause any commotion</li> </ul>	Participants were informed of the confidentiality clause and anonymity in the study.
3	Beneficence	Beneficence can be loosely defined as putting the interests of study participants first. The beneficence concept guides researchers' attempts to reduce risks to participants while maximising benefits to individuals and	Benefits were explained such that there could be improvement in how directors understand and view digital transformation in the context

		society. For instance, while evaluating a study design, the beneficence principle should prompt us to evaluate whether there is another method to get the same knowledge with less risks to participants.	of their role in governance at board level.
4	Justice	The concept of fairness is concerned with the allocation of the costs and rewards associated with research. That is, one group in society should not suffer the costs of research while another reaps the benefits. Justice concerns are particularly pronounced when it comes to participant selection.	As much as application of fairness was ensured, there was no threat of unjust behaviour or implications emanating from participant's role in this study. This was also discussed with all participants.

Source: (Morgan, 2014)

### 3.12 Conclusion

This section denotes the culmination of the research methods section. All procedures involved in the study were explicated, with rationale provided. This included justifications for the choice of the study and procedures used to determine rigor. The next chapter discusses the presentation of findings.

## CHAPTER FOUR

### 4.1 Introduction

This section introduces the chapter that unveils the findings of this research. Analytic procedures and methods of codes generation are extensively covered, including a true reflection of first cycle codes, which generated 583 codes. The treatment of codes to determine similarities and categorization is also explained. The chapter ends up with themes that are linked to study objectives, which were:

- a) To define competence-based models
- b) To examine governance of digital transformation
- c) To evaluate the digital transformation skills levels of boards of directors in South Africa
- d) To develop a competence-based model for governance of digital transformation for boards of directors

### 4.2 Profile of Study Participants

In consideration of the argument that researchers have come up with a number of different definitions of “Digital Transformation”, in collecting data, the researcher saw it necessary to bring in the impact of the nature, size and complexity of the industry and sector in which corporations operate on the awareness and understanding of the phenomenon “DT” (or Dx), which Vial (2019), having assessed different definitions, defines as “a process that aims to improve an entity by triggering significant changes in its properties through combinations of information, computing, communication, and connectivity technologies”, which includes the “broader individual, organizational, and societal contexts.” The researcher’s approach was to understand the DT ecosystem, the tools through which the entity/organisations’ properties are changed by the DT

process, in order to establish the required competencies to govern Dx from the board's point of view. Table 4.1 below presents an overview of the sectors from which participants of this study were selected.

**Table 4.1: Sector Participants Representation**

#	Principal Industry/Sector	Sector Representation	Motivation For Selection
1	Multinational Mining	2 Directors	From the ESG point of view, leveraging on technology in automating processes within the mining value chain, and enhancing safety and health of mine workers, forms part of the governance role. The researcher Doing business in the digital era entails risks ranging from cybersecurity breaches and privacy issues to business model disruptions and missed competitive opportunities. When a board lacks digital savvy, it can't get a handle on important elements of strategy and oversight and thus can't play its critical role of helping guide the company to a successful future
2	Education and training	2 Directors	The report "The Digital Transformation of Education: Connecting Schools, Empowering Learners (Broadband Commission for Sustainable Development, 2020)" highlighted that since the beginning of the twentieth century a lot of countries around the world have launched school connectivity programs, but experienced challenges, especially the issue of availability and affordability of networks and devices – there is certainly an urban-rural divide. The role of governance needed to be assessed. Are those charged with governance of Dx possessing the competencies to provide strategic direction in relation to more flexible spectrum policies and more conducive regulatory frameworks, as well as the importance of the Internet and broadband connectivity, and their connection with education and socioeconomic progress?
3	Synthetic fuels & chemicals	2 Directors	Following findings by Deloitte Touche Tohmatsu Limited's (Deloitte Global) inaugural 2016 Global Digital Chemistry Survey that more than 50 percent of chemical enterprises lack a digital strategy and transformation roadmap, the question to be answered relates to the status of Dx governance, and the related Boards' competencies.
4	Energy, Oil and Gas	2 Directors	What will take the Boards of Directors, in giving strategic direction, to consider blockchain technology as a transformative factor in this sector? Do they possess the required competencies to govern this Dx? From the paper by Mittal, Slaughter and Bansal ( 2017) on digital transformation in oil and gas, which presents Deloitte's Digital Operations Transformation (DOT) model—a framework where the digital journey is explained as going through 10 stages of evolution, with cybersecurity and digital culture at the core, use of which is to discover the prospective value for seismic exploration, development drilling, and production segments, digital transformation is mentioned as having the highest value creation potential or as most needed (Value creation and strategic direction are

			the fiduciary duties of Boards of Directors as their corporate governance responsibility, however there is no mention of governance in this regard, hence the inquiry through interviews.
5	Information Technology	3 Directors	<p>The fact that digitization leverages on information technology</p> <p>The definition by Spremic (2017, p. 215) that digital technologies are a “set of digital resources (technologies, tools, applications and algorithms) which enable efficient discovery, analysis, dissemination and usage of digital goods (e.g. mobile, social networks, cloud computing, big data, sensors and IoT, robotics, virtual and augmented reality, and all other emerging technologies)” attracted the researcher’s attention in how the governance of Dx oversees the governance of these tools as an enabler of Dx</p> <p>The researcher considered it important to follow up on the gap identified in the study by Traulsen and Tröbs (2011) on “implementing Data Governance within a Financial Institution” where they found a need to establish the location, within complex organizations, of the limitations of IT and data integration, or the posture of a successfully implemented Data Governance organization structure .</p>
6	Telecommunications	3 Directors	<p>The researcher considered collating data from the telecommunications sector in relation to the level of competencies on the governance of the change brought by digitization of communication processes, as an element of Dx. The extent of the change brought through Internet of Things applications and connectivity. The further consideration was based on the fact that there is currently an overlap of services/products provided by the Telecommunication corporations (telecoms) and the financial services sector, especially taking into account the use of smart phones to enable money transfers through the apps. On the other hand, banks get into partnerships with telecoms service providers to introduce internet solutions for their customers. What does the surfacing of Bank–telecom partnerships mean for Dx governance competencies for Boards of Directors?</p>
7	Financial Services (Banks ; insurance)	2 Directors	<p>While some research papers have used the terms data and information interchangeably, there is also emphasis on the importance of understanding the difference between them. In emphasizing this, Poor (2011) cites how these terms converge, stating that “Data quality is synonymous with information quality, since poor data quality results in inaccurate information and poor business performance” (DAMA International, 2009, p. 291). Considering that the Financial Services Sector has in its custody different forms of data and information about its clients, stakeholders, and shareholders, making use of a variety of communication technologies, combinations of devices, which adhere to different communication standards, there is a high risk of security and integrity of the systems they use to store, process, maintain, and transmit data. The data and information are exposed to cyber vulnerabilities. A study</p>

			that was conducted in relation to the resilience of Firms in the Financial Markets in Australia, through a survey of financial institutions (ASIC 2019), investigating the boards of the companies in that sector on the extent to which they were confident that their companies were properly secured against cyber-attacks. It was found that only 50% of boards expressed that they were somewhat confident (Girn 2022). The researcher considered that the financial institutions' governance demands are quite diverse as they also deal with massive live data, over and above the reliance they place on networks through which the data are transferred to the Internet cloud platforms. This demands governance of information, in line with the provisions of the data protection laws, to ensure privacy and security of information, and also governance of the technology, recently digital technologies, which form the platform on which Internet of Things (IoT) applications rely for communicating and processing the data. Through data collection the researcher sought to establish the integration of risks associated with data governance into Dx governance competencies. An IT in government editor at ITWeb, Simnikiwe Mzekandaba, quotes Mark Walker, associate VP for Sub-Saharan Africa at IDC MEA, as saying that "it makes "perfect sense" that banks are offering more non-bank services...Banks recognise that many financial transactions are not only between the customer and the bank, but increasingly include external entities such as retailers, suppliers, municipalities and other entities, and these are digital in nature."
8	Consumer Goods	2 Directors	The researcher has to establish how the Boards' lack or possession of Dx governance competences impacts decision-making on important elements of strategy and oversight and thus how to play its critical role of helping guide the company to a successful future. The transformation of certain business models, like Amazon, Walmart, and leveraging on technology of the UPS in responding to customer needs and enhanced access to information by clients.
9	Food and Beverages	1 Director	From the perspective of Dx technological enablers, the researcher looked at establishing governance relative to tools like robotics.

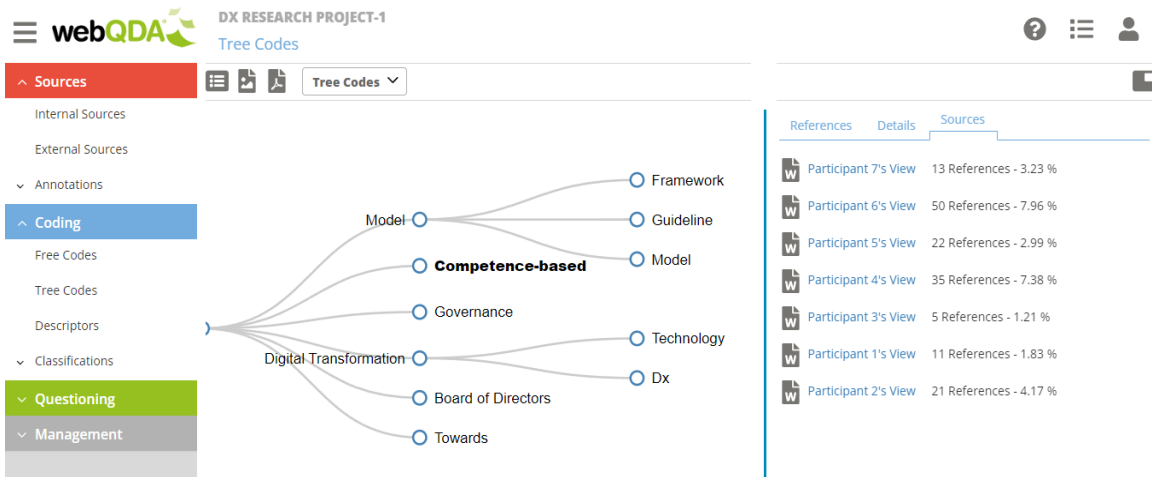
### 4.3 Analytic Procedures

Data findings were processed with webQDA software (Machado & Vieira, 2020) and application of the COSTA Technique (Costa, 2020) of thematic analysis. Interview recordings were transcribed and then transformed into codes. According to Sekaran and Bougie (2016), coding is an empirical method in which data is reduced, rearranged,

and assembled to shape theory. Saldana (2009) suggested a systematic and comprehensive reducing method using different coding techniques. In providing an overview of the data obtained, the author selected certain methods that were appropriate and important from the various methods mentioned. Costa (2018) suggested that the coding process should be based on the ontological role of the research inquiry as a function of the study's title's essence.

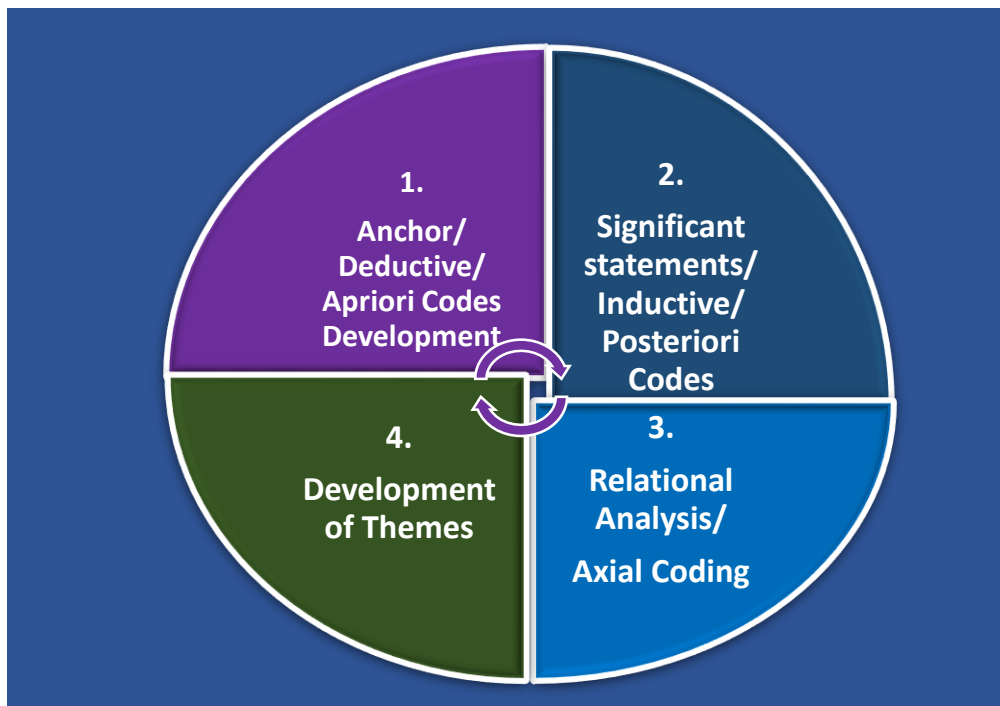
The ontological essence of the study explored the participants' perceptions and meanings regarding a competency model towards governance of digital transformation at board level. The researcher chose a descriptive coding strategy from Saldana's (2009) list of 32 coding methods, which were expanded upon by Onwuegbuzie (2016). In a four-stage sequential process (see Figure 4.2), the descriptive coding process is related to the anchor coding (deductive or a-priori) approach. Anchor codes for this study were made up of key constructs from the topic as follows:

- Model
- Digital Transformation
- Competence-based models
- Board of Directors
- Towards



**Figure 4.1: Coding structure**

These anchor/apriori codes were then linked to posteriori/inductive codes as advocated by (Costa, 2020), and further demonstrated in Figure 4.2 below.

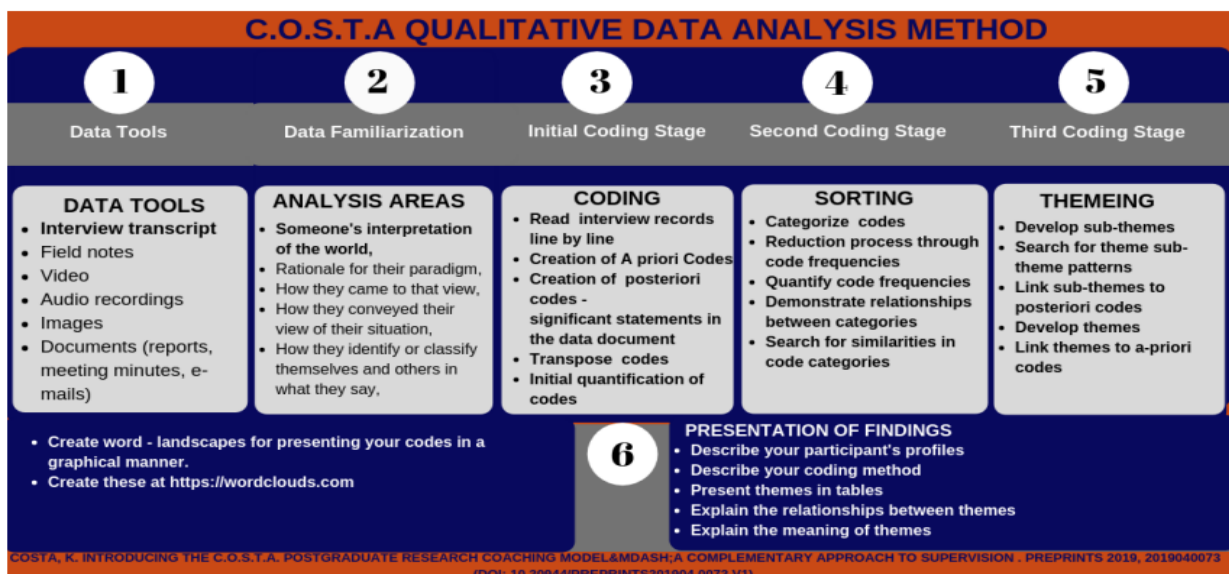


**Figure 4.2 Analytic Process**

The data analysis cycle of this study followed six stages as postulated by Costa (2020). These steps involved creation of both deductive and inductive codes. Secondly, the

coding focussed on comparing the codes through a process of constant comparative analysis, analysing the relationships between codes. This culminated in development of themes, which were used as final outcomes of the analytic process. To do this, a step by step thematic analysis approach as followed, as depicted in Figure 4.3 below. These steps involved:

- Transcribing recorded data and transforming it into data documents
- Iterative reading of data documents, over and over again for enhanced comprehension of participant’s expressions
- Initial coding stage, which is reflected in Figure 4.2 above as a second stage of the process. In this stage, the research looked for significant statements in the records being analysed and assigned labels to create codes.
- This stage, often referred to as axial coding stage, involved sorting codes emanating from the initial coding stage. The codes were sorted in terms of their relationships and patterns, creating homogenous categories.
- This stage involved close examination of categories for creation of themes.



**Figure 4.3: Steps in Thematic Analysis**

## **4.4 Presentation of Results**

### ***First Cycle Coding Stage***

The First Cycle approaches are grouped into subcategories: Grammatical, Elemental, Affective, Literary and Language, Exploratory, Procedural, and a final profile named Themeing the Data. The majority of First Cycle techniques are quite straightforward and uncomplicated (Carmichael & Cunningham, 2017). In this study, both procedures and themes were used from the first stage of identifying significant statements that were transformed into codes (Costa, 2020) and linked to anchor or apriori codes that have already been introduced above.

A total of 583 codes were generated from analysis of interview document scripts. These posteriori codes were development in terms of the analytic explanation provided above. These codes were generated using webQDA (Costa, Breda, Pinho, Bakas & Durão, 2015) and processed for visualisations through the wordclouds software (Wordclouds, 2021). Figure 4.3 presents a graphical view of the code frequencies as captured through the wordclouds software.



Dennis (2014) has expressed the importance of appropriate coverage of participants feedback and their role in maintaining study legitimacy. Korth (2002) had previously echoed this opinion on the postulation of lack of research on the relevance of participants/researcher interactions, co-creators of qualitative research findings. Furthermore, Dennis (2014) made significant claims that researchers sometimes take for granted the position of participant comments.

Whereas the author safeguarded the participants' anonymity, the following statements align with the research objectives (Dennis, 2014) to illustrate participants' experiences and views regarding the competence model for governance of digital transformation. Table 4.2 below is a reflection of in vivo statements made by participants during data collection interview sessions.

**Table 4.2: First cycle codes and participant's statements**

#	Code	In vivo Statement
1	Digital transformation	And in certain areas, we are ahead of the game
2	Digital transformation	I think generally, these sort of engagements, do help one to also grow and appreciate the responsibility that one also carries.
3	Digital transformation	But this digital transformation strategy needs to be implemented by way of this particular project.
4	Technology	What would be the constraint you may ask? You will recall that generally the IT budget would constitute part of the administration budget of the SETA.
5	Digital transformation	But bottom line is we have accepted that this is the chance. So, from a commitment point of view, this is the reality of the journey we have to take. So, there is commitment from that standpoint.
6	Digital transformation	And then because of change coming from our sector, we also have to be the example to that change. We have not necessarily led the process all the way. For example, on e-learning, we are relatively behind the curve.
7	Digital transformation	Changes had become part of our necessary journey, more so because this change comes from our sector, we need to be receptive to change.
8	Digital transformation	Commitment, no doubt, we are committed to this transformation, I think we have come to a realization that it is necessary, it is an imperative.
9	Digital transformation	Many of our meetings are hybrid instruction, in that, should the member not be in a position to attend the meeting, the member can log in and still interface and interact with a meeting. Just like the way the meeting, so in real time as well
10	Governance	There was a policy that's currently being put together by HR to allow for, for remote working. And this applies to both the board itself as well as members of the accounting authority that I would say more of a guideline than a dictionary.

11	Technology	And in essence, yes, I would say broadly speaking, there has been a pickup in the adoption of technology engagement.
12	Governance	And then also the maturity level still varies by the key. I would suppose during COVID, that's where we started seeing that.
13	Technology	So, from a board level point of view, I would say we have made some good progress, good strides in the right direction insofar as utilization of technology to enhance the performance.
14	Governance	At board level, I think we've made inroads since the board started two years ago, in a sense that before, when information was shared with board members, the responses tended to be slack and slow.
15	Governance - Data security	I am aware of various instances where the parties have been in a contradictory position as to the ownership of data.
16	Governance	So as an individual, there is a higher bar that organizations need to live up to, to treat information that I made to them as my own personal information
17	Governance	So, in other words, that means the organization has to be more accountable on how Personal Information is treated.
18	Governance	The issue of POPIA, my understanding is that POPIA elevates external information to a higher level
19	Digital transformation	Secondly, it could be purely because the base station that the person is connected to or the fiber network that the person is connected to have some component that have lost power, and therefore communication also goes down.
20	Digital transformation	Likewise, during board meetings, you may have a member that could not make it physically to the meeting and the member is connected online. When there is power disruption, usually the person may be cut off because of power.
21	Governance	Critical systems would be servers, tools of trade like laptops, as well as telephone systems.
22	Governance	many of the critical systems have been implemented with battery support, so that when there is a power cut, the batteries would still proceed to carry critical systems
23	Governance	And by critical systems, we're talking about communication systems, devices, like laptops as that you need energy backup by it could be by way of supplementary power like diesel generators would be typical examples of when there is a disruption, you switch on to supplementary power such as the diesel generator
24	Governance	It is an accepted norm in South Africa that energy disruption is here to stay with us.
25	Competence	At the same time, on the organization side, the Board Secretariat is responsible to exercise user oversight over the tool
26	Governance	At the same time, on the organization side, the Board Secretariat is responsible to exercise user oversight over the tool.
27	Governance	the entire ecosystem have a fiduciary responsibility to ensure that the system is secure.
28	Governance - Data security	But having said that, it's just a fact of life that you have to be guarded at all times, you have to make sure and by the way, when we procured the tools, one of the key requirements was that of security information security.
29	Governance - Cyber security	I suppose everything that has been created by human being is also susceptible to hacking and cracking by another human being
30	Governance	But the information gets circulated, regardless, plus we utilize email. So, in the case of round robin, it gets loaded on convene.
31	Governance	Like an example of this would be in a case where we had to do a round robin voting. Now the round robin voting will be loaded onto convene

32	Governance	In our case, the board collaboration platform that we use to be utilizing is convene, say we are convening a meeting. Now convene is a collaboration tool that the Board Secretariat manages within our environment.
33	Governance	In our case, the board collaboration platform that we use to be utilizing is convene, say we are convening a meeting. Now convene is a collaboration tool that the Board Secretariat manages within our environment.
34	Governance	The aspects that deal with communicating, sharing information, and then even voting on, say resolutions, that is housed within our board collaboration platform.
35	Governance	in essence, that's how from a governance point of view, issues pertaining to digital transformation are tracked and managed and processed between management and the board.
36	Governance	And then ICT commission committee would report to the exco.
37	Governance	So, you have this committee that's a little bit sitting between the operational structure and management and the authority on top to ensure that there is better focus on the digital sphere of the business
38	Governance	ICT committee will be the one that brings the issues for ratification at board
39	Technology	Now the ICT committee interfaces with CIO and management and CEO on matters pertaining to implementation of ICT related matters.
40	Governance	the way that would include 4IR, that is housed effectively under the ICT committee
41	Digital transformation	the board as the main structure, and then within the board the Competence dealing with digital transformation
42	Governance framework	And an as a start that I think will start at the higher level view, where we're saying: What is it? What are the aspects of a shared ICT model that we want to have as SETAs. And then once that has been established, and then a strategy around that has been properly developed, you will go into the governance framework
43	Governance	ICT committee
44	Technology	We appointed the CIO and appointed various operational functionaries. So that was the beginning of taking over the ICT space
45	Governance	We had subsequently put the IT environment in-house. We appointed the CIO and appointed various operational functionaries. So that was the beginning of taking over the ICT space,
46	IT	We had subsequently put the IT environment in-house. We appointed the CIO and appointed various operational functionaries. So that was the beginning of taking over the ICT space
47	Digital transformation	From an inward-looking point of view, we had in the past because we had an outsourced IT function
48	Governance	management and the governance processes and steps
49	Digital transformation	In other words, if you want confirmation of your certificate, you don't have to go to each and every SETA, and using Blockchain as an example, you will be in future in a position where you can pull all your entire records together in one place.
50	Digital transformation	And then in the ICT space,
51	Digital transformation	So, there is good reference point production of our internal in-house not yet, but there is a process in place between the various SETAs to find a shared services model focusing on digital transformation
52	Framework	from a standardization point of view, we are looking at the international standards like the result of ISO international standards organization
53	Framework	But from a framework point of view, we do lightly try to align ourselves with government protocols like those of DPS

54	Governance	We have not yet hammered them through a proper governance framework.
55	Technology	And these days, because it's still an evolving environment and evolving technologies, we do have some guidelines that we're working on
56	Digital transformation	The other part that we have not as yet succeeded in was introducing an E-learning system.
57	Digital transformation	the platform, an electronic platform that captures the information, like records from companies that submitted documentation
58	Digital transformation	Example of those would be learner management systems
59	Digital transformation	The other transformation areas that we have embarked on was on digitizing some of our communication platforms, particularly those for the records creation, record sharing and record dissemination.
60	Digital transformation	ICT sector to assist in the digital transformation of the city escapes that path, we're still in early stages of conceptualizing that.
61	Digital transformation	So, a combination of virtual as well as digital platforms is being utilized
62	Digital transformation	But those that are not able to attend the meetings, we do connect with them over virtual platforms
63	Digital transformation	We still utilize teams for video-conferencing like we're having right now
64	Digital transformation	digital pack from a company called convene
65	Digital transformation	And then initially, we started digitizing them using teams, which was not exactly quite the perfect solution
66	Competence	One area where that we have implemented well was to have the meetings digitized
67	Digital transformation	In other words, there is more appreciation of the need to transform and to include digitalization as part of Competence planning going forward
68	Digital transformation	At this stage and fortunately, in our sector, given the fact that we are more than ICT in a digital sector, the impact of digital transformation is a little bit more rarefied
69	Competence	So those tracks do assist in enhancing skills level where there were limitation
70	Competence	to have an appreciable level of Competence insofar as operating at board level
71	Competence	The objective there, was to complement and enhance the understanding of operating at board level and so that it sensitizes the board members to understand their fiduciary duties
72	Competence	The other aspect, in our case, we see that we did have a training that was organized with IoDSA
73	Competence	Now usually what happens at the beginning of the terms of boards, the SETA would conduct an induction, which basically enhances the skills of the leaders that are appointed so that they do have an appreciation and understanding and a good level of Competence in operating at board level
74	Governance	I'm sure and you'd understand that the model for constitution of accounting authorities in the SETA space is made up of half business and half labor.
75	Competence	The competence insofar as board governance is something that we also enhance in the SETAs, and the second part comes from the business environment.
76	Framework	The board members in our instance, derived from positions of leadership. In other words, and those leadership comes in from two sectors or two groups of sectors. One was the labor movement from the union side. We do have members that have been appointed from their specific unions, so they have been in leadership positions.
77	Competence	One would basically take a view that you are taking a position of saying you want the members to basically apply merit to their functions. In other

		words, there needs to be a clear and understandable Competence to perform at the board level.
78	Board of directors	It's just the question of boards do not have an ambit of influence wider than, you know, their company, their company has lots of influence and touch points.
79	Competence	But to have boards tried and do boards have their eye on you know the skills being new skills being a green shoots of digital talent
80	Competence	I've seen so now you know, we're talking about the great, the great resignations, because our skills are just pulled to all parts of the world.
81	Digital transformation	And the only country on this whole continent that I have seen address it is Rwanda.
82	Competence	So, I think executives going to boards in industries that are non TMT, they will have a tough time.
83	Technology	it's needing some implementation at a technology level
84	Governance	It's a mixed bag, because there you're sitting with board members who, you know, may be wanting to rush a product to market, who may be focusing too much on sales, who may be focusing on brand, who may be focusing on putting the money elsewhere.
85	Governance	And from a board level, you use the word oversight, I think the oversight function gives you sufficient leverage
86	Competence	your own preparation to sit on the board, again, recognition that I need a better enhancement of my knowledge in these areas
87	Competence	And then as a board member, you need to do all the right things
88	Competence	And so, I do preface it with saying, I have been lucky to be sitting on boards, even up until now, with the induction processes were very good
89	Framework	Then I think that is good enough as a framework is a guidance to the board.
90	Competence	But the recognition that you have tried, so you've put people through courses, you've developed courses, you've sensitized them to areas that are bringing a quantum of change, and that they are not expected to know everything, so there may not be a uniform understanding.
91	Competence	But in terms of maturity of where the boards need to go, or say, if we come to the financial services sector that enhancing digital solutions, where their boards need to go, I think definitely there is a need for maybe you would never achieve a uniform understanding
92	Competence	I think they're typically you're going to be sitting with lots of strong techie type people, because of the history of the formation of these companies.
93	Framework	So, the formality of the guidelines, I think, again, when it comes back to the domain of practice, there's the ITIL standards, the Cobit, there's so many standards within the industry, they themselves bring their own standards, lexicons and specifications.
94	Competence	It's tacit knowledge, it's functional knowledge, it's, you know, that you just typically tend to be appraised, always a few waves ahead of where you are practicing, and which is why, you know, digital technologies are typically then advanced and adopted by TMT companies.
95	Competence	In my own recent practice as a board member within the TMT industry, there's a lot of tacit knowledge
96	Competence - Competence dictionary	there is no dictionary
97	Competence	I found that board members and I've seen this, particularly from the 2000s onwards, we've seen board members trying to, you know, study what people have studied to practice functionally in their careers
98	Competence	We, as the board, need to bring in these people who know this, and to take these decisions, I think is a very important recognition, because you're going to need to make some tradeoffs, and you cannot be everything to everybody.

99	Competence	the maturity of the board members recognizing that they don't know what they don't know, and then taking the right decisions to surround themselves without anything in the form of immaturity in their own practice
100	Competence	And then how do we form you know, the right representation on to the subcommittees that deal with those three things that matter
101	Digital transformation	I don't see us necessarily giving digitization a new subcommittee, because that in itself, you know, may or may lead to ineffectiveness
102	Digital transformation	But in this area of governance of digitization at board level, I think the starting point is, are we sufficiently represented
103	Competence	And I feel at a skills level
104	Competence	So that that those people then are applying those requisite skills
105	Competence	I stick to what I'm good at, I recognize that I don't how do I bring in the requisite skills
106	Competence	I know enough to know that I don't know.
107	Competence	And they uncomfortable and they worry very much about, well, you know, is taking the wrong decision going to be pinned on them. Now delaying and the risk of delaying the decision impacts on the budget, impacts on the operations.
108	Competence	So, the skill set is a very much, you know, under focus here. Because if I don't know what I don't know, that's actually a beautiful point of realization
109	Competence	Amongst those who are relatively new in the practice of being at a high level of decision making, their immediate reaction is typically to say, you know, we don't know, we don't feel comfortable to take a decision
110	Competence	amongst the more emotionally mature members of the board, they then say, well, we need to complement those skills.
111	Model	o, the good thing is that they do recognize this is something they don't know
112	Competence	either when I was an executive, or I myself sat on boards, is that board members that come from other disciplines tend to become very fixated and preoccupied on what they don't know
113	Model	I would come back to this model of the value chain of the business because what I have seen at a board level
114	Governance	That's a vulnerability, enforceability in South Africa
115	Governance - POPI Act	And I think that needs to be questioned versus, you know, has the Act in its entirety, catered for what it needs to protect
116	Governance	Because if something happens in real time, and then is that when, say a cyber attacker
117	Governance	But again, I think where the thinking has been tested recently, in terms of manmade or in terms of COVID, is saying, for example, if your energy systems are disrupted, then of course, you know, you go with your generators, you go over to battery backup, and then these have been really stress-tested.
118	Frameworks	frameworks have always been very comprehensive
119	Governance	vulnerability of attack
120	Governance	resilience, it's a word that was introduced into our vocabulary, you know, in the last couple of months and, and such, you know, a highly relevant word. How much can the business be resilience-proof these days against natural disasters?
121	Technology	And this was before I think King 3 and King 2 also then encouraged technology representation at board levels, that they were fairly intact, and then they continue to receive attention in those areas and the enterprise risk, but under operational risk receiving a very strong focus.
122	Framework	hacks into government systems are equally subject to vulnerability
123	Model	It's within the enterprise risk framework

124	Digital transformation - digitization	And so, then they choose to apply digitization, on board participation, board decision making, records, electronic signatures.
125	Digital transformation	And from a digitization point of view, let us apply a solution that tracks our record of decision making on the quality of that spend.
126	Governance	that framework must then, you know, go and get all of those things triggered, or a board member might say, you know what, we are actually not concerned about all of that, because we have the most mature IT organization
127	Governance	from a governance point of view, what would that mean? It means that anything that a board member then says is deemed material
128	Framework	from a governance point of view, what would that mean? It means that anything that a board member then says is deemed material
129	Framework	So, it could be, if we come to the TransUnion example, anything that compromises, you know, A, B, and C, and it needs to hit the radar immediately and it needs to trigger this action.
130	Governance	So, when it comes to a framework of governance for digitization, what are the three things that matter to us
131	Framework	So, when it comes to a framework of governance for digitization, what are the three things that matter to us
132	Digital transformation	Now, when it comes to digitization? I really feel that in order to give them a very directional purpose, one of the things that they should do is say, well, what are the three things that matter because we are doing all of these things?
133	Governance	then we go into the deep dives into delegation of authority, decision making, technology, etc, etc.
134	Framework	an enterprise risk and framework and see whether it's got a comprehensive blanket across the organization
135	Competence	board would need to be very selective in choosing
136	Competence	It's always functional competence, that, you know, do you have the nose for this job
137	Framework	I think a framework of governance, yes, it is necessary,
138	Governance	maybe you will push the audit committee to go and look in some area, maybe you will, you know, all that you do is you typically then invoke lots of second opinions and third opinions. And I have seen this at a practical level.
139	Board of directors	framework, you can ask all of the right questions against that framework, but and you can satisfy yourself, and you can say that I have executed my duties as a board member.
140	Competence	I do believe, and because I've been in the TMT space, you know, for such a long time, I do believe that there is a degree of functional competence that is required
141	Governance	I'm not the engineer going and doing the replacement of the plant equipment. But I've asked all of the right questions.
142	Competence	I'm not the engineer going and doing the replacement of the plant equipment. But I've asked all of the right questions.
143	Governance	But if you have board members, and this applies to Eskom as well, that do not have some level of depth of understanding that, you know, by asking all of the generic questions, yes, it can be a tick box exercise, and board members can say, but I've asked all those questions.
144	Competence	board member should not have functional competence, because that is the job of the executive
145	Competence	Now, that the board is faced with this reality
146	Competence	Is it the software engineer who in the first place was not trained to be competent to the level he should have
147	Competence	Software engineer on the ground says but you know what, we have an exposure.

148	Competence	
149	Governance	Would it have been at the board level where somebody puts pressure, listen, our sales targets aren't where they needed to be, we need to get the product out faster.
150	Governance	So now we come to, so, who should have had oversight on this.
151	Framework	Now, if TransUnion had done its job of selling a product that is very robust and ensure that everybody who uses it is also going to be needing to comply, then it doesn't even fall within the realm of board and then requiring a framework of governance because the practitioner would it have then done the necessary
152	Governance - Cyber security	And that's a moving target because that domain of activity, making the application or the system vulnerable is always a moving target.
153	Framework	whatever they program would have obtained, taking into account cyber security, etc, would have developed a fairly robust solution that wouldn't even require anything above that, to have come in at an intervention level, to ensure that the product was stable, the product was robust, the product was basically, you know, attack proof
154	Competence	whatever they program would have obtained, taking into account cyber security, etc, would have developed a fairly robust solution that wouldn't even require anything above that, to have come in at an intervention level, to ensure that the product was stable, the product was robust, the product was basically, you know, attack proof
155	Competence	And unfortunately, not all software engineers operate are competent in that standard
156	Model	proper software engineer that is schooled in the right way, and there is the software engineering standard, ACM, level five or seven, it could be at now, which is a capability maturity model
157	Framework	those that are developing the application, at a functional level, there is sufficient standards in place for them to have addressed this problem,
158	Competence	those that are developing the application, at a functional level, there is sufficient standards in place for them to have addressed this problem
159	Governance	Now, there's the side that touches at a board level, you know, all those parties that are involved in the overall leadership
160	Digital transformation	And then who needs to be aware of the impact of digitization on that sphere of the industry
161	Competence	those that are tasked with giving the company steer at a board level, at Exco level, I think very much so because we going to need to revisit some fundamentals, who is functionally competent, let's just say it was in mining or in electronic manufacturing
162	Digital transformation	I think it would be very useful to guide people at all levels
163	Digital transformation	digitalization or digitization
164	Technology	But the capabilities were very much in place for well over a decade, not adopted
165	Competence	But the capabilities were very much in place for well over a decade, not adopted
166	Competence	And I can tell you very confidently that insofar as the capabilities of technology is concerned, some things have shifted, but the fundamentals in terms of capability of digital technology
167	Technology	And I can tell you very confidently that insofar as the capabilities of technology is concerned, some things have shifted, but the fundamentals in terms of capability of digital technology
168	Model	What does transformation mean? I mean, in my industry alone, I have observed people grapple with this for over two decades.
169	Model	I think would be a good to have

170	Model	I think, some kind of guidance and steer on how board members need to be, one, consciously aware, and two, looking to, in a uniform way look to some model would become
171	Model	I don't know whether it would be something that would be so generic that, you know, it can be a one size fits all
172	Model	there is no defined model
173	Competence	it somewhat puts a question mark over competence required, what makes a person eligible to become a board member these days
174	Governance	So, in that sense, the requirements of diversity, the requirements of subject matter and functional competence are almost not what it used to be back in the day.
175	Competence	guided by the King requirements and other requirements of listed companies, the competences of the board members do not necessarily need to mirror those of the functional executive directors
176	Competence	but having the necessary body of knowledge and skills in order to do that, perform that output
177	Competence	The ability to have a sufficient body of knowledge to perform a task efficiently, effectively, with compliance
178	Technology	they come into this digital space, both with technological expertise and governance
179	Competence	IT governance
180	Competence	And it means as we appoint boards, we need to ensure that we have an array of skills available
181	Competence	And that's why you need people with deep domain knowledge to be part of those boards.
182	Governance	They don't tell the board the full truth
183	Governance	sometimes management lies to boards
184	Competence	you can train all boards around awareness and the seriousness of IT governance
185	Competence	the very least to have the type people that have a commercial understanding, plus also a domain knowledge as it relates to, to IT, to be able to ask the relevant questions
186	Competence	I do think that boards do need people with deep domain knowledge
187	Competence	There's one thing you can't teach people at a particular stage, unless maybe they are keen to invest time to do it, is to teach them domain knowledge
188	Technology	They do realize the need and the importance of having governance around IT being regularized and becoming part and parcel of the quarterly if not monthly conversations within companies.
189	Governance	They do realize the need and the importance of having governance around IT being regularized and becoming part and parcel of the quarterly if not monthly conversations within companies.
190	Governance	I remember coming across this, this whole thing of IT committees, etc, and IT risk it was in 2007
191	Governance	its impact on boards is something that's topical and relevant
192	Board of directors	its impact on boards is something that's topical and relevant
193	Digital transformation	So, the evidence is there now. And I think the evidence is there for everybody to see. And for everybody to accept that this particular topic is very real. The very fact that you are writing, you're doing research on it
194	Technology	And digital transformation around things like banking and other services, has given us a very clear and sobering message that digital governance or IT governance is something that needs to be taken with, with a great deal of seriousness.
195	Governance	And digital transformation around things like banking and other services, has given us a very clear and sobering message that digital governance or

		IT governance is something that needs to be taken with, with a great deal of seriousness
196	Digital Transformation	digital transformation around things like banking and other services, has given us a very clear and sobering message that digital governance or IT governance is something that needs to be taken with, with a great deal of seriousness
197	Governance - Cyber security	data security and other things, where institutions have been breached, and held to ransom has brought home the reality that this thing is real
198	Governance - Cyber risk	We know, we knew obviously, there was always cyber risk.
199	Competence	But it becomes difficult also, when also the, you know, the digital developments are so fast
200	Competence	because of the scarcity of skills, and the scarcity of a template that was, you know, like, an acceptable standard template that can give that guidance
201	Framework	Unlike when you look at audit committees, pretty standard, there is a template for it
202	Framework	I don't think there's, if you were to look at the terms of reference, that govern some of the digital transformation, or IT
203	Framework	each board kind of will set standard parameters around governance
204	Framework	So I don't think there is a particular instrument or framework that is available that is being applied uniformly across all boards
205	Framework	I don't necessarily believe that there is a uniform technology, sorry terminology or parlance from a governance perspective
206	Governance	governance framework has been driven by the King work, you know, from King 1 to King 4
207	Competence	I think a lot of skill sets reside on the commercial side, on the people that are developing, you know, they're still young, they're still active, ambitious, want to be billionaires.
208	Competence	in South Africa, shortage of the skills and I'd say even globally, there is a shortage of skills. at board level
209	Competence	I don't think enough boards have enough, you know, directors, with the right understanding of digital developments on their boards
210	Governance - POPI Act	But it's data, you have data, you have insights into how people move, whether the privacy of people is, is something that can be claimed to be of commercial value, you know, it becomes a moral issue more than anything else
211	Digital transformation	I mean, in China, they monitor you through this, they monitor the monitor, COVID, through wherever you are, whether you're flying, as long as your battery is not off, your mobile phone is not off completely, they know exactly where you are, and they can monetize.
212	Governance	And at any point in time, they are able to pick it up very quickly that information has been moved across, how did that move across, etc, and is able to provide protection to institutions
213	Governance	Being able to do audit trails of how information move from one institution to the other, in itself, is, is an opportunity
214	Digital transformation - POPI Act	But I think from a digital transformation perspective, I think it's an opportunity
215	Governance - POPI Act	One division inside Absa, you know, has to go through certain processes to be able to access information on the same customer
216	Governance - POPI Act	It's an impediment because of inability of various units within the same institution to be able to leverage on the same information if you think about it
217	Governance	sustainable power supply
218	Governance	However, the issues of power disruptions are a risk in the sense that they may well play into the hands of those that seek to disrupt
219	Technology	t's usable even into the mobile technology

220	Technology	So, the combination of all these things of ensuring that the battery is solid enough can last, can drive the car from here to Cape Town on the same battery before you charge suggest that that technology of batteries is usable beyond cars.
221	Technology	Elon Musk is talking about also investing in battery technology
222	Technology	The development of batteries of battery capacity to be able to store more power is also a benefit that the world is beginning to see as we move towards clean energy
223	Governance	the world is continuing to invest in new technology around generation
224	Governance	the issue of power interruption is unique to South Africa
225	Digital transformation	And I think the experience from COVID-19 is likely to accelerate digital transformation.
226	Digital transformation	And without being there, they were able to schedule maintenance and services from a remote site
227	Digital transformation	They were able to invest and expand the infrastructure to enable the use of a bigger bandwidth that was necessary because now they started using videos, etc
228	Digital transformation	Telkom without anybody being there in Centurion, but big, big things in Centurion is, there was no soul in that building for at least three months, yet, your infrastructure, telecommunications infrastructure continued to work.
229	Digital transformation	this platform has been around for ages, Microsoft Teams has been around for a few years and suddenly, yeah, business again, when you know, you've got to give five claps to the humans, because they will always, for some reason have technology that was considered not to be that useful, and suddenly becomes useful under particular circumstances
230	Digital transformation	some people argue that COVID-19 accelerated digital transformation
231	Governance	And so we've got to make sure that we have a very firm grasp in understanding some of the security measures that are being taken by our outsourcing parties.
232	Governance - hacked through third parties	sometimes we get hacked
233	Competence	And that our people are ahead of the curve in terms of understanding all those risks, that there's continuous training and development around just making sure that we are on top of those risks
234	Governance - Cyber security	And that's all kinds of lines of defense there before the hackers can get into that system
235	Governance - cyber security	And so, from that standpoint, we've got to make sure that our systems are fit for purpose, that they are impenetrable
236	Governance	data risk
237	Governance	risk committees kind of come in and, and give detailed reports around this particular issue of digital transformation, and it's related risks, particularly cyber, cyber risk
238	Governance - Cyber security	security aspects for the business are protected
239	Digital transformation	risk committees tend to focus quite a lot on the risk that comes with digital transformation,
240	Governance	risk committees tend to focus quite a lot on the risk that comes with digital transformation
241	Competence	But even within that risk committee, you do need these experts.
242	Governance	So, you want experts that will guide the business towards that. So, and obviously, once the committee is happy with a strategy of how that's going to be implemented, it's got to also go to the risk committee because the risk committee has got to be comfortable
243	Digital transformation	Whereas at Absa, it has probably a slightly different approach that says, we do need to embrace digital technology because we're not naturally a place where digital technology resides

244	Governance - Risk committee	engaging and dealing with the issues that would impact, will be impacted by this drive towards transformation, transforming digital
245	Governance - Aspect 2	And secondly, that they don't introduce an aspect of risk into the process.
246	Governance - Aspect 1	two aspects to the governance is that they enable the business to perform.
247	Governance	They are part of ensuring that the systems and procedures that are being followed by an organization are robust, and can whilst they enable the business to perform
248	Governance	And obviously, the governance thereof, you know, becomes a function of ensuring that
249	Digital transformation	some of the strategic steps that an organization is going to follow to be able to ensure that digital transformation does happen
250	Digital transformation	the whole notion of digital transformation links back to strategy
251	Governance	here's the integration of governance
252	Digital transformation	there's the integration of digital transformation
253	Model	models do exist
254	Framework	Whether there is a model that guides that, or if you know, a particular formal framework that guides that I don't, I don't, I cannot say for sure.
255	Technology	the world is moving on and technology is taking over
256	Framework	they would be having some kind of a framework as a bank around digital transformation
257	Governance	But I imagine that given that their role is both governance and strategic
258	Governance	IT governance
259	Digital transformation	IT committee
260	Governance	IT committee
261	digital transformation	I think we always talk about digital transformation
262	Competence-based model	The model has got to address the environment, as opposed to the environment addressing the model. And the environment never addresses the model. It's always the other way around.
263	Model	The model has got to address the environment, as opposed to the environment addressing the model. And the environment never addresses the model. It's always the other way around.
264	Competence-based models	And it's got to be circumstances at that point in time that drive a competence model than the other way around
265	Competence-based models	But so, my view is that competence models have to be driven by circumstances. They have to be futuristic in the way they do things.
266	Models	They have to be futuristic in the way they do things
267	Competence-based models	But so, my view is that competence models have to be driven by circumstances.
268	Digital transformation - regulator red-tapes	Because your typical mind in South Africa today is that M-PESA won't come because the regulator is going to protect them.
269	Digital transformation - innovation	when M-PESA was, you know, arrived at by Safaricom, they were addressing a particular failure in the market, which is the failure of access to financial services
270	Models	I think, you know, it's often a competence-based model can ordinarily address issues at a point in time
271	Models	those assumptions change fundamentally within a short timeframe.
272	Models	So, you can, you know, develop your models based on a particular set of assumptions
273	Models	As you develop these concepts, as we develop these models, and they've got to have an element of flexibility about them because the world changes so fast.
274	Model	they've got to be driven from a point of view of expertise of deep domain knowledge

275	Competence-based model	But I think, you know, these competence-based models, are there to drive particular outcomes
276	Model	But I think, you know, these competence-based models, are there to drive particular outcomes
277	Model	driven primarily by specific skills, specific knowledge
278	Competence-based model	guideline that is developed by a department that seeks to address a particular problem
279	Competence	there are many programs that are driven by companies like Accenture, no, sorry, like PWC, like, McKinsey. These are programs that are helping, they're helping build, again, the directors of the non0executive directors, helping them to prepare them for their responsibilities as non-executive directors
280	Technology	I accept the only time but as the being invited as a non-executive director is when I also have a responsibility to either go and chair, or be part of an ICT committee of that particular board
281	Digital transformation	this is something that needs to be a top agenda of our board
282	Digital transformation	this is something that is so important, so important in many, many ways
283	Governance - cyber security	So, so that, for all of these aspects, the security of the business depends on this, if you're not secure, and I'm talking now, in terms of cyber security, you may not have a business tomorrow.
284	Digital transformation	the growth and the continued existence of that enterprise is linked to how well do you execute on your digital transformation strategy
285	Digital transformation - enhances customer experience	And that whole thing that that thing that they are offering, for many people, it's the thing that keeps them with, with the bank that they are there with
286	Digital transformation	Many of us, when was the last time we visited our branch, you know, our branch I'm talking now about bank, it's been a long time. We engage by the app, that app the convenience that it is bringing, how the savings in terms of money that you're saving because you're not traveling, you know, but it's just that experience.
287	Technology	customer experience is directly linked to how you're using the technology.
288	Digital transformation and technology	technology and in particular digital transformation is an important enabler of business
289	Competence	I mean, we our boards, if I were to look at it in a scale of one to 10, and maybe 10, being the most effective is a board that has got all sorts of skills, I will say we are sitting at eight.
290	Technology	all sectors depend on technology these days
291	Digital transformation	when we were going through COVID-19, we could not access government services, because we could not engage with the government face to face or physically. So, we needed, the only other way that you could interact with your government is through the digital channels
292	Technology	technology is an enabler in all sectors
293	Competence	the level of understanding of digital transformation is very low
294	Digital transformation	the level of understanding of digital transformation is very low
295	Competence	I think, in general, in South Africa, I think most of the boards the level of understanding or their level of competence around digital transformation, maybe there's just that with IT
296	Technology	but now the kind of risk that you also need to be looking at is more on the technology side of risk
297	Governance	but now the kind of risk that you also need to be looking at is more on the technology side of risk
298	Governance	So that would be the lens that the board would be using, but in the past, the risk, the people that were sitting in that risk subcommittee of the board, these were people that were largely accountants, you know, they have got the finance competence.

299	Governance	es, there is an element of, there is a subcommittee called ICT subcommittee that many of these boards would have
300	Competence	COVID-19 made the boards to feel like they need to have those competencies
301	Digital transformation - COVID-19	What I do know is that COVID-19 has forced companies to adopt and move to digitally transform.
302	Competence	that thing is an element of that human capital strategy when it comes to digital transformation.
303	Governance - Procedures	So, the human side of things is something that they look at. Do we have succession plans for these people, you know, our costs not going up? Are we bringing in young people so that we can continue to keep our costs down of running this environment? All of these things are the things that this subcommittee of the board has to look at.
304	Governance	you will need to be looking at continuity if somebody leaves, do we have people that can take over so that we can continue to run this operation
305	Competence - Skills shortage	We have skills shortage in our country
306	Governance - Data security	If I were sitting on that board, it would really be difficult conversation one would be having with management. How can we lose so much data
307	Governance - Data security	like now what has happened with TransUnion losing so much of their data
308	Technology	Now you can sign on DocuSign you can sign even on diligent boards.
309	Governance	Now you can sign on DocuSign
310	Digital transformation	Now you can sign on DocuSign you can sign even on diligent boards.
311	Governance	You know, the days when you had to wait for board members to, you know, be in their office, to sign documents because there's a deal that's happening and there are deadlines that have to be met are over.
312	Digital transformation	You know, the days when you had to wait for board members to, you know, be in their office, to sign documents because there's a deal that's happening and there are deadlines that have to be met are over. And digital transformation has done that for us. Not only do you have things like DocuSign that allow you to sign documents without printing them first.
313	Digital transformation	able to make quicker decisions for the benefit of the company by embracing digital transformation
314	Digital transformation	absolute commitment to digital transformation,
315	Digital transformation	I would say there is great commitment on every board
316	Digital transformation	And so, a company that hasn't looked at how digital technologies will help to drive growth, drive value for shareholders, and deliver on the strategic objectives of the companies are not doing their job.
317	Digital transformation	I can only talk in terms of the commitment of the boards that I sit on. Boards realize now that we are living in the digital era.
318	Digital transformation	But of course, if it was not supported by the rest of the board, it wouldn't happen.
319	Digital transformation	would be to ensure that there is a digital transformation strategy within the company
320	Digital Transformation - commitment	I think I think my commitment on my own would be completely useless
321	Competence	So, there might not be a dictionary with this, but there's always a document, a digital transformation strategy to support the overall strategy and growth of the organization.
322	Digital transformation	not only are we achieving our strategic objectives, but how is our digital transformation helping us to achieve those objectives
323	Governance	the governance around it would require that the board constantly reviews
324	Framework	there is no dictionary, but there's definitely a digital transformation strategy,

325	Digital transformation	most boards will actually ask at the end, we approved this digital strategy on the basis of it'll deliver these things, and we approved a budget, have we met those objectives.
326	Governance	digital transformation is always linked to a budget
327	Competence	digital competencies that will be required to deliver on the overall strategic, you know, direction, strategic objectives of the company
328	Technology	digital technologies
329	Digital strategy	And as I alluded in my initial responses, it is never decoupled from the overall strategy of the company.
330	Framework	But what we all have is a digital transformation strategy
331	Competence-based model	I don't know a single board that has a dictionary, it might have a glossary of terms at the end of the strategic document
332	Competence - use of Dx	effective internal and external communication at a board level
333	Competence	I would say it's just an understanding of, you know, issues around how we use digital technology to manage issues such as succession planning and talent management
334	Competence	,
335	Digital transformation	what every board member needs in terms of understanding the digital transformation of the company
336	Competence	if you were a board member in a manufacturing company, I would think that digital skills around artificial intelligence, machine learning, all of those things, and maybe robotics would be necessary.
337	Competence	the digital skills required of a board member who's on the board of Vodafone or or Samsung is probably different from digital skills that are required for you know, a board member who is with a manufacturing company
338	Governance - POPI Act	And a customer who trusts you, feel that you have their interests at heart is more likely to do more business with you
339	Governance - POPI Act	it gives our customers a higher level of assurance that their information is protected
340	Digital transformation - Opportunities	the opportunity is that when people feel confident that they can give you the information
341	Digital transformation - POPI Act	Digital and Information, and I'm now thinking about the POPI act
342	Digital transformation	but every company has a responsibility to make sure that their business recovery plan, and that particularly, particularly, and show that your digital framework is not affected
343	Framework	every company has a responsibility to make sure that their business recovery plan, and that particularly, particularly, and show that your digital framework is not affected
344	Competence	these disruptions do have an impact on the digital abilities of a company
345	Governance	So, when you looked at the worst case scenario, what mitigations did you put in and that is a key governance role of the board
346	Governance	business recovery plans
347	Governance	And one of the key metrics that will be given is how quickly a company would be back in operation after a huge disruption
348	Digital transformation	And you know, talking about some of the things that boards look at in terms of the governance is business recovery and digital transformation plays a huge role
349	Governance	You cannot operate a company in South Africa efficiently and rely only on Eskom that is not just foolhardy.
350	Governance - energy interruptions	But again, I would say this is where governance in the board's oversight is important, because a board should be asking questions about alternative sources.
351	Governance - Cyber security	If you don't do that, you don't know how vulnerable you are. So, I think, you know, the pitfall is just assuming that we have the digital technology

		to deal with those threats without testing that digital technology regularly against new and emerging threats.
352	Governance - Cyber security	And companies do that, very often, is they have these hackers try and hack into their systems to see just how rigorous these systems are
353	Governance - Cyber security	And these are people who know how to hack and show you how vulnerable you are
354	Governance - cyber security	most boards now will bring in those people that are called ethical hackers
355	Competence	because just as the threats change, the types of people and the competencies they require to be able to deal with the those threats, changes
356	Comptetence	but also what skills and competencies we have
357	Governance	I have never said in a meeting on cybersecurity and found that we're still talking about the threats that we were talking about six months ago
358	Governance	So, the obvious pitfall is if the if a board doesn't constantly have, you know, a dipstick into what competencies we have, in terms of firewalls and the ability to stop cyber attacks
359	Governance - cyber security	one of the key pitfalls is an obvious ones that hackers are always two steps away ahead of the people that operate legitimately
360	Digital transformation	Everybody used to know that an annual general meeting of shareholders meant 200 people in a room. Now boards have brought in Lumi and things like those that allow people to be in an annual general meeting without being there, formall
361	Governance	Everybody used to know that an annual general meeting of shareholders meant 200 people in a room. Now boards have brought in Lumi and things like those that allow people to be in an annual general meeting without being there, formally
362	Digital transformation	The other example that I can give is how digital transformation has changed the way that areas that are unsafe in mines are now being run with just people sitting in a room remotely and able to check transform the story to temperature I guess levels in in an environment before people can go to it
363	Digital transformation	and they would be able to go pull an item just on the basis of a code in a warehouse that is packed 12 storeys high
364	Digital transformation	digital transformation of warehouse spaces, where warehouses in operations can now be run by one individual sitting like you are sitting, looking at a screen
365	Digital tranformation	digital tools have really transformed how boards operate
366	Digital transformation (digitalisation)	But as far back as I can remember, in the early 2000s, boards would sit in a boardroom with colleagues that are sitting in different countries, different times. I used to, myself do training of general managers at Unilever, via telepresence
367	Digital transformation	boards can now have telepresence
368	Digital transformation	boards have been transformed digitally
369	Digital transformation	boards have been transformed digitally
370	Digital transformation	But since 2007, everybody is on what was board Vantage first, and then there's digital boards now.
371	Governance	and then there's digital boards now
372	Governance	But since 2007, everybody is on what was board Vantage first,
373	Digital tranformation	since 2007, everybody is on what was board Vantage first
374	Digital transformation	And many people would know that many years ago boards would have couriers deliver a huge pack for you for your board meetings
375	Digital transformation	bringing digital transformation into the boardroom itself.
376	Digital transformation	So, I would say in a nutshell that I do not believe that multinational multinationals no matter where they are, even in South Africa would lag behind. But of course, if they were talking about smaller companies in

		South Africa that are just in a region and that yes, then that assessment would be true.
377	Governance	And the board's key responsibility is delivering strategy, growth and value to shareholders
378	Governance	it is part and parcel of the responsibilities of the board.
379	Digital transformation	governance is really difficult to describe separately in relation to digital transformation
380	Governance	governance is really difficult to describe separately in relation to digital transformation,
381	Governance	And then, of course, the digital transformations that are required for that
382	Digital transformation	And then, of course, the digital transformations that are required for that
383	Governance	If, for instance, the board is concerned about security issues within the company, that would be driven basically by the cyber security strategy.
384	Digital transformation	And the digital transformation would be part of the delivery of that strategy
385	Governance	So, the governance model will always be about the board's oversight in delivering on the overall strategy
386	Governance	we wouldn't necessarily have a governance model, just for the digital transformation, as separate from the organizational strategy
387	Digital transformation	the role of the digital transformation in delivering on that strategy
388	Governance	but the governance would be driven by the board's oversight on strategy
389	Governance	So, the board would not really isolate just the digital aspect of it in terms of governance
390	Governance	board's oversight over strategy with the digital transformation being seen as the enabler.
391	Digital transformation	integrated with the strategy
392	Digital transformation	And how can we best deliver that strategy using digital tools that are available currently.
393	Governance	governance at a board level would start with what is the strategy
394	Governance	the boards objective, really, is to make sure that the company and its operations are delivering the strategy that is required
395	Governance	it's hard for me to say governance at a board level towards digital transformation.
396	Digital transformation	very difficult to, you know, disconnect or decouple governance from digital transformation
397	Governance	very difficult to, you know, disconnect or decouple governance from digital transformation
398	Governance	governance from digital transformation
399	Competence	For instance, what competencies are you looking for, and what is the best digital, the digital model that will deliver on those objectives that you're trying to achieve?
400	Competence	The competencies that the company already has or is looking to have, will determine the direction of the transformation, the digital transformation
401	Governance	the governance of the systems of information and technology within the company is actually based on the competencies that the company is also looking for
402	Digital transformation	a competence-based model has a direct impact on digital transformation within the company,
403	Competence	a competence-based model has a direct impact on digital transformation within the company
404	Competence	understanding of a competence-based model
405	Competence	understanding of competence-based model
406	Digital transformation	particularly digital transformations in how you deliver safety in the areas in which you work,

407	Governance	particularly digital transformations in how you deliver safety in the areas in which you work
408	Digital transformation	operations are being run with digital tools
409	Digital transformation	deliver, for instance, but documents themselves to the board for the use of the board
410	Digital transformation	digital tools
411	Digital transformation	critical use of digital tools
412	Competence-based model	achieve the strategic objectives that the company is looking to, to achieve in a nutshell
413	Competence	marry operational competencies with skills and competencies
414	Framework	marry operational competencies with skills and competencies
415	Digital transformation	a competence-based model in the sectors on the environment that I deal with would be looking at how we actually use digital transformation
416	Competence -based model	a competence-based model in the sectors on the environment that I deal with would be looking at how we actually use digital transformation
417	Governance	You know, how do we comply with POPI act? You know, the POPI act
418	Digital transformation	Then the other element of the digital transformation subcommittee is privacy
419	Governance	That's the oversight responsibility of the board to be asking those questions
420	Governance -resilience	We will we have business continuity, regardless of the fact that there are no, there's no electricity?
421	Governance	you know, if something happens, if Eskom there's a load shedding? What does it mean, for, is this infrastructure of ours? Is it resilient enough?
422	Governance	resilience of the business
423	Governance	IT security is a very important
424	Governance - Data security	your data against people that may want to use that data
425	Governance	security is absolutely critical
426	Governance	elements on IT security
427	Technology	elements on IT security
428	Digital transformation	how much of it we should be doing on premise versus of in the cloud,
429	Digital transformation	cloud computing
430	Digital transformation	cloud computing,
431	Technology	cloud computing
432	Technology	What are some of the elements of the architecture? Yes, it's different technologies.
433	Governance	Once you've got that blueprint, then everything else that management brings, has to talk to that, you know, so and that empowers the subcommittee of the board to be able to do their oversight responsibility
434	Governance	strategy
435	Governance	That enterprise architecture is something that of course is developed by management, but, but challenged and interrogated by the board.
436	Digital transformation	And those subcommittees look at a number of things, one, the first one is looking at the Enterprise Architecture
437	Digital transformation	but now they have transformed those committees into this digital transformation subcommittee of the board
438	Governance	but now they have transformed those committees into this digital transformation subcommittee of the board
439	Digital transformation	And this in the past used to be IT subcommittee of the board
440	Governance	And this in the past used to be IT subcommittee of the board
441	Digital transformation	I'm aware that in many of the boards of today, there is there is a there is a subcommittee of the board that looks at digital transformation
442	Governance	I'm aware that in many of the boards of today, there is there is a there is a subcommittee of the board that looks at digital transformation
443	Governance	digital transformation governance framework

444	Digital transformation	digital transformation governance framework
445	Governance	You've got board members who are sitting not in just one board, I am sitting in Absa, somebody else is sitting elsewhere, they will be bringing some of the insights and best practices coming from elsewhere into this in this board, and helping share those practices.
446	Competence-based model	that's the effectiveness that would have been brought by the competence-based model
447	Competency-based model	it also strengthens that oversight responsibility
448	Competence	that competence-based assessment of the board is something that guides
449	Competence	competencies
450	Competence	If we're not going to have people who can help us with that thinking, as a board, we are missing that capability.
451	Competence	is able to hold management to develop digital transformation strategies,
452	Competence	the competence-based model would have indicated, hey, you need people that are able to talk digital transformation
453	Competence	Right, you will be able to identify that, but those organizations which do not use it, they are, it's like they, they're driving blind, they don't know, they don't know what they don't have, because they have, they do not have a better reference, right
454	Competence-based model	if you are using a competence-based model within your board, you would certainly be able to identify where there are gaps
455	Competence	competence-based model
456	Competence	So, we went out deliberately, through the chairman, I actually helped him to identify some of the people that we had to bring in, who were bringing the competences that this board was missing.
457	Competence	do we have people on this board that can talk confidently around IT
458	Competence	we need to make sure that we've got people sitting on our boards that have got an understanding of the kind of company that we're trying to be not the company that we were
459	Model	we need to make sure that we've got people sitting on our boards that have got an understanding of the kind of company that we're trying to be not the company that we were
460	Competence	it was very important for us to, as we move in more into the it or ICT world away from manufacturing,
461	Competence	competencies
462	Competence	competence
463	Competence	competencies
464	Competency-based model	It prepares people better to be able to confront much broader issues than training people around limited areas
465	Competence	But I'm now just referring back to my own experience, it seems to me that the approach of competence-based is a better approach.
466	Technology	And the reason it's more difficult than other areas is because what you don't want is somebody who only knows technology
467	Governance	your fundamental role as a board is that you've got the right people in place
468	Competence	if you don't have the right people in place, managing it, you can have whoever you like on the board, you are going to have a problem
469	Framework	having the right processes in place to evaluate your processes
470	Comment	But the board itself won't go into huge amounts of detail.
471	Competence	number of skilled non-executives who have particular skills in this area
472	Governance	IT governance
473	Digital transformation	projects that are part of a digital transformation process
474	Governance	projects that are part of a digital transformation process
475	Governance	Just to assist with the overall governance around any kind of digital transformation

476	Governance	I was getting in terms of the board's role would be making sure that each of those things are in place
477	Governance	What experience has that person got in running such project? If it's a particularly big one, what role is internal auditing and reviewing? You know, how that is being managed? Do we have a third party helping, who is that third party? What process that we've gone through to appoint that third party? You know, what else have they done previously? What is their track record? But these are all the sorts of questions you'd want to be asking at a board level to make sure that all of that works.
478	Framework	it's making sure that the basic things are in place
479	Digital Transformation	there's an overall process around deciding which projects you look at from an overall digital transformation perspective
480	Framework	there's a proper process
481	Competence	those organizations that tend to embrace competence-based model, somehow, I've seen them to be much more growth oriented
482	Competence not limited	versus a skill that is possibly just limited in terms of his own use.
483	Competence	It's something that can be applied across different problems,
484	Competence	It's not just a skill, it's just beyond a skill.
485	Competence	a competence can be, can be applied.
486	Competence-based model	although the leadership competencies that were defined in each one of them were different, what you would find is that that they certainly embraced the competence-based model
487	Competence-based model	technical resources moved into Leadership Competencies.
488	Competency-based Model	have worked for three of them combined called Aprox. I work for Microsoft; I work for IBM. And each one of these companies had a competence-based model
489	Competence	Okay, what is a competence-based model? Wow, that's not an easy ask of you. But I will just go back to my own experience in answering that question.
490	Framework	interested to see the final report, but focus on kind of practical solutions for companies to address this, you know, the theory is one thing, but practically, folks, here's a challenge.
491	Guideline	having some form of useful and practical guide, or solution,
492	Guideline	But when you talk about a guideline, around best practice, then I imagined something which I think could be useful.
493	Competency-based	finding those skills is difficult generally, particularly difficult in South Africa. And then it's difficult when you add other layers around, you know, you want gender diversity, you want racial diversity,
494	Board of directors	Every chair will tell you that this is the skill that I need to get a well-rounded director, who also has a deep understanding not only of technology, but the aspects of technology that are relevant for this. You know, it's not just somebody who knows the hardware side of a technology business
495	Competence-based	board member who is rounded, but has a particular core competence in a comfort level in this area.
496	Governance	governance perspective, the single biggest challenge well over and above recruiting the right people into the organization and retaining them, because you will know there's a war right now, on talent, trying to retain those kinds of persons, to attract them.
497	Competence-based	many processes that are completely manual, use up a lot of us, a lot of individuals and individuals make mistakes, you can automate all of that, where you reduce the number of individuals that you use, but your accuracy is also higher, because machines generally don't make as many mistakes on processes that are very repetitive, etc. So, the digital transformation is always going to be key for any organization, or should be any organization that wants to continue to grow

498	Guideline	make sure your processes are as efficient as possible. And as efficiency means, you know, from a cost perspective, but also, accuracy,
499	Digital transformation	most organizations will have deep commitment to digital transformation.
500	Competency based	But the actual work has to be done by those people, it can never be done by the board.
501	Competency	Every board I'm part of as an ongoing, and don't call them different names, but like a directors' development process, where there is some form of training around these issues, you get experts coming in talking about what's happening
502	Technology	If something happens, and even then, you're never at 100%. Because then you know, as you saw with TransUnion, as you see with other organizations, you are always at risk of some type, some focused person targeting your systems and being able to breach and cause harm.
503	Technology	And 1000s of attempt today to try and breach their systems, whether by fishing, whether any of these things
504	Digital transformation	What is the biggest risk that they manage as a board, cybersecurity will be one, for sure! Because it is so serious, so fundamental
505	Competence based	And that can give you comfort, so it's really multiple layers of assurance that you would have, to ensure that this has been run correctly, and the board would have to rely on each of those layers. And make sure that the right people are in place and that each one of those layers in order to review this properly.
506	Governance	IT governance forum, kind of feeding back on what they have looked at and some of the feedback that they have received on how the projects are doing and then they point around the third party provider
507	Digital transformation	digital transformation project being run by someone who's never done that before.
508	Competency based	I think this one would touch on what I was saying, it's around having the leadership team, having the necessary experience and skills.
509	Competency-based	making sure that within the executive ranks, you've got the right processes in place, that, you know, projects are well managed
510	Technology	new technologies
511	Digital transformation	digital transformation, as I see it, or digitization, which is more the term out there, being used, to us it is an ongoing process. It's just ongoing where you are, you are constantly looking at processes that you can digitize in order to increase efficiency in order to help you drive sales
512	Competency-based	Do we have our internal audit people reviewing milestones as they go along? You know, just making sure that you have all of these things in place where you know that they're the right people in place from a checks and balance perspective, whether they are internal or external, but you've got all those processes in place to check that everything is running, as it should, and that there's no massive blind spot, something major that we are not dealing with that can cause a problem? answer your question
513	Competency	understanding of space, and who can ask the right questions, not necessarily that they can do it themselves, but ask the right questions that you need to ask when a project is being undertaken
514	Technology	technology background, who's only ever worked in the hardware space, and not necessarily software, etc, and vice versa.
515	Technology	people with technology, background technology is such a wide space.
516	Governance	massive project, there might be a special subcommittee looking at that, that kind of looks at key objectives where we are, what are the key hurdles we want to achieve?
517	Competence-based	competence or as you know, core hard experience in technology
518	Governance	But we also have an IT governance forum, and that will have a couple of non-executives. So, our head of risk that heads up audit will sit there

519	Board of Directors	board and then we've got a number of key board sub-committees, so you know, the normal ones ordered generation nominations,
520	Governance	from a board perspective, we're not doing the actual work, we just have to make sure that there's proper oversight over what is being done.
521	Competency-based	But the main thing is about having people with proper business sense, who can sit and say, why we're doing what we're doing, how we're making sure we're doing it so that we address all of the key risks
522	Competency-based	It's about asking the right questions, what are we doing? What projects are we undertaking, you know? Is the business or the business side of the organization in tune or part of the decision around meeting some of those changes, so that they can help to drive it and make sure it solves real world problems for the organization? So, for me, it's not a question of having everybody with deep digital skills
523	Digital	digital for its own sake
524	Boards of Directors	broader understanding of what it is that we're trying to achieve.
525	Boards of Directors	the boards I serve on and the individuals I served with, I don't think it's necessarily a question of the people themselves, where everybody is having deep digital skills, necessarily
526	Board of Directors	right people on the board
527	Board of Directors	from a board perspective is making sure you've got the right people inside the organization who are running it, who know what they're doing, or have experience in that area.
528	Governance	to achieve growth, to achieve growth on the top line, reducing costs and becoming more efficient
529	Guideline	So you don't think about digital, kind of on its own. It's part of just how the whole organization processes,
530	Competence-based	improve efficiency, manage your cost-base, drive sales. So it's part of driving the core of the business.
531	Digital Transformation	continual process of digital transformation
532	Digital Transformation	automate processes to reduce cost
533	Governance	understand your clients better understand their needs,
534	Digital Transformation	use digital tools from a sales perspective
535	Technology	reduce cost, because you're trying to automate things that can be automated
536	Digital Transformation	Yeah. Look, that every organization I'm involved with right now, is going through some form of digital transformation, where one can look at digital or digitizing processes.
537	Competency-Based	correct competence in terms of their experience
538	Governance - Cyber security and information leaks	... take a decision now, before the meeting, and it's already breaking news. You know, with anonymous sources cited. That has been a major challenge and as I'm saying it's not unique to our organization. I just made an example with the ANC and I think many other institutions and others is interesting, and I'm leaving a lot of things.
539	Governance - Security issues	That's what we had to contend with the most, than whether people were able to access documents or people were able to connect, what we're really content with wise the integrity of our information, our confidential information
540	Governance - Security issues	I mean, right now, I don't know who I'm speaking with, I don't know who you are sitting with. Now from, as a regulator dealing with very sensitive information.
541	Digital Transformation	we've always had systems online
542	Digital Transformation	But as I've said, with all of these comes risks, and I think it might take us almost the same amount of time, that we are learning the technological side to be able to learn how to mitigate the inherent risks.

543	Governance	But as I've said, with all of these comes risks, and I think it might take us almost the same amount of time, that we are learning the technological side to be able to learn how to mitigate the inherent risks.
544	Competence	But as I've said, with all of these comes risks, and I think it might take us almost the same amount of time, that we are learning the technological side to be able to learn how to mitigate the inherent risks.
545	Technology : Knowledge Management	So that's on the meeting direction point of view. I've dealt with knowledge management, I've touched on disaster recovery, generally, that we should be in a position where should anything happen in Office, we can just pack up and move on to the next space, all our systems, human resource, fence, and then so forth, online, it's online systems, where in anywhere you are, you're able to apply for leave to approve leave, you're able to process claims, if you're in finance, and all of that.
546	Technology : Investing in enabling platforms	Now in the process of really investing seriously, you know, our Remote Connectivity platforms so that there is adequate video conferencing, which will make it more of a norm to really connect virtually, with all our regional provinces in all the nine provinces of our country.
547	Governance	It's about how we do things
548	Technology : Efficiency	First and foremost, the issue of efficiency. How do we increase our organizational efficiencies? Because remember, at the very beginning of our conversation, I said, this is about technology
549	Digital Transformation	We check issues of disaster recovery, we check issues of you know, the integrity, the protection of our ICT systems, the integrity, we check.
550	Technology	We check issues of disaster recovery, we check issues of you know, the integrity, the protection of our ICT systems, the integrity, we check.
551	Governance	We check issues of disaster recovery, we check issues of you know, the integrity, the protection of our ICT systems, the integrity, we check.
552	Governance	So that would be from a, as part of a governance aspect of things. I was just saying, from a governance perspective, we have elevated ICT, it has its standing committee at the governance level of reporting
553	Digital Transformation : Not traditional IT division	But we are now in a position, in a stage, at the stage where we are introducing that as part of the pillars that I've just mentioned. So that we have a warm body that looks into all these aspects on a daily basis and does not only recite traditional IT, IT division
554	Governance	the overall IT governance, I mean, we are actually in the process,
555	Governance	issues around data governance, you know, a bit of, you know, just an oversight on how we are moving this whole transformation process
556	Governance:	Now, in my engagements as the board chair with that particular committee on a quarterly basis, checking the work that what I look for, I personally think they should be helping us on issues around, you know, Innovation governance
557	Governance : Committee focussed on governance	IT governance within the organization
558	Governance: Different governance sub-structures	We have the ITRC, committee information technology, you know, yeah, there's a subcommittee of the board.
559	Competence: Different models available	Yeah, look, I think perhaps to zoom into competence-based models, I mean, there is, you know, a functional competence model, there is a leadership based module, there is a job competence model, now, all of these at different levels in different stages of how the organization works, would have or the study would have relevance to those, so, I think at all times they would be applicable
560	Governance : PFMA	in a public sector board, you are confined to the PFMA
561	Competence : Board acknowledges training needs	But ours, the attitude is there to embrace technological change, to embrace innovation, to even, you know, encourage it.
562	Digital Transformation: Board receptive	But ours, the attitude is there to embrace technological change, to embrace innovation, to even, you know, encourage it

563	Governance: Approaches to training	proactive in some respects and reactive in other respects.
564	Competence : Skills required	That in our environment there is an acknowledgement of, you know, technological adoption, there is an acknowledgement of the need for training for proper skilling
565	Digital Transformation: Acknowledgement for training	acknowledgement of the need for training for proper skilling
566	Digital Transformation: Adoption in place	That in our environment there is an acknowledgement of, you know, technological adoption,
567	Digital Transformation : Characterised in proactive and reactive aspects	Now, in the context of digital transformation, I think in two ways, there is the proactive and reactive aspect
568	Competence: These models are around defining and assessment of skills	it's around defining and assessing skills.
569	Competence - Refers to definitions and assessment of skills	my understanding of competence-based models, you know, relate to, you know, defining and assessing skills.
570	Technology - Techs change according to times	I always take a step back and say even a teaspoon is a technological means of a particular era
571	Technology: Refers to how we do things	And technology is simply how we do things
572	Digital Transformation : Is the adoption of technology	But basically, what I'm just trying to get to is, digital transformation in my understanding is the adoption of technology
573	Competence: Skills required to digitize	How do we conduct ourselves in a context or setting that is fully digitized, a virtual meeting, wherein you need to project your own presentations,
574	Competence : Directors need to acquire requisite Dx skills	And, the same applies to board members.
575	Digital Transformation : Directors need to acquire requisite Dx skills	And, the same applies to board members
576	Technology ; COVID-19 made us learn new tech skills	hard lockdown from March of 2020, has forced a lot of people, some members of parliament, some , you know, even in our own organizations we've been doing menial work, be it as a library bookkeeper as an example, to learn to work virtually, two, for the first time be assigned or allocated the laptop and some data to be able to connect.
577	Competence: COVID-19 made us learn new tech skills	The COVID 19 pandemic and the hard lockdown from March of 2020, has forced a lot of people, some members of parliament, some , you know, even in our own organizations we've been doing menial work, be it as a library bookkeeper as an example, to learn to work virtually, two, for the first time be assigned or allocated the laptop and some data to be able to connect.
578	Competence : Acquired through training	I think it's a question of training.
579	Competence : Relevant skills required	relevant skill sets and levels of competence
580	Digital Transformation : Boards have to adopt new technologies	Boards don't have a choice in this sector, in agriculture, in mining, the courts, judicial system, we all don't have a choice we need to adopt new technologies.
581	Digital Transformation: No choice to reject it	And the answer is no, we don't have a choice
582	Digital Transformation : No choice to refuse its adoption	the question before we even get to competencies is that do we actually have a choice?

583	Digital Transformation - Perceived as technology adoption	Alright, thank you. Thanks for the introduction. You know, I indeed, I saw the topic as you had shared some correspondence earlier. You know, the question of digital transformation, I think, first and foremost, one thing that I've learned in the same time, boards, in workshops, in forums, in courses and everything is, we deal with this topic in a very broad sense, and the simplicity of it, as I think we all appreciate, it's just the adoption of technology.
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#### 4.5 Examination of the Code List

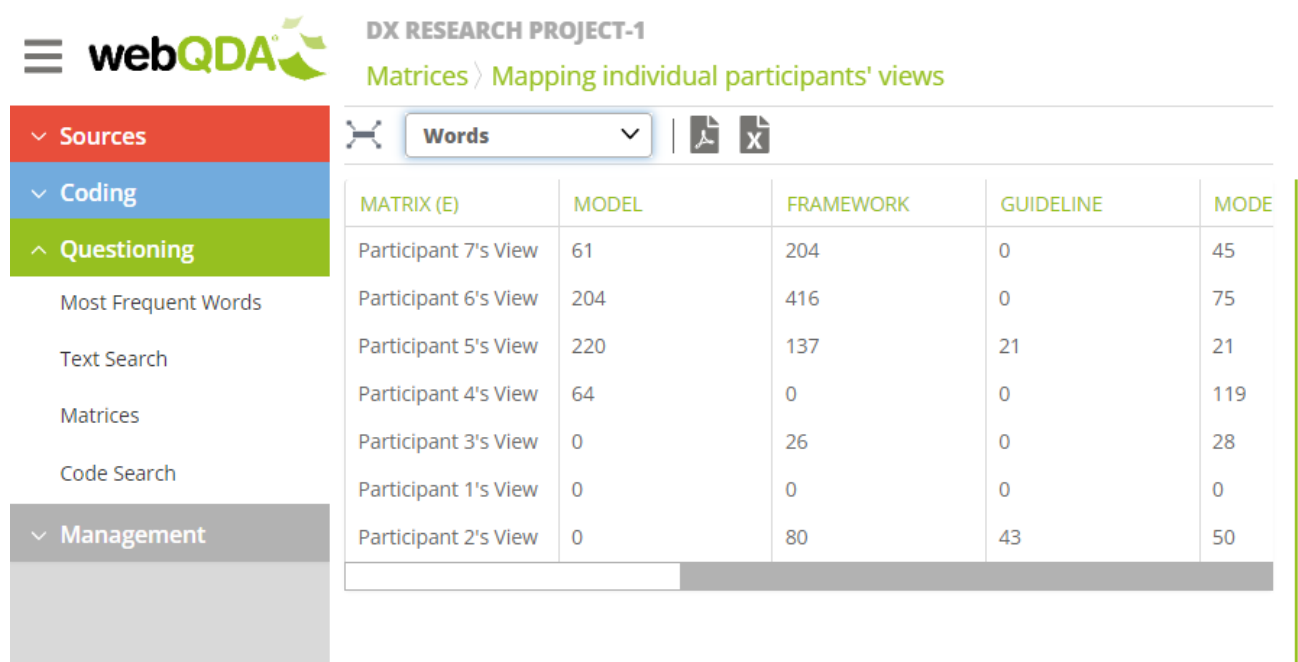
A close examination of the code list provided the researcher with an opportunity to further immerse herself in the data while trying to observe data behaviour and similarities. The researcher had planned to interview 16 people, whose information was written down. But as the process of data analysis went on, it became clear that after coding participant 5, no new codes were being made. This meant that the current study being looked into had enough information. When there is no more information to get from participants, this is called "data saturation" (Guest, Bunce, & Johnson, 2006). Theoretic data saturation also happens when the researcher has gathered enough information to be able to repeat the study (O'Reilly & Parker, 2012). The researcher looked at the data from all the participants and found that some of it was similar. Also, Guest et al. (2006) say that theoretical saturation is reached when it is no longer possible to code any more. Guest et al. (2006) set quality standards that most researchers agree on, such as:

- There will be no new data in the near future
- New coding is not possible
- No new ideas are coming up
- The ability to do the study again

Because of these rules, the researcher decided to stop analyzing the data after the eighth participant. Scholars also thought that theoretical data saturation might happen

right after the sixth interview (Guest et al., 2004). In addition to the work of Guest et al. (2006), Dibley (2011) said that justification of theoretical saturation needs to be supported by rich and thick data, not just a sample. So, it is important to know that theoretical saturation is not only reached by the number of items in the sample, but also by how thick and rich the sample is (Burmeister & Aitken, 2012).

To determine rigor and further review of the data in the coding list, the researcher used webQDA to triangulate participants' responses against the initial code list, through a search functionality on the software, as depicted below.



**Figure 4.5: Extract of Analytic procedures from webQDA Software**

Triangulating data from this software was retrieved and through downloadable functionality of Microsoft Excel and reflected as per Table 4.3 below. Triangulation is a way to find out more about something by using information from more than one source. Triangulation is a very important way to make sure that the results of a study

are accurate, valid, and can be used in a wide range of situations. It does this by increasing the certainty and neutrality of the results. It is the process of using more than one method, theory, researcher, and data collection method and technique to make the research findings more valid, reliable, and generalizable. Data triangulation is different because it does not just combine results that show more validity. Instead, it helps you understand the data and information better as you try to make sense of it all. The triangulation of data makes your paper stronger by making the data sets and information you use more reliable and valid as a whole. You can easily use this method to combine different parts of your research from different places, theories, or methods for any kind of research you do.

Even though most research does not study social change in and of itself, researchers often use a qualitative method to study it. For example, Christensen's disruptive innovations have had a big effect on how industries are set up, but most of the social changes that have happened as a result of these changes have happened by accident (Christensen, Baumann, Ruggles, & Sadtler, 2006). In qualitative research, the researchers accept that they can not keep their own experiences, values, and points of view out of the research (Jackson, 1990). In other words, qualitative researchers bring their own biases to the research, tell the reader about their biases, and try to minimize their own biases to make sure they understand the other/participant correctly. Denzin (1978) said the same thing. He said that researchers bring their personal beliefs along with the social and political environment, which makes it impossible to do value-free research. Also, researchers often use a qualitative method to study social change, but they have trouble understanding concepts like objectivity, truth, and validity. The following are some questions that social science asks: Can there be objectivity in social science? Whose reality? Whose point of view is correct? Some

qualitative researchers use the terms "reliability" and "validity" from postpositivism, while others use "dependability," "credibility," "transferability," and "confirmability" (Lincoln & Guba, 1985). No matter what paradigm you use to look at qualitative research—postpositivist, postmodernist, or something else—it is important to talk about your role in the research and show how you will make sure the research is reliable.

One goal of any study is to move theory forward (Imenda, 2014), which can be done by either filling a gap (Vlok, 2012) or confirming evidence that has already been found (Ayoko & Pekerti, 2008). This is done by doing a thorough review of the literature, doing an empirical study to gather evidence, and then comparing the results of the study to the existing body of knowledge and the conceptual framework (Chernyak-Hai & Tzinder, 2014; Secomb & Smith, 2011). Any study's main goal is to answer the research question. Triangulation, or getting information from more than one source, is one way to reduce bias (Jonsen & Jehn, 2009). Triangulation gives the data collected in qualitative research more depth. This detailed and rich information shows that there is a direct link between triangulation and data saturation (Fusch & Ness, 2015). Denzin (2011) said that looking at all the different sides of the data is a bit like looking through a crystal. He also thought that triangulation should be rethought as crystal refraction (many points of light) in order to extrapolate the meaning behind the data and reduce bias. This is especially important in qualitative research, where different ways of collecting data are used to find out how people make sense of their world (Forsey, 2010). Using techniques like Denzin's triangulation methods can help people try to understand each other. The biases, values, and ideas that come from a researcher's cultural and personal background will affect how the study results are interpreted (Fusch, 2001).

Triangulation, or using data from more than one source, can make the study results more reliable (Stavros & Westberg, 2009) and help you get as much information as possible from the data (P. Fusch & Ness, 2015). Denzin (1989) said that triangulation is the use of different ways to get information from the outside about the same events. This can be improved by using different ways to look at the information from the outside. Triangulation is one way that a researcher analyzes data and then shows the results to other people so that they can understand what a common experience is like (Denzin, 1989) A qualitative researcher uses nonnumerical methods of measurement that focus on meaning and insight to try to define and explain things that are not clear (Kakabadse & Steane, 2010). Exploratory research designs are used to clear up ambiguity and find multiple realities (Kurt, Inman, and Argo, 2011), as well as ideas for future research. So, qualitative research methods help researchers define and make sense of the fuzziness that exploratory research designs try to deal with (Thomas & Quinlan, 2014). Exploratory research can include interpretations of information gathered through unstructured interviews, in-depth interviews, and direct observation of people, places, and things (Dowlatshahi, 2010; Mansourian, 2008).

Lastly, exploratory research is done when the problem statement is vague or hard to understand (Dowlatshahi, 2010). Jackson (1990) talked about subjectivity in qualitative research, especially in cultural anthropology, using a sample of seventy anthropologists that she said was not chosen at random. In qualitative research, the idea of "I am a fieldnote" or "I am the research instrument" puts the focus on the self. Researchers bring their own background and values, which shows subjectivity and the relationships between insiders and outsiders and between researchers and participants. It should also be noted that some see this as a strength and others as a

weakness (Draper & Swift, 2011). All social research, whether it is done on purpose or by accident, looks at these connections (Fields & Kafai, 2009).

In view of the above, and in an effort to enhance the quality of the research, data was analysed both inductively and triangulated through the matrix search facility of the webQDA software.

#### 4.6 Representation of Participants Views on Dx Competency Model

##### Participant One

Through the trinagulatory approach, the following section presents participant' views in relation to the objectives of this study. Most participants alluded to the fact that at board level, the reference to Dx is still looked at with the lens of ICT. This can be seen with the number of codes emanating from the analysis and depicted in Figure 4.5 below.

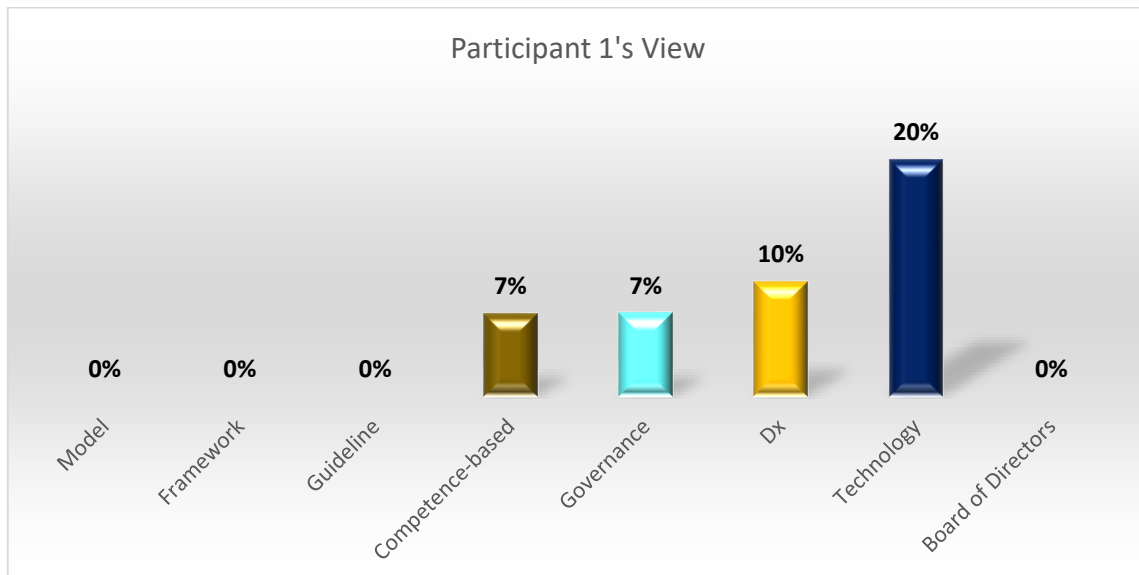
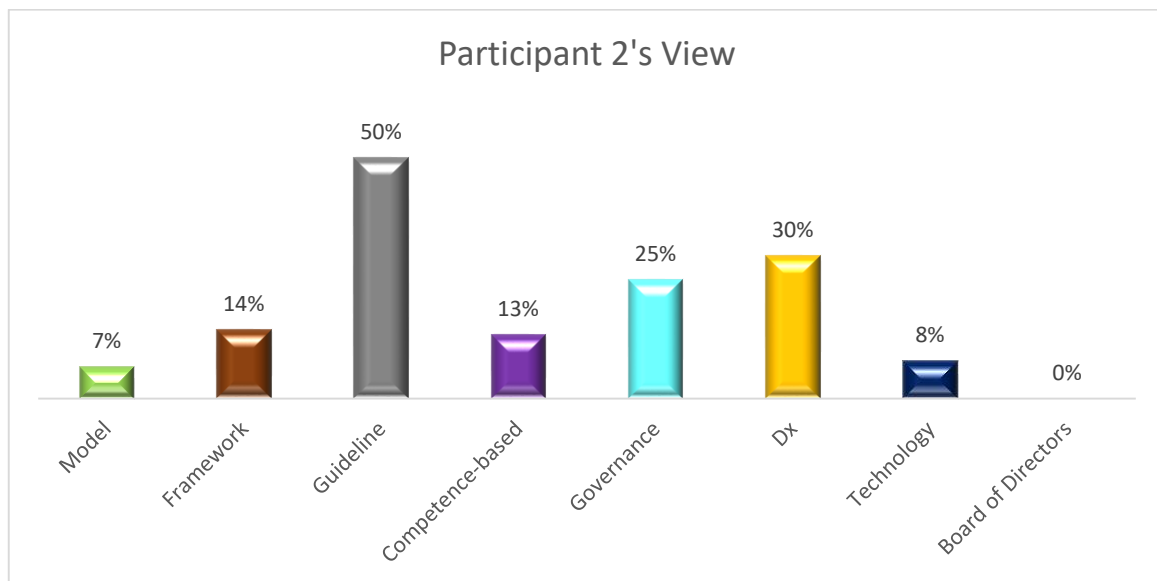


Figure 4.6: Participant One's views

This has also appeared in literature, and expressly commented on by Valentine (2014). Directors also stated the need for a framework or competency model specifically designed for governance of Dx, as an enhancement to what already exists or completely new overhaul.

### Participant Two

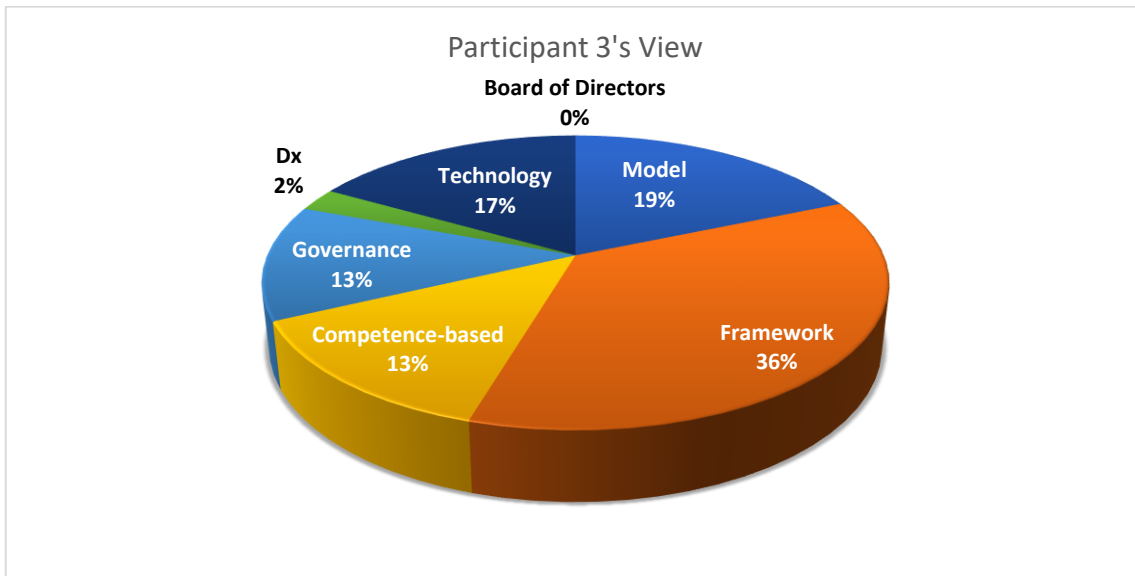
As mentioned above, there was a consensus from participant two about the importance of a competency model in the organisation. This participant referred to a need for a guideline or framework at board level as the ultimate responsibility of governance lies there. A competency model will go beyond just a guideline, but is expected to provide directors with requisite competencies for being relevant.



**Figure 4.7: Participant Two's views**

### Participant Three

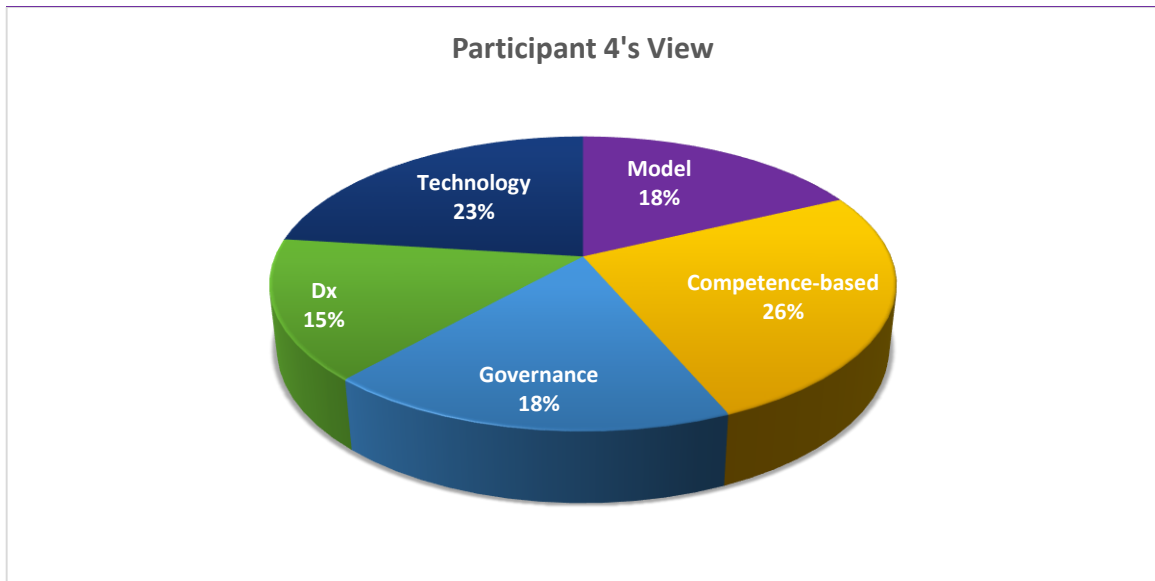
These views were further shared by participant three, who emphasised the importance of a model for competency development and a framework that will act as a reference document in relation to issues related to digital governance and its governance.



**Figure 4.8: Participant Three's views**

### Participant Four

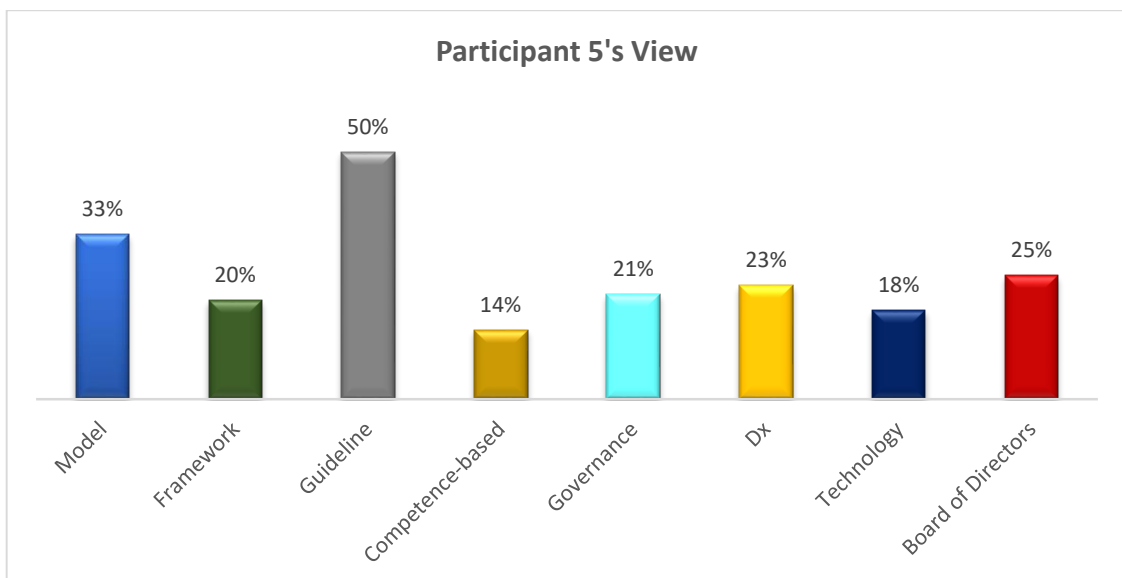
Participant four also emphasised the need for competence-based model, at 26%. There was a reference to technology as well and governance responsibilities.



**Figure 4.9: Participant Four's views**

**Participant Five**

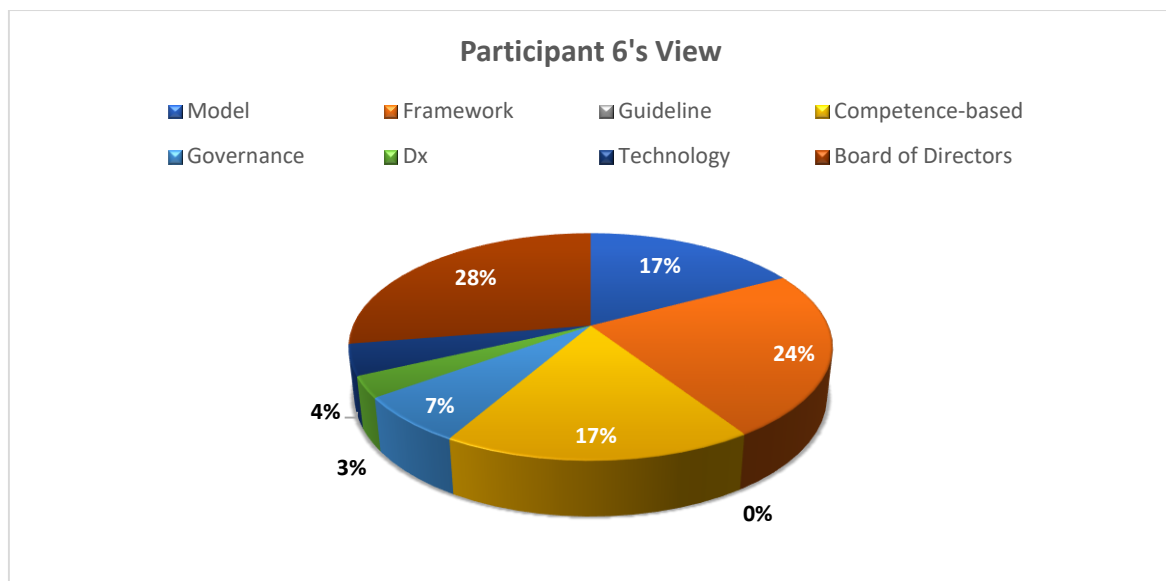
Same views were also shared by participant five, although there was a reference to certain existing guidelines and their weaknesses in relation to governance of digital transformation competencies.



**Figure 4.10: Participant Five's views**

## Participant Six

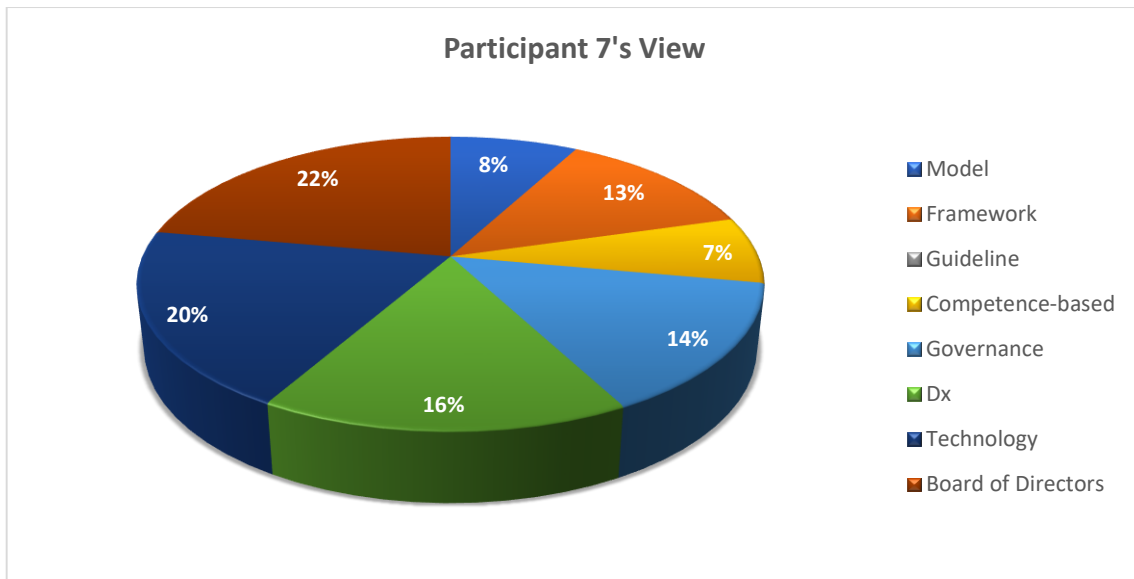
Participant six also alluded to the importance of a framework and guideline for director's governance duties on various boards, in relation to digital transformation skills.



**Figure 4.11: Participant Six's views**

## Participant Seven

Lastly, participant seven also supported the views of others and indicated the importance and need for boards to have a competency-based model for governance of digital transformation.



**Figure 4.12: Participant Seven's views**

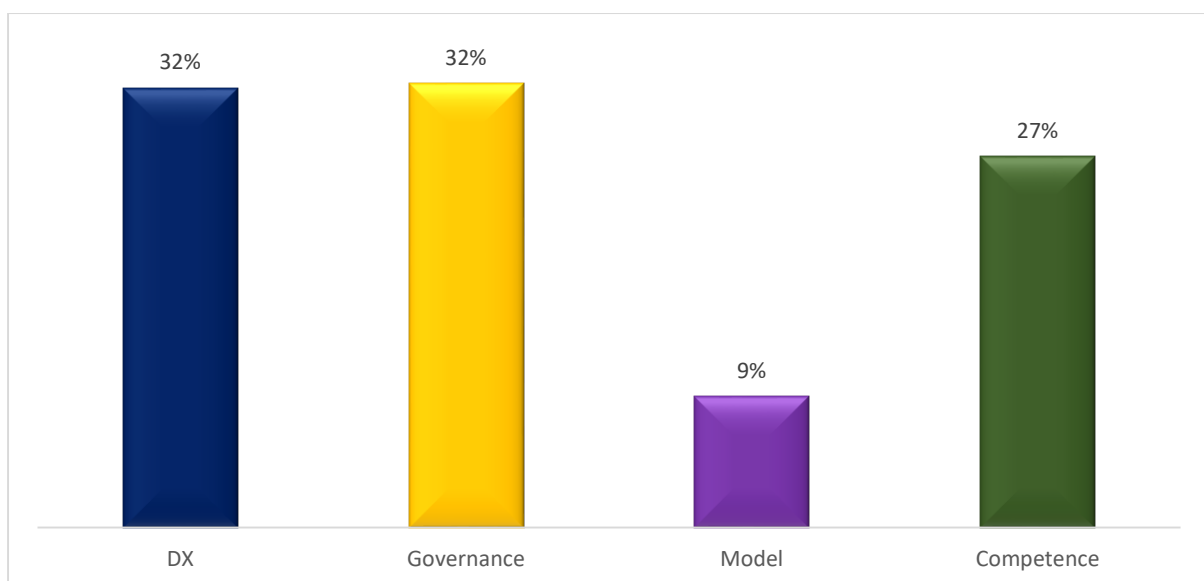
#### 4.7 Emerging Themes

In thematic analysis (TA) method, the results of analyzing data are called themes or patterns (Braun & Clarke, 2006). Also, the analytical products of data analysis using QCA are categories, themes, and their subdivisions, such as subcategories and subthemes (Vaismoradi et al., 2013, 2016). The way each analytical product is made depends on whether the researcher wants to reach the descriptive (manifest content) or interpretive (latent content) levels of analysis and what motivates the researcher during the analytical process (Bengtsson, 2016; Vaismoradi et al., 2013, 2016). So, one thing that both of these qualitative approaches have in common could be that they both lead to the development of a theme as the most abstract result, based on strict coding and analysing processes (Vaismoradi et al., 2016).

"Theme" is the data's subjective meaning and message in its cultural and historical context. A theme can be made from a set of codes with common points of reference, a high degree of transferability, and a way for ideas to be linked across the study phenomenon. In other words, a theme is a red thread of hidden meanings that can be

used to connect similar pieces of data and help the researcher answer the question "why?" (Erlingsson & Brysiewicz, 2013). While a theme can be used to focus on the deeper meaning of data, other analytical products, like categories, are more about what is obvious and on the surface (Vaismoradi et al., 2013, 2016). Because of this, coming up with a theme can be harder and take more time than coming up with categories (Connelly & Peltzer, 2016).

In past studies, the meaning of theme and the analytical products of constant comparative analysis (CCA) and TA that relate to it have been explained (Braun & Clarke, 2006; Vaismoradi et al., 2013). Some researchers have tried to show how to develop the theme in a way that is useful, creative, and based on evidence (Vaismoradi et al., 2013). Still, it is not clear what CCA and TA have in common and what makes them different in terms of the theme. So, the goal of this discussion paper is to fill in this knowledge gap and show how these qualitative research methods are different and how they are the same in terms of the theme, which is the end result of data analysis.



**Figure 4.13: Emerging Themes**

During this phase, the researcher reviewed, modified and developed the preliminary themes that as per categories identified. The researcher needed to ascertain if these preliminary themes make sense. At this point it was useful to gather together all the data that is relevant to each theme (Bree & Gallagher, 2016). Again, access to qualitative data analysis software can make this process much quicker and easier, but it is not essential.

The data associated with each theme is colour-coded. The researcher read the data associated with each theme and considered whether the data really did support it. The next step was to think about whether the themes work in the context of the entire data set. In this example, the data set is one extract but usually you will have more than this and will have to consider how the themes work both within a single interview and across all the interviews. Themes should be coherent and they should be distinct from each other. Things to think about include:

- Do the themes make sense?
- Does the data support the themes?
- Am I trying to fit too much into a theme?
- If themes overlap, are they really separate themes?
- Are there themes within themes (subthemes)?
- Are there other themes within the data?

**Table 4.3: Mapping Emerging Themes to Research Objectives**

#	Objective	Theme	Description
RO 1	To define competency-based models	One	There is no standard definition of competence-based models for governance of digital transformation
RO 2	To examine governance of digital transformation	Two	Governance of digital transformation is perceived as governance of information technology (IT)
RO 3	To evaluate the digital transformation skills levels of boards of directors in South Africa	Three	There is a need for digital transformation competence at board level

#### **4.8 Conclusion**

In this chapter, findings of the qualitative research were presented. First the characteristics of the participants were presented, and contrasted with the data drawn from webQDA software, bearing transcripts of interviews. Analytic procedures were described, including a four-state process of data treatment. A full list of inductive codes, linked to anchor codes was also listed on this chapter. Themes were generated and henceforth presented. The next chapter provides a discussion of findings, representation of the model under investigation and finally limitations and recommendations.

## **CHAPTER FIVE**

### **5.1 Introduction**

The Chapter summary provides a description of the study results, which are then presented and further synthesized to strengthen the foundational logic of inferences and general conclusions derived from the research. The value of the dissertation, as expressed in the author's framework, is dependent on the interpretivism ontology. As a prelude to the epilogue, this Chapter concludes with practice guidance and additional synthesis linked to this study's primary and secondary results. The rigor of implementation and the weaknesses of the analysis are both mirrored. The objectives of this study were:

- a) To define competence-based models
- b) To examine governance of digital transformation
- c) To evaluate the digital transformation skills levels of boards of directors in South Africa
- d) To develop a competence-based model for governance of digital transformation for boards of directors

### **5.2 Findings**

#### **5.2.1 Thematic Expressions**

- a) There is no standard definition of competence-based models for governance of digital transformation
- b) Governance of digital transformation is perceived as governance of information technology (IT)
- c) There is a need for digital transformation competence at board level

## **5.2.2 Nexus between findings/themes and literature**

### **5.2.2.1 Standard definition for competence-based models for governance of digital transformation**

Close examination of the transformed data, codes and final themes indicate that a universal standard definition of competence-based model was deemed necessary, although there was a notable gap across different sectors in South Africa. The term "digitalization" is used differently depending on the discipline (Legner et al., 2017), including information systems, communications engineering, computer science, management, even economics and political science (Rattan, 1984; Vial, 2019; Waldfogel, 2017). Depending on whether the (technical) process or procedure of converting analog into digital objects (Goblick & Holsinger, 1967; Tilson et al., 2010) or "the manifold sociotechnical phenomena and processes of adopting and using technologies in broader individual, organizational, and societal contexts" (Legner et al., 2017:301) are taken into account, Hess (2019) categorized various interpretations of digitalization from the IS Digital transformation refers to the use of new digital technologies to develop, enhance, or grow a business. Digitalization is the process of converting analog information into digital objects. As a result, these actions result in changes to corporate structure or important business operations and processes (Hess et al., 2016; Matt et al., 2015; Verhoef et al., 2021). Matt et al. (2015) and Andal-Ancion et al. (2003) argued that transformations on different levels of abstraction should be operationalized through a digital transformation strategy and thus integrated into a holistic managerial concept because they involve different levels of business functions and may result in significant changes. Although the use of cutting-edge technologies was essential to all stages of industrialisation, the realization that change is necessary is a more recent phenomenon.

When providing a type of maturity model with several stages of IT-enabled business transformation, Venkatraman (1994) was one of the first to adopt the term "transformation." He points to significant shifts by describing the lower stages of the paradigm as evolutionary and the higher stages as revolutionary. As a result, technology have an impact on how businesses evolve, but firms also have an impact on how technologies are monetized according to their business models (Annarelli et al., 2021; Baden-Fuller & Haefliger, 2013). According to this perspective, the process of digital transformation is an inductive framework (Vial, 2019) that identifies connections between the usage of digital technology, disruptive phenomena (Karimi & Walter, 2015), and how firms are responding to digitalization (Verhoef et al., 2021). Research on digitalization, which was initially based in the technological sector and the IS field, has expanded into the field of management, as is evident from a significant number of special issues, such as those in the areas of general management (Lanzolla et al., 2020), human resources (HR) (Holland & Bardoel, 2016), or entrepreneurship (Berger et al., 2021), as well as from current calls for papers in numerous academic journals like Technological Forecasting.

The problem of digitalizing enterprises and the impact of digital technology on firms have been studied from an organizational viewpoint, starting with the alignment of IT and business strategy (Henderson & Venkatraman, 1993). The body of research on digital issues (such as IT infrastructure, digital servitization, and digital culture) and their effects on various business outcomes, such as business relationships, business models, and value creation, is extensive. Examples include smart homes and platform issues (Hausberg et al., 2019; Nambisan, 2017), as well as research on these topics (Baraldi & Nadin, 2006; Kamalaldin et al., 2020; Martnez-Caro et al., 2020).

In another research, Elatia and Ipperciel (2015) postulated on competence as it pertains to performance and its synonymy with ability. While many people confuse skills with competences, Ananiadou and Claro (2009) explain in their foundational work for DeSeCo (Definition and Selection of Competencies) that a "competence is more than simply knowledge or abilities." For example, a person may be able to replace light bulbs and light switches around the home, but this does not imply that he or she is a skilled electrician. Competence "involves the capacity to satisfy complex demands in a specific situation by drawing on and mobilising psycho-social resources (including skills and attitudes" (Ananiadou & Claro, 2009, p. 8). Thus, according to Ananiadou and Claro, competence includes not just knowledge and abilities, but also more abstract attributes such as attitudes. They feel that the new skills and competences are those needed of young people in order to be productive employees and responsible citizens in the information society of the twenty-first century (Elatia & Ipperciel, 2015).

The widely social component of the idea of competence is evident in the DeSeCo Project report, issued in 2002 by the OECD's European Association for Adult Education, which intended to improve awareness of critical skills for adult education. According to this research, competency is more than just knowledge and abilities; it also includes attitudes that help to the effective completion of an activity or job. This is a functional method in which competency definition is related to external usage and application in society. This viewpoint is shared by the European Centre for the Development of Vocational Training, whose glossary defines a skill as the "ability to perform tasks and solve problems" (Cedefop, 2011), while a competence is defined as the "ability to use knowledge, skills, and personal, social, and/or methodological abilities, in work or study situations, and in professional and personal development."

According to this viewpoint, competences are situational (they make sense in the context of a wide range of human actions) and teleological (they attempt to achieve a meaningful goal through mobilising knowledge and technical abilities).

Furthermore, Boshoff (2016) presents a comprehensive view of board member performance that encompasses meeting formal and informal board objectives via the demonstration of underlying competence behaviours. To that end, the goal was to first get a greater knowledge of board outcomes in order to better align them with the spirit of good corporate governance. Second, and most critically, the research was designed to explain the behaviours required to properly execute these goals. Furthermore, the research sought to investigate the links between competences and outcomes in order to better understand how these two sides of the same coin interact to produce board member success. The literature research aided in the creation of a preliminary competence model that included intended board outcomes and competency behaviours, as well as potential linkages between them.

Following this, a qualitative research phase was conducted, which included critical incident interviews with 22 directors and the use of grounded theory as an inquiry approach to code and analyse the data. The findings supported the significance of the outcomes and competence categories while also demonstrating their interaction, resulting in a viable model that may be experimentally evaluated in follow-up research. The methodology also resulted in the discovery of behavioural aspects underpinning the competence categories, offering significant insights into the precise acts associated with strong corporate governance. These results offer a useful source of information that can be used to guide the selection and development of directors capable of implementing comprehensive effective corporate governance.

The data analysis results suggested that the outcome and competence categories were confirmed. More crucially, it led to the discovery of distinct behavioural aspects. Furthermore, significant correlations were identified, which validated the literature-derived associations between outcomes and skills, while novel ties were also revealed. This proved the significance of the competences in terms of board results and provided a foundation for future research to empirically evaluate these correlations. By assessing the reliability of the capabilities, the creation of competency-based selection and development tools for directors will be informed.

Another interesting view regarding competency frameworks is presented in the work of Qahatan, Basiruddin, Ali, Adedeji, Khelifa and Hashim (2020), it was discovered that practitioners and academic researchers can work together on different projects to improve the body of knowledge about the training and development of different types of workers in both the private and public sectors, as well as to standardise thought processes and come to an agreement on how to make and use IT strategies to empower people at the board level in different organisations. When the BODs learn more about IT, the pressure on every level of the organisation will go down.

The authors think that their findings support Child's (1972) and Judge Jr. and Zeithaml's (1992) strategic choice theory, which says that the board of directors acts as a change agent between the focal firm and its external environment. That is, the board members have a say in how a strategic decision-making process is set up to deal with pressures from the outside (Judge Jr and Zeithaml, 1992). In order for the board to be effective in its role as a change agent, it must be able to handle IT. The research shows that a board structure that encourages the presence of directors with relevant IT skills can give valuable advice on how to use and reorganise IT assets to create value for the company.

### **5.2.2.2 Perception of digital transformation governance in relation to IT governance**

Growing direct investments in digital technology and undergoing a digital transformation (DT) that presents chances for value generation are major concerns for many enterprises (Mulyana, Rusu & Perjons,2021). IT governance (ITG) has been demonstrated to be crucial to enterprises' digital endeavours. ITG structures, processes, and relational mechanisms to improve the performance of the enterprises have been discovered in earlier research. However, in this digital age, it's possible that the conventional ITG methods are no longer effective. Sadly, not many researchers have looked at this topic. As a result, a thorough literature analysis was done to determine the ITG processes that affect DT. In that study,46 papers were chosen from major journals for purposes of review and conference proceedings, which were examined throughout the review process. The procedure uncovered 28 ITG DT-influencing pathways. The study offers researchers the ITG mechanisms that affect DT and instructs practitioners on the ITG mechanisms to concentrate on in order to have a good DT, thus advancing both research and practise.

The findings of the literature study and datasets also revealed that there are still not enough freely accessible cyber datasets. Cyber insurance is one area where this lack of information is evident, since it may be difficult to determine a risk-based premium without a large enough database (Nurse et al. 2020). In 2020, the market for cyber insurance was projected to be worth USD 5.5 billion (Dyson 2020). Given the USD 1 trillion in losses caused by cybercrime worldwide (Maleks, Smith et al. 2020), it is obvious that both the insurance sector and global trade face substantial challenges in raising awareness of cyber risk. Estimating prospective losses from cyber-attacks and

setting the price of cyber insurance in accordance with such losses may be challenging in the absence of thorough and qualitative data on cyber losses (GAO, 2021).

In this research, authors carried out a systematic evaluation of studies on cybersecurity databases and cyber risk. They discovered that the majority of the datasets are utilised for technical elements of cybersecurity and are in the fields of intrusion detection and machine learning. Cyber risk data sets were comparatively underrepresented. For those involved in cyber insurance, analysing and comprehending cyber risk is very difficult because of its dynamic nature and lack of previous data. An increased density of cyber data is required to assist cyber insurers in risk management and researchers with cyber risk-related subjects in order to handle this problem. Mandatory reporting of cyber occurrences might aid in enhancing cyber knowledge, awareness, and loss prevention among businesses and insurers, according to "Open Science" FAIR data (Jacobsen et al. 2020). Cyber dangers may be better understood via increased data accessibility, allowing academics to study these threats more thoroughly. To lower cyber threats, businesses might adopt this new information into their company culture. The benefit for insurance firms would be that all insurers would have a same knowledge of cyber hazards, supporting long-term risk-based pricing. In addition, new data may be used to develop uniform definitions of cyber hazards.

Despite the ongoing calls for better IT governance, little study has been done on how boards really control IT, despite the crucial role they play in the administration of organisations (Mohamad, et al., 2015). According to recent research, boards often fail to comprehend the condition of IT inside their organisations and/or lack the necessary IT expertise when debating IT-related problems.

The areas of IT strategy alignment, IT resource management, risk management, performance measurement, and IT value delivery have been the subject of previous work on IT governance. These five areas have been widely acknowledged as legitimate areas for IT governance (Johnson, 2005). However, the IT environment is dynamic, and big organisations' rising dependence on outsourcing as well as developments in cloud computing will further widen the scope of IT administration. In turn, this will increase the need for IT expertise on corporate boards. Therefore, it is crucial to have a model for assessing these degrees of competency. Therefore, it is crucial to have a model for assessing these degrees of competency (Mohamad, et al., 2015).

In the modern corporate climate, IT governance is essential (Mohamad, et al., 2015). The ultimate decision-maker in determining whether the organisations they manage have enough IT infrastructure is the board of directors. In order to establish proper IT governance, this study presented a model that the IT competencies boards should possess. The model is then put through a pilot test to assess two difficulties, using Ireland as a case study. Chief Information Officers (CIOs) of Irish listed firms responded to a poll. The model is a suitable tool for evaluating board IT competency, according to the results, and firms in Ireland seem to be at a reasonable level of competence. The study was significant because it has made it possible to assess board IT proficiency in various jurisdictions using the model. Additionally, differences between management and board assessments may be evaluated.

### **5.2.2.3 Need for digital transformation competence at board level**

Do all boards require a digital director? This is an ongoing question in a number of boards and through board colloquia all over the world (Alexander, et al., 2014). The

board of directors may, in the future, play a significant role in helping the company adjust to shifting strategic contexts. However, the function of boards and their efficacy have lately been questioned in light of several business disasters (Bankewitz & Åberg, 2016). Are today's boards prepared to generate future value for organisations? By establishing a paradigm where digitization is projected to have an impact on boards in two areas, we address this crucial research subject. First, we make the case that boards will eventually be composed of virtual networks of individuals where the emphasis will be placed on shared leadership strategies and the need to supervise management will decline. Second, we propose that boards operate in accordance with an agenda that is dynamic and built around organisational dangers and possibilities. The committee structure reflects the agenda's emphasis on learning and knowledge management (Alexander, et al., 2014). We provide a framework with the goal of helping people comprehend what helps boards meet future organisational demands by using arguments based on dynamic capabilities. This is the first research to examine how boards must change to meet the difficulties of the digital age, adding to the body of knowledge on boards. A new perspective on what boards accomplish and how they seem is required given the ramifications for theory and practise.

In this respect, our results emphasise the growing dynamics both within and outside of the boardroom, and we make an argument for the significance of the contribution boards make to organisational dynamic capacities as well as the foundational elements of knowledge management and learning. With this strategy, we advance knowledge about corporate governance in general and boards of directors in particular in a digitally advanced society. We link two very different literary streams—writing on information systems and literature on general management. We provide practitioners crucial information to take into account while reorganising boards so they can

contribute to the production of organisational value in the future. Our research also offers policy makers fresh perspectives on board development that they may utilise to proactively put best practises guidelines into effect in a new age of corporate governance. Such proactive measures might guarantee corporate governance standards that are advantageous to businesses and society in an increasingly digital environment (Bankewitz & Åberg, 2016).

Although digital is on the agenda of an ever-growing number of organisations in some capacity and to varying degrees, many of the directors we talked with said that this isn't always the case. For businesses in these sectors, board-level knowledge may not be essential, or perspective may be obtained from consultants, since the influence of digital has been very limited in certain industries—limited, for example, to digital marketing—and may not even be necessary in others.

Digital's influence on organisations is nothing new or recent. The first digital goods and infrastructure appeared in the late 1990s of the previous century, followed by digital distribution and the web at the start of the twenty-first century, and the digital transformation of business models in this decade. Due to digitization, industries have already begun to change, and it is becoming evident that digital technologies and their applications will have an impact on every company. Digital transformation (Dx) is another name for digitization, which has the enormous potential to revolutionise enterprises. Dx extends well beyond the simple digitization of work-related activities, communication procedures, or increased data storage capacity. According to Martini and Binder (2015), it is an all-encompassing phenomenon that is changing many facets of existence.

In this instance, the exercise not only made it possible to determine the level of maturity in the governance processes' implementation, but it also made it possible to alert people to the work that still has to be done in this area. It was determined to undertake opinion surveys based on interviews with senior experts for the MM component in order to assess the level of readiness for performing the DT (Pries-Heje et al., 2004). The investigations, which were conducted in four institutions connected to electronic public contracting, received generally extremely favourable evaluations from the respondents, who said that using these MMs helps to better drive and manage the transition itself.

In Dx, governance plays a crucial part. Hoogervorst (2012) utilises the terms "management" and "governance" to describe various aspects of organisational transformation, but he defines "management" from an implementing and operational point of view (Hoogervorst, 2012). To keep changes moving in the desired direction, governance offers the steering wheel and barriers (Westerman et al., 2014). Therefore, enterprise governance of IT and governance related to Dx are closely related. No matter what kind of change is being driven, the governance mechanisms are essential. According to Tannou and Westerman (2012), there are three common digital governance methods to take into consideration in particular: committees at the company level, shared digital units, and new digital responsibilities (Durão, et al., 2018).

However, for businesses that must adapt, having a digital specialist on the board may be crucial for highlighting the need of change and making sure the board is suitably engaged in digital strategy. In order to increase their influence and effect on the digital agenda, boards may even consider hiring two directors with a digital profile.

The key differentiator for financial success is having members of the board with expertise in digital business (Weill, et al., 2019). Being digitally literate in an age of digital transformation is swiftly moving to the top of the list of topics that board members must focus on. Most businesses are seeking for ways to leverage technology to enhance their business models, customer experiences, operational efficiency, and more. Boards must assist these businesses in moving ahead at a suitable rate, pushing for change by encouraging and perhaps nagging their CEOs. Those that comply are probably to have better financial outcomes than those who don't.

That is what we found when we used machine learning to analyse all of the boards of U.S. listed companies' digital infrastructure. According to their study (Weill, et al., 2019), businesses that have digitally aware boards of directors do better than those that don't. We describe digital savvy as an awareness of the influence that developing technologies will have on organisations over the course of the next ten years, acquired via experience and education. By examining survey, interview, corporate communication, and 40,000 director biographies for key terms that indicate exposure to digital methods of thinking and doing. Findings discovered that 24% of firms with over \$1 billion in sales had boards with strong digital skills, and those companies considerably outperformed the competition on important criteria including revenue growth, return on investments, and market cap growth (Alexander, et al., 2014).

Risks associated with doing business in the digital age range from business model changes and privacy concerns to cybersecurity breaches and lost competitive opportunities. Lack of digital expertise prevents a board from understanding key aspects of strategy and supervision, which prevents it from fulfilling its crucial function of assisting in the company's future direction. However, by knowing what qualities to

look for in both new and current board members, handling board agendas differently, and fostering new learning opportunities, businesses can change that.

Finally, the Department of Public Enterprises (DPE) is one of those entities that play a leading role in promoting the crucial need for directors to possess digital skills. The government-wide initiative to professionalise the State is consistent with the need of professionalising boards. A minimal level for induction of directors has to be developed, and all incoming board members should be required to meet it. It is advised that all State Owned Companies (SOCs) carry out yearly board development and training programmes in accordance with the board improvement strategy/framework, as published in 2021 (DPE, 2021). A structure and set of guidelines for SOC boards' training and development may be developed with input from the DPE with/or in line with guidelines provided for in King IV. For that reason, the essence and the main objective of this research is captured in the main question that underpins this investigation, entitled "*How to develop a competency-based model for governance of digital transformation for boards of directors in South Africa?*"

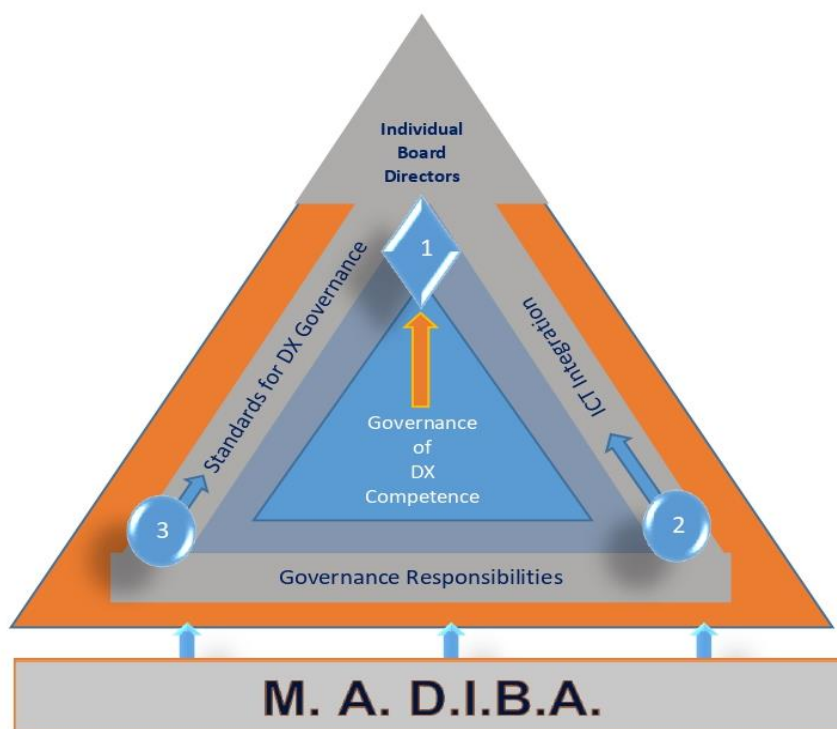
This culminates in a model/framework developed by the researcher, integrating all objectives and summed up in this final objective, as explicated below.

### **5.2.3 Competency Model for Governance of Digital Transformation**

#### **5.2.3.1 Background to the Model Development**

Empirical Literature that underpinned this study (Cremer, et al., 2022;David & Farzan, 2021;Mulyana, et al., 2021;Martínez-Caro, et al., 2020;Qahatan, et al., 2020; Kamalaldin, et al., 2020; Pearce, 2019;Kane, et al., 2019;Pearce, 2019;Bankewitz & Åberg, 2016;Alexander, et al., 2014;Durão, et al., 2018) has pointed towards the

direction of a fiduciary and statutory need for the directors of boards to be digitally competent so as to be able to execute board functions in relation to governance of digital transformation in both public sector and private sector organisations. This empirical evidence was fundamental in both data collection, as elements of the research instrument and pointers for literature review discussion (Höfler, Venz, Trautmann & Miller, 2018). The outcome of this study, both primary and secondary data analysis has led to a development of a model, entitled M.A.D.I.B.A. Model, as depicted in Figure 5.1 below.



**Figure 5.1: M.A.D.I.B.A. Model for Governance of Digital Transformation**

### **5.3.2.2. Constructs of the M.A.D.I.B.A. Model**

The outcome of this study, being the M.A.D.I.B.A. Model, is made up of six cardinal points that form its full acronym as per Table 5.1 below.

**Table 5.1: Constructs of MADIBA Model**

#	Construct	Literature connection
M	Model	(Škrinjarić, 2022)
A	Approach	(DPE, 2021)
D	Dimensions (Triad)	(Durão, et al., 2018)
I	Integration	(Bankewitz & Åberg, 2016)
B	Boards	(Kane, et al., 2019)
A	Assessment of outcomes	(Pearce, 2022)

### **5.3.2.3 Application of the M.A.D.I.B.A. Model**

The model is based on the premise that the foundational competencies to be understood requires specific demarcation and application of concepts within the broad digital transformation paradigm. The study found out that directors required the basic understanding of the Dx paradigm, its components and how it works. The application of this model, at standards creation/establishment level, seeks to espouse on the components of Dx, as key and basic elements of a competency-based model.

#### ***Digitalization***

In a corporate setting, digitalization refers to the idea of more automated and digital activities. All information is moved to computer systems, making it more accessible. As described by Company and Manyika (Company & Manyika, 2017) and Valenduc and Vendramin (Valenduc & Vendramin, 2017) the development of automation made possible by robotics and artificial intelligence holds the promise of greater productivity as well as improved efficiency, security, and convenience. It also has the potential to transform the world of work by introducing new forms of digital or virtual work. Skills associated with all practical and regulatory aspects of this exercise are critical at board level, as the policies are promulgated at that level. This means these have to be included in a standard to be developed and demarcated as digitalization competencies.

## ***Digital Transformation***

Because there were definitions of Dx at the time of publication, Gong and Ribiere developed a single definition (Gong & Ribiere, 2021). They offer the unified definition of digital transformation as follows: A fundamental change process that fundamentally improves a business and redefines its value offer for its stakeholders. It is made possible by the innovative use of digital technology combined with strategic leverage of critical resources and competencies.

The most modern technologies (cloud computing, Internet of Things (IoT), big data analytics, and machine learning) that have been supporting and driving Dx are used by businesses that propose disruptive digital business models, like Google, Tesla, Apple, Amazon, Netflix, Uber, and Airbnb. Uber and Airbnb's business models are totally digital and utilize the aforementioned technologies, as demonstrated by Oswald and Kleinemeier (2017) in their specific examples. Another illustration is the transformation of the television and film industries brought about by the rise of streaming service-using businesses like Netflix and HBO. These businesses were able to access the global market because they strategically combined their resources and competencies (by employing the appropriate tools, i.e., technology) to produce value (having a far-reaching impact reaching all parts of the world). As is the case with the pandemic that we are currently witnessing, it enables them to respond to changes in client preferences and market conditions.

Whether they are data or functionality, all organizations and businesses (organization, business network, industry, and society) have valuable digital assets. However, resources (human, financial, and knowledge) and capabilities (digital capabilities and dynamic resources) are the strategic assets for initiating or accelerating DT, leveraging,

reusing, combining, and sharing with stakeholders. According to Zavery (2017), DT is not about utilizing digital technology for their own sake, developing more mobile apps, moving to the cloud, utilizing machine learning, or doing the majority of the other limited things that people connect it with. However, strategic resource and capability leveraging significantly enhances an organization or business and reframes its value proposition for stakeholders. In this epidemic the world is going through preferences and market dynamics are unfolding.

### ***Digital Business Transformation***

The application of technology to create new business models, processes, software, and systems that provide higher profitability, more substantial competitive advantage, and greater efficiency is what Schwertner (2017) refers to as the digital transformation of the business. Companies accomplish this goal by adapting business models and processes, improving employee productivity and innovation, and personalizing consumer and citizen experiences. Without an appropriate view of usage that is aligned with their strategy, these technologies are already profitable, on average, have higher revenues, and have achieved a higher market valuation than competitors among businesses where cloud, mobile, social, and big data technologies (key pillars of Dx) are critical parts of their infrastructure. Cloud, mobile, social, and big data projects, however, face substantial difficulties, just like any other cutting-edge technology. Data security concerns, legal concerns, a lack of interoperability with current information technology (IT) systems, and a lack of control are the main risks preventing its wider adoption. These risks could, in some way, initially delay the business's digital transformation and, as a result, slow down its internationalization.

### **5.3 Contributions to Professional Practice**

The need for competencies for digital transformation at board level is evident, particularly in view of threats such as cybersecurity, which have already nearly crippled some of major corporations in South Africa during the time this study was conducted. Whereas there is a dominant idea in board circles that directors do not need skills, the study indicated that within the context of digital transformation, it is imperative for directors to attain functional skills for governance of this phenomenon as they are responsible for policy formulation and strategic directions of organisation. The argument being how could directors provide policy guidance on Dx if they do not have skills of understanding its regulation, execution and general practice. As indicated in this present study during interactions with participants, and as reflected by their assertions presented both textually and graphically in the previous chapter, directors of boards do agree and support the idea that digital transformation governance requires a competency-based model that could be used to empower directors in various boards across different sectors. Furthermore, this study will contribute in assisting organisations in selecting and appointing directors to their boards. Finally, this investigation to professional practice is that it brings about a discourse on the need for boards of directors to consider having functional skills in understanding the fast moving digital landscape and how it impacts on governance responsibilities. Functional skills start from understanding basic tech skills so as to appreciate digital platforms as they are built on technological applications.

### **5.4 Study Limitations**

This study was a qualitative research and as such, in-depth experiences were uncovered from participants. The study was premised on a subjective ontology, which

could be viewed as biased, and therefore, the theory established in this study needs to be tested in a positivist paradigmic approach. Furthermore, since the nature of the design limited the researcher to gain a generalised perspective of the findings of this study, hypothetical-deductive approach could help to provide a perspective in terms of the broadness of the emerging findings. It could have been vital to this study to interview 100% of the directors a single board so as to ascertain a holistic view from boards regarding the governance of digital transformation from a competency based perspective. Lastly, there were time constraints as directors of boards were not easily accessible due to the fact that this study was conducted during a high peak of board season.

## **5.5 Recommendations**

This section is divided into recommendations for professional practice and recommendations for future research.

### **5.5.1 Recommendations for Professional Practice**

Based on the findings of this study, it is recommended that boards of directors be capacitated with skills in digital transformation, as most of boards' functions have been gradually conducted on digital applications, and rapidly shifted to this trajectory during and post COVID-19 pandemic. Understanding digital transformation and governance requirements could help avert numerous risks that are potentially threatening the sustainability and even continued existence of organisations. One such threat is cyber security and competitor's advancement in digital applications.

The emerging model from this study, entitled MADIBA Model, could help organisations and boards the requisite elements of a competency-based framework for governance of Dx at board level. These are enlisted as:

- Establishment of standards for governance of digital transformation
- Integrating these standards into existing ICT standards
- Developing competencies of directors in line with established integrated standards

It is recommended that this be included as central thesis to the board charter and driven by chair of the human resource development, with the oversight in the hands of board chair, assisted by board deputy.

#### **5.5.2 Recommendations for Further Research**

It is recommended that a mixed methods research be conducted to provide a more triangulated and pragmatic perspective of the phenomena under investigation. Furthermore, it is recommended that individual boards conduct similar studies so as to obtain a collective view regarding the governance of digital transformation. Lastly, it is recommended that multiple case studies be conducted in specific economic sectors to enhance knowledge development regarding this important issue.

#### **5.6 Conclusions**

This culminates in the end of this investigation and report. The study has concluded that the boards of directors do require functional skills on the governance of digital transformation. Furthermore, this could be done by a development of a competency model to assist those tasked with implementation of this concept in their boards to do so effectively. Thus, this study provides such a guide through the presentation of a MADIBA Model, which is made up of three constructs clearly articulated in the recommendations for professional practice.

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## PPENDICES

### Appendix 1 : Consent Declaration by Participant

#### PARTICIPANT INFORMATION AND CONSENT FORM

My name is Nandipha Daphne Madiba, a PhD student at Global Centre for Academic Research, a research unit/faculty of the South Valley University based in Zambia. As part of the completion of my doctoral studies, I need to conduct a research that is within business leadership and management, focusing on Corporate Governance in the context of Digital Transformation (Dx). My research topic is **“Digital Transformation: Towards a model for competency-based governance of digital transformation for boards of directors in South Africa”**.

Please note that the details of the research project, including disclosure, confidentiality, and anonymity protocols are attached in the next sections below.

I look forward to your favorable consideration to participate in this research project.

Yours Faithfully

PRINCIPAL RESEARCHER



10 April 2022

## **THE DETAILS OF THE RESEARCH**

### **TITLE OF THE RESEARCH PROJECT**

*“Digital Transformation: Towards A Model for A Competence-based Governance of Digital Transformation for Boards of Directors in South Africa*

#### **RESEARCHER:**

Ms Nandipha Daphne Madiba

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#### **RESEARCH SUPERVISOR:**

Professor King Costa

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#### **Background to the investigation**

The aims of this research are:

- To investigate how a model for Competence-based Governance of Digital Transformation (Dx) for Boards of Directors (BoDs) can be established, from a typical corporate governance perspective.
- To explore and assess the views of critical stakeholders on how a competence-based Governance of Digital Transformation can be modelled. Nonetheless, the research acknowledges that there are already studies about digital transformation principles and governance and the related capabilities, hence the main focus will be on the competency-based Digital Transformation Governance for directors serving on Boards of Directors.

- To fuse the attested literature with in-depth interviews conducted with directors serving on Boards of Directors to realize a practical competence model which will guide the competences of Dx governance.
- To map a process to develop a Dx Governance Model of competency analysis that can be used to scrutinize the competencies required for the Boards of Directors and to set out the implications this has for the Director training and selection.

## **Participants**

The primary participants of this study will be:

- Directors serving on Boards of Directors as Non-Executives, either playing Chairmanship role or member of the Board, or a member of a Board Committee.
- Executive Directors serving on the Boards of Directors.

## **Expected role of the participant in this study.**

You are expected to provide at least a modicum of information in the form of responding to interview questions. With your permission, an audio tape recorder will be used to capture the interview. The interview will later be transcribed verbatim for purposes of data analysis through coding, however, pseudonyms will be used for confidentiality purposes.

## **Benefits to the participants**

In accordance with standards within social sciences and related disciplines, this research project will not provide any monetary incentives as benefits to the participants. However, since this study is a participative action research (PAR), the significant benefits of your participation will be realised through co-creation of a critical social intervention as underpinned by the title of the study.

### **Risks involved for participants**

There are no known risks to participation in this research project.

### **Confidentiality and protection of identity**

All your responses and your identification will be kept strictly confidential. To report some of the information, pseudonyms will be used to protect the identity of the organisation/s on whose boards the participant serves.

### **Dissemination of findings**

The findings will be disseminated through:

- 1) Publishing the Thesis through the institutional repository and similar portals that publish academic studies.
- 2) Paper/article publication in peer reviewed journals (National/International).
- 3) A book series project.

If you have any further questions or enquiries regarding your participation in this research, please contact the researchers for more information.

Yours Faithfully

PRINCIPAL RESEARCHER



10 April 2022

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Ms Nandipha Daphne Madiba

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Date

By signing below, (or accepting to participate by return email) I, ....., agree to take part in a research study entitled: ***“Digital Transformation: Towards A Model***

*for A Competence-based Governance of Digital Transformation for Boards of Directors in South Africa.”*

**I declare that:**

- I have read this information and consent form and understand what is expected of me in the research.
- I have had a chance to ask questions to the researcher and all my questions have been adequately answered.
- I understand that taking part in this study is voluntary and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.
- I may be asked to leave the research process before it has finished, if the researcher feels it is in my best interests, or if I do not follow the research procedures, as agreed to.

Signed at (place) \_\_\_\_\_ on (date) \_\_\_\_/\_\_\_\_/2022

\_\_\_\_\_  
**Signature of participant \***

\*

Kindly note that your return email consenting to participate on this research interviews will be taken as an authentic indication of your acceptance.

Participant's consent forms

Interview Guide