

University of KwaZulu-Natal

**IT Governance Implementation Framework
for South African Companies:
A Corporate Governance Perspective**

By

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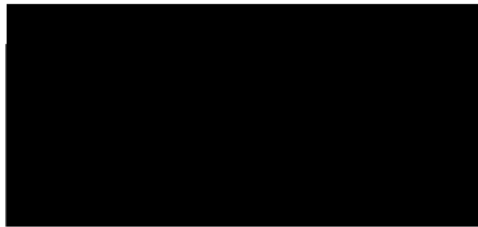
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DECLARATION

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*Oh, for a thousand tongues to sing my great redeemer's praise.
The glories of my Lord and King; the triumphs of His grace.
Charles Wesley, 1739.*

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ABSTRACT

In the past, information technology (IT) management and governance was a departmental or management level responsibility. However, of recent, it has become an integral part of organisations and its optimal function has also become critical for the attainment of organisational strategic objectives. Organisations continuous investment in and dependency on IT has increased their risk exposure and thus necessitated the need for IT oversight. This need for oversight has prompted the incorporation of IT governance into corporate governance practices and codes. It has also prompted the elevation of IT governance to the highest level of control and leadership of the organisation which is the board.

The objective of this study was to establish how JSE listed companies govern IT at the board level. A conceptual board level IT governance framework was derived through a combined review of governance models, corporate governance codes, and IT governance frameworks. The framework was tested using qualitative and quantitative data obtained through semi-structured interviews and a survey respectively. The combined qualitative, quantitative and literature findings were analysed to achieve triangulation.

The resultant findings indicated the following: an organisation with a well-developed IT governance framework positively improves its board level IT governance effectiveness; board level IT governance effectiveness is improved where IT leadership is engaged with the board; and effective board level IT governance oversight improves overall organisational performance.

The unique contribution of this study is that it presents a corporate governance perspective to IT governance at the board level. It provides boards with factors on which to focus to improve their IT governance oversight effectiveness. The study found that IT governance oversight effectiveness is improved if the board focuses on decision making rather than technical and managerial IT-related matters. In addition, the study found that overall organisational performance is influenced by the organisation's board level IT governance effectiveness.

It is recommended that boards of organisations understand the broad domains of IT governance and the impact thereof on business operations, using platforms like board orientation and directorship programmes and courses where applicable. A sample questionnaire developed to

guide the board on what aspects of IT governance issues to focus on is proposed and recommended.

Key concepts: Governance models, corporate governance, IT governance, mixed methods, triangulation, research framework conceptualisation, research framework, board level IT governance, key success factors.

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GLOSSARY OF ACRONYMS

ACCP	Advanced Certified Compensation Professional
AHP	analytic hierarchy process
ANP	analytic network process
ASM	Annual Shareholders' Meeting
BEE	Black Economic Empowerment
BLITG	board level IT governance
BLITGF	board level IT governance framework
BOM	Board of Management
BSC	balanced scorecard
CEM	Continental Model
CEO	chief executive officer
CFO	chief finance officer
CIO	chief information officer
COBIT	Control Objectives for Information and Related Technologies
CSR	corporate social responsibility
ERP	enterprise resource planning
EU	European Union
FRC	Financial Reporting Council
FSB	Financial Services Board
DTID	Durban Trade and Industry Department
GDP	gross domestic product
G-EPS	growth in earnings per share
IMF	International Monetary Fund
IoDSA	Institute of Directors in Southern Africa
ISACA	Information Systems and Control Association
ISO	International Organisation for Standards
IT	information technology
ITG	information technology governance
ITGI	Information Technology Governance Institute
ITIL	Information Technology Infrastructure Library
ITSC	information technology steering committee
JSE	Johannesburg Stock Exchange

KZN	KwaZulu-Natal
LSE	London Stock Exchange
MOI	Memorandum of Incorporation
NCC	National Consumer Commission
NYSE	New York Stock Exchange
OECD	Organisation for Economic Cooperation and Development
PBV	price-to-book value
PM	Political Model
POPI	Protection of Personal Information Act
ROA	return on assets
ROE	return on equity
ROI	return on investment
SB	Supervisory Board
SEC	Securities and Exchange Commission
SENS	Stock Exchange News Services
SFM	Simple Finance Model
SHM	Stakeholder Model
SOX	Sarbanes Oxley Code
SRI	Social Responsibility Investment Index
SWM	Stewardship Model
UK	United Kingdom
US(A)	United States (of America)

CHAPTER 1 INTRODUCTION TO THE STUDY

1.1. INTRODUCTION

Governance has become synonymous with the process of how power, control and authority are being used by organisations or governments to achieve their objectives (Farrar, 2008). In a state, the concept of governance suggests the highest level of central authority (Kjaer, 2010). The central authority, often referred to as the government, enacts laws and enforces compliance through regulations that control the interaction and relationship within corporations and the larger society.

In corporations, the central controlling authority is the board of directors, which oversees the overall operations of the corporation, ensures the sustainability and continued existence of the corporation, controls and directs the activities and processes of the corporation, and ensures that the corporation abides by the laws and regulations of the state or country (Ayuso, Rodriguez, Garcia-Castro & Ariño, 2014; Krause et al., 2013; Akingunola, Adekunle & Adedipe, 2013). To be effective in carrying out their oversight role, the board is often guided by codes of corporate governance and best practices (King III, 2009). Corporate governance codes and best practices have been developed as principles that specify needed structures, processes and sets of values for the board's implementation and institutionalisation. Corporate governance codes are dynamic; they are reviewed and updated to keep up with ongoing challenges and changes within the socio-economic environment, and with laws and regulations.

This chapter provides a summary of this study. The following sections of the chapter cover the context of the study, existing research in the field, the problem statement, aim and objectives of the study, the methodology used for the study, limitations of the study, and a brief layout of each of the other chapters.

1.2. CONTEXT OF THE STUDY

For their corporate governance responsibility of oversight, boards are guided by both local and international codes of corporate governance and practices. In South Africa, King III (2009) is the accepted code of corporate governance even though it is not legislated. However, it is mandatory for all Johannesburg Stock Exchange (JSE) listed companies to comply with the principles of King III (2009). King III (2009) is also recognised

internationally as a benchmark of corporate governance best practice (Wilkinson & Plant, 2012; Oosthuizen & Lahner, 2016).

An organisation's corporate governance is the responsibility of the board and subsequently responsible for information technology (IT) governance as an integral part of corporate governance (ITGI, 2003). Corporate governance codes and practices thus need to incorporate IT governance codes and practices to guide the board in carrying out its IT governance responsibilities. King III (2009) responded to this expectation and included IT governance principles with its corporate governance codes. A review of existing corporate governance codes revealed that only South Africa and Australia have explicitly included IT governance principles and practices as an integral part of corporate governance codes (King III, 2009; AS8015). The United States of America (USA), United Kingdom (UK) and Organisation for Economic Cooperation and Development (OECD) codes do not have such explicit IT governance rules or guidelines within the codes.

King III (2009) provided seven IT governance principles to guide the board in effecting IT governance oversight. A guide considered to be an appropriate response to various research findings that indicated that boards have been ineffective in governing IT (Huff, Schroeder & Pauleen, 2012; Jewer & McKay, 2012; Bart & Turel, 2010; Andriole (2009). Various reasons were provided for this; inability of boards to effectively govern IT, lack of IT knowledge and competence, the technical nature of IT, the cumbersome nature of existing IT governance frameworks, and technical and operational focus of IT governance frameworks, to name a few.

Most existing IT governance frameworks and practices provide limited details on implementation and the distinction between management and governance elements of the framework or practice (Balsmeier, Buchwald & Zimmermann, 2013; Goosen & Rudman, 2013). These frameworks strive to provide comprehensive IT governance guidelines and practices that cover governance, management and operational aspects of IT implementation (Wolmarans, 2016; Mohamed & Kaur, 2012; Dahlberg & Kivijarvi, 2006). Whilst these frameworks have been useful at management and operational levels, their use at board level has been difficult and ineffective. Boards are unable to separate the various aspects of the framework and to focus on only the governance aspects and implement (Buchwald et al., 2014; Larsen et al., 2006; Parent & Reich, 2009). In a comparative analysis of three IT governance-related frameworks, namely King III (2009), the Sarbanes Oxley Code (SOX)

(2002) and ISO27000, Moolman and Ngwenya (2016) found that SOX (2002) and ISO27000 are rule-based frameworks that focus on the management and operational aspects of IT governance implementation. Being rule based and management focused, their implementation follows specific implementation processes which are understood by management. However, King III (2009) is not rule based but rather a voluntary set of principles that include both governance oversight and management aspects of IT governance. Boards seem to find it difficult to distinguish between the governance and management aspects of IT governance principles and are thus unable to effectively apply the principles (Buchwald et al., 2014; Balsmeier et al., 2013; Parent & Reich, 2009; Larsen et al., 2006). Due to this difficulty that boards face, the King III has been criticised as being ambiguous and confusing to apply (Van Vuuren & Schulschen, 2013; Goosen and Rudman, 2013; Theron and Koornhof, 2016) . Thus whilst seeking to be comprehensive, the IT governance principles provided by King III (2009) fall into the category of frameworks that have been difficult for boards to use.

Whilst the decision-making rights and accountability for IT governance at the board level has been established by King III (2009) and other corporate governance codes and writers (Weill and Ross, 2004; Webb et al., 2006; Heart et al., 2010), there has been limited research on how boards are implementing these decision-making rights and accountability. According to Schwertsik, Wolf & Kremer (2010), very little academic research has been conducted on how boards make IT-related decisions, the capabilities required by the board to make these decisions, the process followed, and effectiveness of these decisions.

1.3. EXISTING STUDIES

Since the launch of King III (2009), no extensive research has been conducted on how boards have been overseeing IT governance. Whilst much work has been done regarding IT governance in general, both locally in South Africa and internationally, specific studies on how boards govern IT as recommended by King III are limited and mostly conceptual in nature rather than empirical. These include works of Butler and Butler (2010), Goosen and Rudman (2013), Posthumus, von Solms and King (2009); Badenhorst (2009); Coertze and von Solms, (2013).

Existing literature on IT governance by the board covers diverse aspects of IT governance, with equally diverse findings. Some of these studies include the works of Brown (2015), Bart and Turel (2014), Jewer and McKay (2012) and Andriole (2009). Andriole (2009)

provided a comparison between what he called “Prescriptive literature” and “Descriptive literature” on IT governance. Prescriptive literature represents existing literature on IT governance that prescribes the need for board involvement in IT governance. Descriptive literature on the other hand represents empirical studies on IT governance that indicate the absence of the board in IT governance. Using mixed methods, comprising a survey and interviews, Andriole (2009) found that a significant number of boards did not participate in IT governance. IT governance in these organisations existed below the board level, at management level with the chief information officer (CIO) being responsible. The organisations indicated that their IT governance is effective and that they are satisfied with their IT governance implementation and practices. Andriole’s study thus confirmed that existing practices of IT governance are more descriptive rather than prescriptive; that there is a difference (gap) between the prescribed involvement of boards in IT governance and their actual involvement.

Jewer and McKay (2012) utilised the strategic choice theory and institutional theory to identify and explain antecedents of board IT governance and the consequences. However, their study focused on board attributes (strategic choices) and organisational (institutional) factors. By means of a mixed methods approach, they obtained and analysed responses from directors serving on boards. The study found that boards do not have board level IT committees, and that boards of younger organisations are more likely to be involved with IT governance than those in older organisations. Jewer and McKay (2012) further found that smaller boards are more likely to be involved with IT governance than larger boards and also that a relationship between organisation size and board level governance was not supported. Overall, the study found that board IT governance positively impacts on IT contribution to organisational performance. In a similar study to that of Jewer and McKay (2012), Bart and Turel (2014) made use of the resource-based view, contingency view and corporate governance theories to examine key antecedents and consequences of board IT governance. By utilising multi-methods (survey, interviews, content analysis), the study obtained a sample of directors of boards in Canada. The study found that boards of organisations that need and use new, fast and reliable IT strategically for offensive manipulation in a competitive marketplace are more active with board IT governance than their counterparts. Overall, the study found that board IT governance levels improve organisational performance. Bart and Turel (2014) concluded that more research is required to identify

more dimensions and factors that influence board IT governance in order to better understand the phenomenon.

Brown (2015, pg. II) in his study argued that the existing paradigms of traditional IT governance that focus on “the structural and normative aspects of oversight and control (i.e. structures), have limited our ability to adequately and fully understand how IT governance performs in practice”. According to Brown, the intention of effective IT governance is to direct the achievement of an expected outcome and thus any deviation of the actual outcome from the intended is a measure of the effectiveness of IT governance. Brown (2015) indicated that existing IT governance practices are ineffective and thus unable to achieve the desired outcomes of IT governance.

According to Brown (2015), whilst the adoption of IT governance practices has increased, IT projects continue failing to deliver on the expected outcomes. In his study, Brown (2015) utilised the institutional theory and organisational routines theory to establish and explain the reasons for the occurrence of IT governance divergence. Brown’s findings indicate that established IT governance in organisations is dynamic and requires feedback to ensure that divergence is identified and appropriate action taken. According to Brown’s (2014) findings, IT governance establishment must be legitimate, aligned to a desired outcome (overall strategic objectives of an organisation), have supporting capabilities, and should not compete with other governance practices.

Whilst the four studies referred to above are by no means exhaustive, it is evident that board level IT governance has been studied from various dimensions. The common theme was that all these studies called for more studies to fill in the gaps. Following from these calls, other studies identified in the literature, between 2004 to date, with diverse findings include the following: the work of Jordan and Musson (2004) found that boards have poor IT knowledge and related experience and thus rely on IT consultants when making IT-related decisions; De Haes and Van Grembergen (2005) found that IT governance is delegated to IT committees below the board level but with some board representation; Huff et al. (2012) found that whilst boards pay attention to IT risks, their attention to IT governance as a whole is low and trust the CIO and IT committees below the board level with IT governance oversight; Andriole (2006) found that boards are not active in IT-related decision making and unable to effect IT decisions to unravel the potential of IT in organisations; Bowen et al. (2007) found that whilst IT governance is delegated to IT committees below the board level,

the board plays an active role in IT decision making and involves management in such decision-making processes; Huang et al. (2010) found that IT governance oversight has been delegated to management level IT steering committees rather than to board level IT committees – thus an indication that IT governance responsibility delegation is mostly being implemented at management level rather than at board level; Bart and Turel (2010) found that boards pay insufficient attention to IT governance-related matters and inadequately interrogate such matters, which they attributed to the boards' lack of IT knowledge and education.

Following from Brown's (2015) supposition that existing IT governance does not achieve the desired IT governance outcomes, this study sought to establish how boards of organisations actually govern IT beyond just the adoption of IT governance frameworks and practices. This study made use of corporate governance theories, models and practices to frame a conceptual model of IT governance guided by existing IT governance frameworks. A multi-theory approach was used, seeking to overcome the limitations and shortcomings of previous studies.

1.4. BACKGROUND TO GOVERNANCE

A state constitutes its territorial boundary, its citizens and its governmental authority (Baum, 2005). A state is thus likened to or synonymous with a sovereign country. In the early 19th century, the government of states dominated the provision of goods and services to the citizens and established their legitimacy by instituting political dogma that entrenched citizens' dependency on the government for goods and services as a just and fair process for redistributing welfare for all citizens (Roosma, Gelissen & van Oorschot, 2013). Furthermore, governments institute control over both economic and social activities. States established state-owned organisations mainly to secure public goods and services for the society at large (Baum, 2005). These organisations were established for the general service of the society rather than for profit making.

In the late 19th century, states experienced significant pressure and were challenged with the burden of heightened demand and administrative overheads for the provision of goods and services for the citizens (Roosma et al., 2013; Czarny, 2017). States' inadequacy to provide these goods and services for all citizens led to the emergence of privately-owned organisations that were established to meet the inadequacies of state-owned organisations to meet the public demands (Kjaer, 2010; Siebert, 2005; Baum, 2005).

The early 20th century experienced changes that were driven by the need to control and regulate organisations (both state and privately owned) that had emerged as key participants in the economy and society. This need for control and regulations in order to protect the interests of shareholders and stakeholders of the organisations led to the emergence of corporate governance (Wixley & Everingham, 2010; Ayusouez, et al., 2014; Veasey, 2004).

Corporate governance practices that emerged then did not fully accomplish the expected control and regulations for corporate success as was evident in various corporate failures of the 1990s (Wixley & Everingham, 2010; Nordberg, 2010; Veasey (2004). The need for more effective control and regulations triggered reforms that subsequently prompted the review and update of existing corporate governance codes of practice and the development of newer codes, such as: the first UK Code of 2003, the first German code of 2002, the SOX of the US in 2002, and King III (2009) in South Africa. According to Aguilera and Cuervo-Cazurra (2009), institutions like the World Bank and the OECD have been instrumental in driving the need for the reform of the existing corporate governance codes so as to improve the governance of corporations and the growth of countries in general.

However, the failure of corporations in the 1990s extended beyond just corporate governance models, codes, and laws. Poor management and oversight of IT systems were also identified as sources of failures. The significant utilisation of and reliance on IT thus called for significant oversight by the board (Gheorghe, 2010; Csaszar & Clemons, 2006; Nolan & McFarlan, 2005; Gomolski, Grigg & Potter, 2001). Poor board oversight of IT has been attributed to issues of poor controls within accounting systems, poor IT systems management, configuration, and inadequate IT risk management (Gheorghe, 2010; Csaszar & Clemons, 2006; Nolan & McFarlan, 2005; Gomolski, Grigg & Potter, 2001).

To address these issues, IT governance reforms were incorporated into corporate governance codes. Addressing these issues also prompted the reform of SOX of 2002 to include stringent IT controls that are mandated by law (Damianides, 2005). It also led to the update of King II to King III and the inclusion of IT governance principles in the King III so as to guide the board in its oversight of IT governance. The King III commission argued that the incorporation of IT principles was timely because it would serve two purposes – make IT governance an integral part of corporate governance and also effect IT governance reforms. The incorporation of IT governance principles into King III (2009) marked the first time IT

governance had been included in a code of corporate governance. This placed IT governance at the highest level of control and leadership of organisations, namely the board.

1.5. PROBLEM STATEMENT

Organisations have become dependent on IT as a central component of their operations and have integrated it into all the aspects of their operations. IT has thus become an enabler of organisations' ability to attain their strategic goals and improve their operational efficiencies. Organisations are hence compelled to update their existing IT systems and invest in new IT systems. The dependency on and the extensive use of IT systems exposes organisations to IT risk that leads to possible IT failure, causes vulnerabilities within the IT systems and also results in non-attainment of expected returns from the IT investments (ISACA, 2012; Hall, 2011; Parent and Reich; 2009, Gheorghe, 2010). Organisations are increasingly realising that the impact of IT risk can be disastrous and possibly cause organisational failure. Hence they are forced to institute measures to manage the risks that IT exposes them to and to ensure the realisation of expectations from IT investments.

IT governance principles and practices are being widely accepted and incorporated as a board level responsibility. However, these IT governance principles and practices have not delivered the expected outcomes. Emerging studies indicate that boards have been challenged in executing IT governance principles and practices (Schwertsik et al., 2010). In the South African context, the King III IT governance principles and practices have been criticised as being ambiguous and convoluted in some aspects as they do not make a clear distinction between aspects of 'governance' and that of 'management' (Theron and Koornhof, 2016; Van Vuuren & Schulschen, 2013). Due to such ambiguity, the King III governance principles and practices have been challenged and misinterpreted (Bouwer, 2013), which has negatively affected implementation thereof.

Existing studies on IT governance have focused more on managerial structures and decision making but less on the actual role of the board in IT governance. Research on how board members practically effect or have implemented IT governance is scarce. In response to these research deficits, this study sought to answer the question, What role should the board play in strategic (effective) IT governance?

1.6. AIM AND OBJECTIVES

The aim of the study was to establish how boards of JSE listed companies govern IT as part of their corporate governance responsibility. This had to be achieved by accomplishing the following objectives:

- a) To assess IT governance implementation by JSE listed companies, as recommended by King III.
- b) To identify aspects of IT governance implemented by JSE listed companies.
- c) To identify the gap between the King III recommended IT governance principles and actual implementation aspects of IT governance in practice.
- d) To establish the link between board level IT governance oversight and organisational value obtained from IT.
- e) To establish the link between board level IT governance implemented by boards and overall performance of their organisations.
- f) To construct a conceptualised board level IT governance oversight framework for organisations.

The aim and objectives of this study had to be met by obtaining both qualitative and quantitative data on IT governance from JSE listed companies, and by analysing the data to obtain insight into the nature of board level IT governance oversight implemented by these JSE listed companies. A conceptual framework, called the “Board Level IT Governance” (BLITG) framework, was developed from a detailed review of existing literature on governance, corporate governance and IT governance. Factors that impact board level IT governance were identified and key success factors were derived for board level IT governance implementation.

1.7. METHODOLOGY FOLLOWED

The study used a mixed methods approach, combining both qualitative and quantitative methods. The qualitative method was the primary data collection method adopted for the study and the quantitative method was used to triangulate the findings of the qualitative method. The qualitative method aided the study in gaining an in-depth comprehension of IT

governance as the phenomenon being investigated, and also enabled focus and understanding of specific aspects of the phenomenon (Dworkin, 2012).

According to Hair, Money, Samouel and Page (2007), the population that exhibits common characteristics of interest to the research qualifies as the target population. Hence, the target population of the study comprised all the JSE listed organisations. JSE listed organisations are mandated by the JSE listing rules to adopt King III as a legislative code of corporate governance and therefore all the listed organisations had to apply King III. If they did not apply the King III regulations, they are mandated to explain why not. A total of ten organisations (all JSE listed) were selected as the case study site for this study. Qualitative data was obtained from these organisations through semi-structured interviews. According to Kumar (2011), respondents with the appropriate knowledge of interest to the research should be selected to provide the needed data. In this study, selected representatives (which were nominated by each of the organisations used as the case study) were executives and senior managers responsible for IT management and those with board level IT oversight. The qualitative data was analysed using NVivo after which themes were generated from the data. Hence, in this study a thematic analysis was done on the qualitative data.

The quantitative method was used as a secondary method to obtain quantitative data for triangulation. Triangulation complements and deepens the researcher's understanding of the phenomenon being studied (Lapan, Quartaroli & Riemer, 2011). Triangulation also increases the reliability and validity of the findings. Quantitative data for this study was obtained using a purposive sampling technique. This enabled the researcher to identify the appropriate respondents with the potential to meet the required characteristics of interest (Sekaran & Bougie, 2010; Anderson, 2010). The study required respondents to be the directors and executives with IT and corporate governance-related responsibilities within a company. To access such directors and executives, the researcher approached two associations consisting of directors and executives. The two associations were the Institute of Directors in Southern Africa (IoDSA) and the KwaZulu-Natal (KZN) Business Leaders (Durban Trade & Industry Department). These associations provided the researcher permission to access their members. The study used a purposive sampling method, hence not all the members of the associations were selected to participate in the study. The quantitative data obtained was organised and analysed statistically using SPSS.

1.8. MOTIVATION AND BENEFITS OF THE STUDY

The literature confirms that gaps exist between IT and corporate governance, and these gaps are causing misalignment between IT and corporate governance. The motivation for this study was thus to investigate and understand this gap between IT and corporate governance. Another motivation for conducting the study was to understand how organisations are implementing IT governance principles which are being introduced into existing corporate governance codes of good governance.

The study was also motivated by the finding of Larsen, Pedersen and Andersen (2006), Parent and Reich (2009), Guldentops (2007) and Huff et al. (2012) which showed that boards perceive IT-related matters as too technical to deal with, they spend a limited amount of time on IT-related issues at board meetings, and they lack the skills required to interrogate IT governance matters.

The King III (2009) report included IT governance principles as part of its recommended code of good corporate governance. Therefore, with corporate governance being a responsibility of the board, the inclusion of IT principles within corporate governance elevates IT governance as a board responsibility. It is thus of interest to determine how JSE listed companies mandated by the JSE listing rules to adopt King III principles, have responded to this new responsibility.

It is expected that the following benefits could be achieved from this study:

- The model derived from this study could provide guidance to organisations on the implementation of board level IT governance;
- Provide organisations with key success factors for implementing board level IT governance;
- Provide other researchers a model to use in further studies on implementing board level IT governance;
- Established factors that impact board level IT governance to be considered in deriving IT governance principles within corporate governance;
- Present empirical findings that could contribute to the current academic work in the field of IT governance and corporate governance.

1.9. LIMITATIONS OF THE STUDY

The study was based on King III (2009) and the discussions and findings cover IT governance since 2009. However, with the launch of King IV in November 2016, it is expected that King IV may provide recommendations that address some of the issues found by the study.

The use of the purposive sampling technique limits the generalisation of the findings across all JSE listed companies. However, the use of triangulation validated the findings and thus they can be accepted as a fair reflection of IT governance across KZN-located JSE listed companies

Being board members and executives responsible for IT governance oversight and implementation, the interviewees' responses may have been biased in their favour. Interviewees may have provided answers to portray much more effective IT and corporate governance oversight than what really exists within their organisations. The use of triangulation was to overcome or minimise this potential bias.

IT governance at the board level is still new and with limited existing research on the practice, the findings of the study may reflect a snapshot of the present state of IT governance which is in rapid transition to achieve better and improved IT governance

The study was conducted on JSE listed companies who are already mandated to apply King III; and thus the situation regarding non-JSE companies is still not known.

1.10. LAYOUT OF CHAPTERS

Chapter 1 provides an overview of the study and the summary of each of the other chapters. The overview covers the introduction to the study, the context of the study, existing studies on the topic, background to governance, the problem statement, aim and objectives of the study, methodology followed in conducting the study, motivation and expected benefits of the study, and the limitations of the study.

Chapter 2 presents the literature review on corporate governance. The objective of chapter two is to conceptualise corporate governance within the constructs of governance models. This conceptualisation was achieved by reviewing existing literature on governance, corporate governance models, and practices and codes of good corporate governance. The conceptual framework of corporate governance derived reflects the impact of governance models, practices and codes, and other external factors on corporate governance.

Chapter 3 examines various aspects of IT governance practices both within and outside corporate governance structures are presented. The objective of the chapter is to establish how IT governance is positioned within corporate governance. The findings from the literature review indicated that no single IT governance model exists with relevant elements of IT governance within corporate governance that are sufficient for the board to implement IT governance effectively. A conceptual framework of IT governance that provisionally incorporates divergent and convergent influencing factors on corporate and IT governance is presented.

Chapter 4 explains how the research framework that guided the study was developed. Referred to as the “board level IT governance framework” (BLITGF), the BLITGF was developed by merging the IT governance conceptual framework and the corporate governance conceptual framework from Chapters 2 and 3 respectively. Chapter 4 presents the factors and variables from the two conceptual frameworks that were included in the BLITGF and those that were excluded. Explanation is provided for the excluded variables. Discussions on multiple theories that underline the BLITGF are provided. The variables of the BLITG provided the initial themes (nodes) for the qualitative analysis aspect of the study and also the basis for deriving the hypotheses for the quantitative analysis part. The term BLITG was then replaced with IT governance (ITG) after IT governance was established and located as a board level responsibility which exists only at the board level and not delegated to an operational level or any other levels as was described in the literature review.

Chapter 5 discusses the methodology used for conducting the research. A mixed methods approach was used to ensure reliability of the results. The primary research method used for the study was the qualitative method, whilst the quantitative method was used as a secondary method to obtain quantitative data for triangulation. A combination of methods was also used throughout the study to triangulate the literature, data collection and data analysis. Qualitative data was obtained through semi-structured interviews and quantitative data was obtained through questionnaires using convenience sampling. The qualitative data was analysed thematically following a detailed analysis process using NVivo 10. The quantitative data was organised and analysed statistically using SPSS and by performing tests of association between the various factors in the research framework.

Chapter 6 presents the analysis and findings of the qualitative data obtained from the semi-structured interviews. The chapter first presents the characteristics of organisations that

participated and the characteristics of their nominated representatives interviewed. Various tables and graphs are used to provide support and easy understanding of the interpretation. As mentioned, the findings were thematically analysed using the NVivo software package, which follows a well-structured process and steps that identify groups and analyse the emerging themes. The thematic analysis was aligned to the research framework to obtain insight on how IT governance oversight had been implemented within the interviewees' organisations. The relationship between various themes and the aligned factors within the research framework and IT governance oversight are established in this chapter. The chapter concludes with a summary of the nature of IT governance oversight implemented within the interviewees' organisations. The chapter accomplishes the following research objectives:

To assess IT governance implementation by JSE listed companies, as recommended by King III IT governance principles.

To identify aspects of IT governance that have been implemented by JSE listed companies.

Chapter 7 presents the analysis and findings of the quantitative data and its use in triangulating the findings from the literature and qualitative analysis. Quantitative data was obtained through questionnaires using convenience sampling from a purposively identified population group. The data was analysed to provide general statistics on respondents, the association between the variables in the research framework, inferential statistics to test the research hypotheses and conclusions on the findings. The findings indicated a significant association between some of the variables and lack of association between others. The chapter enables the achievement of the following research objectives:

- To construct a conceptualised framework with significant factors for board level IT governance oversight.
- To establish the link between board level IT governance oversight and organisational value obtained from IT.
- To establish the link between board level IT governance implemented by boards and overall performance of their organisations.

Chapter 8 provides a comparative analysis between the qualitative findings of Chapter 6 and the quantitative findings of Chapter 7 to achieve triangulation and a resultant conclusion on the findings. With the qualitative methods and analysis being the primary research method for the study, the comparison focuses on the themes rather than the research

framework factors. Eleven key elements of differences were identified, which cut across the various factors of the research framework. The resultant outcome of the comparison was then linked back to the literature and is discussed in this chapter. The chapter concludes with an insightful understanding of IT governance implemented within JSE listed companies in the KZN province. The chapter enables the achievement of the following research objective:

To identify the gap between the King III recommended IT governance principles and actual implementation of IT governance.

Chapter 9 concludes the study, which includes the key findings of the study, original contribution of the study, limitations of the study, and recommendations.

1.11. CONCLUSION

This chapter has presented a summary of the study. After this brief summary, the chapter also provided an overview of governance models, corporate governance models, principles and practices, and IT governance. The chapter then presented the background to the study, the problem statement, aims and objectives of the study, the methodology used for the study, motivation and expected benefits of the study, and the limitations of the study. The chapter ended with a summary of each of the other chapters to follow in this thesis.

From the information presented in this chapter, it is evident that the boards of organisations are challenged by their responsibility of overseeing IT governance. The main reason for these challenges is that IT governance is still a relatively new concept in corporate governance. A model of board level IT governance is required that presents boards with guidance on factors to consider, competence required, and structures and processes.

CHAPTER 2

CORPORATE GOVERNANCE

2.1. INTRODUCTION

The first code on corporate governance in South Africa, King I, was published in 1994 and it coincided with the beginning of the political transformation within the country. The aim of the code was to provide standards of corporate governance for businesses operating in a post-apartheid South Africa. However, subsequent changes within the country between 1994 and 2002 highlighted the need for changes and an update of the codes. A new code, King II was released in 2002 to incorporate the new developments and changes that had occurred. According to the King II executive summary, King I was outdated by the various social and political transformations that had taken place in South Africa. Legislation was enacted that required the update of the corporate governance codes and included the amendment of the South African Companies Act of 1973; revision of the Securities Exchange South Africa (JSE) listing requirements; update of banking regulations; new regulations for public finance management; new employment and labour laws, among others (King II, 2002).

The King II corporate governance code was applicable to all entities in both public and private sectors. It was later adopted by the Johannesburg Stock Exchange (JSE) in 2005 as the corporate governance code that listed entities had to comply with (JSE, 2011). Following the adoption of King II by the JSE, the South African business environment began to pay more attention to corporate governance codes as a guide to improving their operations. Further changes were however made to the corporate governance codes and this led to the release of King III in 2009, which for the first time, included IT governance as a board function.

This chapter presents the literature review on corporate governance and includes a review of existing governance models and corporate governance models, practices and codes. The study aimed to derive a conceptual corporate governance framework from the existing literature and corporate governance practices. It was his intention for the model to reflect the impact of external factors on corporate governance within an organisation. The chapter concludes with a review of the South African corporate governance code, King III, and the basis for including IT governance in its framework.

2.2. GOVERNANCE

Various writers traced the etymology of “governance” to the Latin word “gubernare” which refers to “steering a ship” and the word “governor” from “gubernator” which refers to the “steerer” of a ship (Farrar, 2005). According to Kjaer (2010), “governance” emanated from the Greek verb “kubernan” which means “to pilot” or “to steer”. According to the Concise Oxford Dictionary, “to govern” refers to the power, control or authority as given to the one in “government”, and “governance” is how the power, control or authority is used to achieve that responsibility of government. Farrar (2005) further explained that governance is best expressed as “captaining a ship” with the objective of ensuring that it (the ship) is in a good shape and steering it on a good course to avoid any crash or disaster. Within a business management context, the captain may be referred to as the agent or management, the ship as the entity, company or organisation and the responsibility of control as the governance of the organisation. The management is charged with the responsibility of ensuring that the organisation is run efficiently and successfully. Within the socio-political context, the “governed” comprise the people of a state and the “government” is the controller of the state or the people. The government directs and controls the state by ensuring that various provisions are made and that environmental conditions within which the state exists, enable the well-being of the people within the state (Kjaer, 2010).

2.2.1. Governance models

Governance, in either a business management context or in a socio-political context, relates to the processes of interaction between the governed and the government where the government institutes decisions in the form of directives for the governed to comply with. To ensure that the directive is complied with so as to achieve the intended outcome, the governed and government establish a relationship within which certain processes are instituted and followed and where issues arise, corrective measures are effected. To understand this relationship between the governed and government, three governance models are introduced.

2.2.2. The traditional governance model

This is an assumed model that portrays an ideal of hierarchical governance. The assumption is that hierarchical structures of authority exist where the top is empowered by law to control all others below (Kjaer, 2010). These laws are rigid and underlined by bureaucratic standard

operating procedures and rules. Kjaer (2010) highlighted three main problems encountered by this model when applied as the governance model of a state.

- i. Government, being the top control and the accountable entity, is unable to sustain control. Due to this failure at the top (“government”) to maintain control, other authorities are established within countries to control and address the interest of the people within the country. According to Kjaer (2010), some stakeholders, like service-workers, establish professional bodies to be accountable to and recognise this as a better representation of their needs. Other stakeholders find civil society in general as being worthy of accounting to. This weakens the traditional authority of “government” and thus governance as a whole.
- ii. The establishment of common interest groups such as workers’ unions that seek to pursue the interest of their members. In instances where the union’s interest significantly departs from that of the pluralist interest represented by the state, governance is again weakened.
- iii. When a state becomes part of or a member of a bigger international body, such as the European Union (EU), the authority structure at the top shifts from the government of the state to that of the bigger body. As a result, the established locus of authority extends beyond the state’s “government” and hence creates legitimacy for entities that exist within the state to seek authority and directives from outside the state’s governance structure. This, however, presents opportunities for such entities to access resources that exist outside their own state to improve their well-being.

2.2.3. The welfare state model

Initially the government in a welfare state exercised its authority to intervene in the economic situation of the state to ensure fairness and the well-being of the people within the state (Meyer & Van Der Elst, 2014). The government of a welfare state took the lead in developing policies and intervention measures where necessary with the intention to provide welfare (i.e. access to basic services) to all within the state. The government was therefore an active player in a welfare state and took ownership of various market industries and factors of production to provide public goods and services to the people (Meyer and Van Der Elst, 2014, Baum, 2005). The government also took steps to protect the state’s industries by imposing tariffs on privately-owned industries and imported goods. Although this led to significant improvement in the lives of the people (the middle class and the masses), it came

at a cost to the government, and eventually became unsustainable in the long run (Baum, 2005). The burden on the government to provide “public goods” resulted in the introduction of more regulation and an increase in taxes in order to increase the state’s treasuries. The government was faced with over dependence of the public on its provision, coupled with its own role as the dictator of economic, social and cultural paradigms. This pressure and burden on the government led to changes in the welfare state model.

The change in the welfare state resulted in the state relinquishing the provision of “public goods and services” to civil society. “Corporations” were formed by civil society with private ownership to take over the provision of public goods and services. The state then enacted laws and regulations to govern these corporations to ensure that they provide the required goods and services to the citizenry. This was the genesis of privatisation of public goods and services, the establishment of corporations, and the state relieving itself of the burden of being the sole provider of goods and services.

2.2.4. The liberal state model

The establishment of the liberal state evolved under the influence and ideology of Adam Smith’s concept of a free market economy (Mantysaari, 2012, Baum, 2005). The liberal state provides a political and economic environment where each person (citizens) or entity (corporations) within the state is free to participate in the economy to provide goods and services. The citizens and corporations are entrusted with the ability to self-govern and self-regulate without infringing on the rights and freedom of others (Mantysaari, 2012; Kooiman, 2010). The role of the government in the liberal state is to intervene within the state’s environment (social, economic, political) to guarantee safety and ensure that equal opportunities are available to all within the state (Iltan, 2009; Baum, 2005, Kakabadse, Kakabadse & Kouzmin, 2003). The government intervenes by regulations and any other legal means to ensure that the interests of an individual, group or entity are not infringed upon and do not limit the interests of others (Gedicks, 2010, Baum, 2005). Although it has been argued that this role of intervention is based on the central concept of upholding civil rights, its main objective is to discourage any expectation of welfare from the state (Baum, 2005). Ultimately, the liberal state government’s objective is to shift the responsibility of provision of welfare from the state back to civil society.

2.2.5. The concept of governance

The review of the three governance models highlights the concept of governance as established by the relationship between the state, government and stakeholders (including the citizens and all interest groups). Central to the concept of governance is the state government which is influenced by interest groups to ensure that their interest is considered by the central government. Laws and regulation of governments are enacted to maintain a balance between the state's interest being pursued and the interest of the interest groups. Figure 2.1 illustrates this concept of governance.

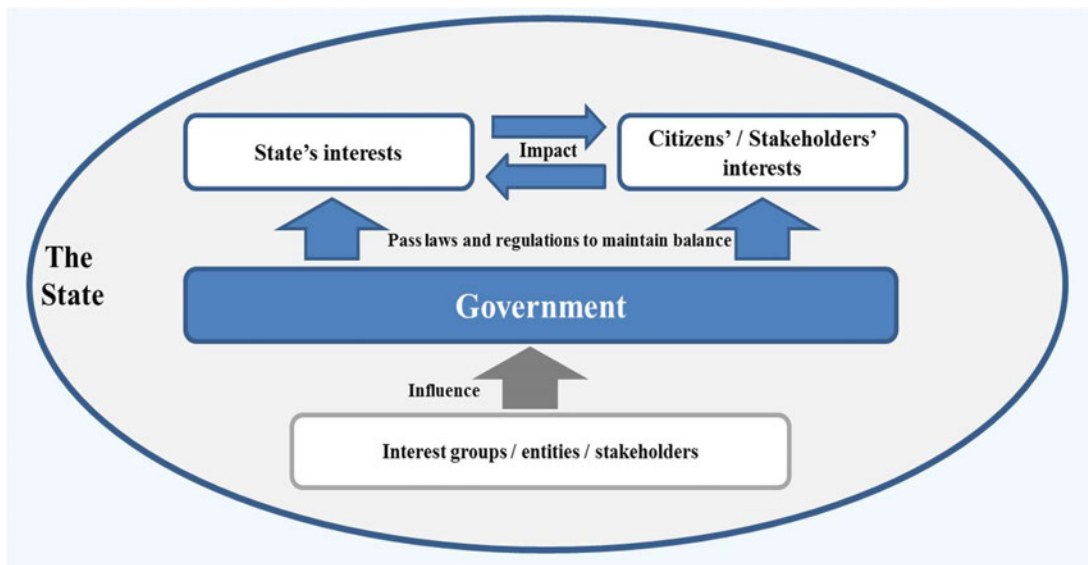


Figure 2.1: The concept of governance: State, Government and Stakeholders

The interest of the state and that of the citizens are interdependent on each other. The two continuously influences and impact on each other. A fair balance is however attained by government enacted laws and regulations. Interest groups, entities and diverse stakeholders provide input to influence government in enactment of its laws and regulations. This ensures that the state control of government is not dominate. The nature and characteristics of the governance are therefore dynamic and responsive to the environment and changes in interests of the groups.

Governance, as illustrated in the concept of governance, indicates that the government's control is limited to the boundaries of the state. However, it does indicate that the government is the highest authority, which enacts laws and regulations to be complied with

by all entities within the state. Whilst the model indicates that interest groups within the state influence governance, the government maintains governance over all entities within the state. The government is entrusted with the power to govern and address the interests of both the state and the stakeholders. Government laws and regulations address any possible conflict of interest that arises between the three entities of the governance concept.

This study identifies South Africa as a “state” together with its government structures, laws and regulations that govern all entities within South Africa. Corporations established within South Africa may exist as individual entities or become part of a group such as an association. Such groups, individual corporations, citizens and other social entities within South Africa are recognised as stakeholders. Whilst the interest of the government is to establish governance structures, laws and regulations to effect control within the country (over these stakeholders), such governance structures, laws and regulations are also influenced by the interest of the stakeholders. The government of South Africa has enacted laws and regulations to govern the establishment and operation of corporations within the country.

Established corporations within South Africa are impacted on by government laws and regulations whilst at the same time, the interest of corporations conversely influence the government laws and regulations. According to William (2000), a corporation is formed for a purpose and based on that purpose associates with other corporations that have a similar purpose. Through such associations, corporations establish and share common norms and practices. Guided by such norms and practices, corporations are able to influence their external environment and government laws and regulations, as depicted in the conceptual governance model in Figure 2.1. The formation of a corporation, its characteristics, mode of control and governance are discussed next.

2.3. CORPORATIONS

Corporations within a country are established or formed subject to laws of that country. Government enacted laws that govern the establishment and operations of corporations within a country are enshrined in the country’s “Companies Act”. The Companies Act prescribes how companies may be formed, operated and terminated (Stein & Everingham, 2011). The Companies Act of a country also determines the registration process of a corporation and declarations of its interest and its shareholders. The registration of a corporation includes the declaration of the purpose and powers of the corporation and any

existing signed legal contractual agreements between parties involved with the corporation (Macey, 2008). The Companies Act governs the manner in which a corporation is formed and registered, its activities throughout its existence, and how it eventually terminates its existence (Mäntysaari, 2012; Stein & Everingham, 2011). Therefore, the Companies Act enacted by the government of the country controls all corporations established within its state boundaries. A corporation may be for profit or not for profit, a government entity, a public or private entity, or a religious or social entity (Stein & Everingham, 2011; William, 2000).

2.3.1. Classification of corporations

Corporations are classified into four levels based on the key activities of the corporation (Williamson, 2000). This is defined in Table 2.1 below.

Table 2.1: Classification of corporations

Levels	Corporations (Institutions/Entities)
First	Religion, social customs & norms, cultural practices, etc.
Second	Based on or defined by the existing environment Example: Formal rules, constitutions, laws, etc.
Third	Transaction based i.e. finance & banking
Fourth	Economic activity; production, employment, etc.

Source: Williamson (2000)

According to Williamson (2000), the classifications are based on the activities and purpose the corporations. As depicted in Table 2.1, organisations classified in the first level are non-profit corporations whose sole interests are to drive religious, social and cultural practices and norms within the society. The second level includes corporations founded to establish and enforce laws, provide services to meet the basic needs of the people and other activities that establish the well-being of the people. The third and fourth organisation types are founded with the sole objective of making profit.

2.3.2. Factors that impact on corporations

Corporations are influenced by the environments within which they exist. The environment includes the country's laws and regulations, competition from other economic activities for existing resources and norms and practices of associations. A country's government enacts laws and regulations to govern the way in which corporations operate and to regulate how

corporations participate in the economic and social environment of the country (Parkinson, 2006). Governance of corporations by the government of a country is thus achieved by laws and regulations (Parkinson, 2006; Farrar, 2005). For corporations to be successful in their operations, their corporate managers or operators need to be astute with the laws and regulations that govern the corporation within the country.

As corporations grow and expand, their need for capital to fund such growth and expansion increases (Farrar, 2005). They can obtain capital in the form of investments from various sources, namely state capital, bank capital and family capital, to expand their operations (Morck & Steier, 2005; Farrar, 2005). Providers of the capital became investors in those corporations and become shareholders of the corporation. As providers of capital, shareholders need assurance that the corporation will be managed efficiently with the sole purpose of achieving return on their capital investment (Ayuso et al., 2014; Ho, Wu and Xu, 2011; Wixley & Everingham, 2010). The required assurance is achieved by the engagement of professional managers with appropriate skills and expertise to efficiently manage and control the day-to-day operations of corporations in the interest of shareholders (Shleifer & Vishny, 1997; Farrar, 2005). This established separation of shareholders from the managers of corporations has led to the postulated “principal-agency problem” (shareholders being the “principal” and managers being the “agent”) (Farrar, 2005; Shleifer & Vishny, 1997; Jensen & Meckling, 1976). The principal-agency problem arises where the managers pursue their own interests rather than those of the shareholders.

To minimise the principal-agency problem, states have enacted more laws and regulations to control the behaviour of managers and corporations in the interest of shareholders (Black & Coffee, 1993). Shareholders appoint directors to form a board (board of directors referred to as the “board”) as intermediary between corporate managers and the shareholders (Stein, 2008, Monks and Minow, 2008; RSA, 2008).

Corporations on their part form associations mainly based on the similarity of their business purposes (Williamson, 2000) to strengthen their existence and performance. Formed corporate associations formulate common norms and practices to effect self-regulations and to control the behaviour of their members (corporations) and their managers and also to abide by the state’s laws and legislations (Flohr, Rieth, Schwindenhammer & Wolf, 2010). These associations also enable corporations to influence the state governance structures, as depicted in Figure 2.1.

According to Flohr et al. (2010) and Williamson (2000), governance of corporations through state laws, associations, norms and practices is effective collectively as a partnership between the government of the country and the corporations.

In summary, corporations exist within a country (a state) and are impacted by the state's laws and other external and internal factors. The nature of the environmental impact on the corporation is depicted in Figure 2.2.

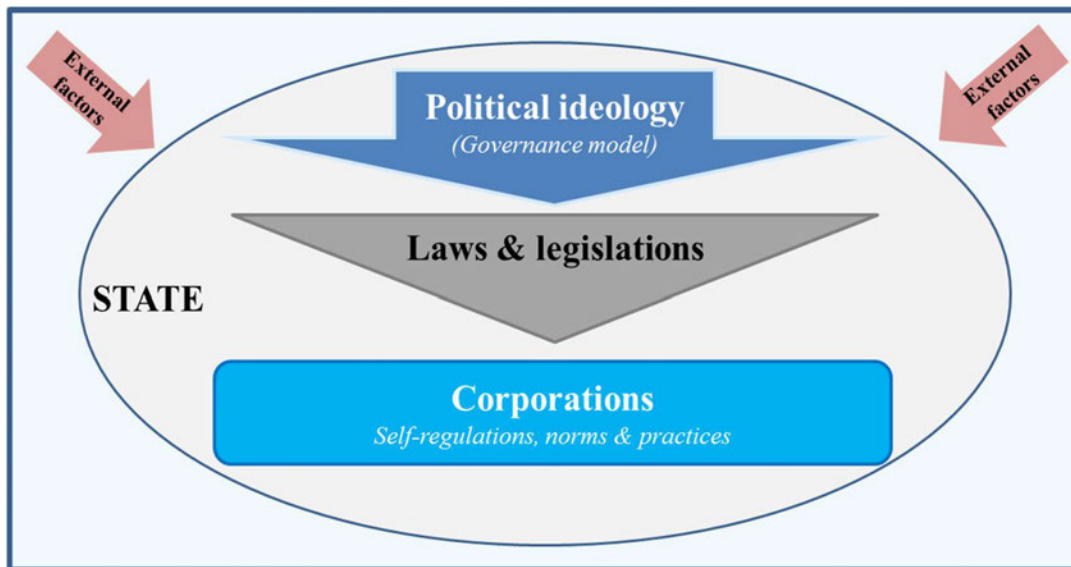


Figure 2.2: Factors impacting the corporation

The factors that impact on the corporation, as depicted in Figure 2.2, are summarised as follows:

- Corporations exist within a state (and sometimes beyond that state, in instances of international corporations).
- Corporations are governed by laws enacted by the state.
- Corporations are established by legal structures, such as corporate law and the Companies Act.
- The state's laws and legislations are influenced by the state's political paradigms.
- Corporations' characteristics include their capital structure, shareholders, directors, and interested stakeholders.

- Corporations establish norms that include self-regulating structures, such as a code of conduct, best practices, and rules.

As indicated by Figure 2.2, corporations are impacted by various factors, controls and corporate characteristics to affect their governance. Corporate control models to effect corporate governance are discussed in the following section.

2.3.3. Models of corporate control

Corporations are established for a purpose and shareholders expect that purpose to be achieved. Different models of corporate control exist to ensure that corporate managers and the board of corporations provide the needed environment to achieve the intended purpose of the corporation. Corporate control models reflect in whose interest the corporation is run. Whilst shareholders' interest is the maximisation of their investment in the corporation, the interest of stakeholders is for the continuous existence of the corporation to provide their needs (such as employment, provision of goods and services, supplies, etc.). Corporate managers and the board thus need to ensure that the interests of these constituents are met. Four of these models within the literature were identified by Akingunola et al. (2013) and are presented next.

2.3.3.1. The simple finance model

This model is driven by contracts established between the shareholders and the managers entrusted to run the company. These contracts spell out the expectations of the shareholders and the managers. The contracts are further backed by established rules and incentives within the corporation that seeks to align managers' behaviour to effect outcomes that meet shareholders' expectations. Shareholders' expectations are that they obtain return on their investment, whilst expectations of managers are that they get fairly compensated in the form of incentives and rewards in return for achieving the expectations of the shareholders (Raimi et al., 2013; Turnbull, 1997;)

Whilst it is expected that managers be motivated by the incentives and rewards to diligently pursue the expectations of shareholders, they still possess the discretion to expropriate value for themselves. To address this problem, a board of directors (referred to as the "board") is established as an oversight structure of the corporation (Rossouw et al., 2002). The board oversight in a simple finance model is therefore to protect the interest of shareholders.

2.3.3.2. The stewardship model

This model is driven by the concept that managers are good “stewards” who work diligently aim to attain a high level of corporate profit and shareholder returns. Underpinning the model are established internal corporate rules and practices that seek high performance standards and excellence (Luong, 2011), and external laws and regulations of the state (country) that seek the interest of the corporation as central to the interest of managers and shareholders. The model postulates that managers can be trusted to act in the best interest of the corporation as a central focus which extends beyond shareholders’ interests (Turnbull, 1997). The model affirms that management should be responsible and self-reliant, and thus require very little oversight. Therefore, the board’s focus in this model is expected to provide oversight that supports and encourages management performance and that ensures high organisational performance.

2.3.3.3. The stakeholder model

This model is driven by the underlining concept that the corporation operates in the interest of all stakeholders and not only the shareholders. Porter (2001) defined stakeholders as including shareholders (investors), customers, suppliers, financial advisors, employees and the community or society. The purpose of the corporation is to create wealth or value for the stakeholders, which extends beyond just profits (Ho, 2010, Letza et al., 2008). Other interests of stakeholders may include guaranteed extended employment, provision of relevant services to the community, continuous solvency of the firm, good services or products, sustained supplier business, environmental protection and sustainability, to mention a few.

In countries (states) where stakeholders’ models exist, government laws and regulations create environments that are enabling for corporations to pursue the stakeholder model. Government laws uphold stakeholders’ rights and control the behaviour of corporations in the society and towards the environment (Aguilera and Cuerva-Cazurra, 2009; de Castro, 2009)

Management responsibility would thus be to ensure that corporations are managed to achieve the interests of the corporation, the shareholders and the stakeholders without discriminating between the various interests. It is expected that boards’ oversight in a stakeholder model will explicitly ensure alignment of interest of the stakeholders, the corporation and the shareholders. A better alignment would ensure that the interest of all stakeholders are

adequately met (Williamson, 2010; Letza et al., 2008). One way in which boards have been able to achieve this oversight is by having representation from the stakeholder groups and thus being able to minimise any conflict of interest that may arise. An example of such a structure is having a “two-tier board” structure, rather than a single or unitary board structure.

2.3.3.4. The political model

This model is based on the extent to which shareholders and the government (of the country or state) exert political power on the corporation. Whilst shareholders seek to influence internal corporate rules and policies, government laws and regulations may be to protect the liquidity of the market and/or to improve conditions that enable investment inflow. According to Pound (1993), the political model is more of a reference to determine the extent to which governments influence the legal and regulatory environment to effect a desired corporate outcome. Governments’ intention may be either to protect the liquidity of the market, or to improve conditions that enable investment inflow, or in other cases to protect internal firms from external corporations. Government political influence is determined by how governments favour their constituents and sway allocation of corporate power, privileges and profit (between owners, managers and other stakeholders) that result in desirable outcomes in favour of the government (Manawaduge, 2012; Turnbull, 1999; Pound, 1993).

In this model, the focus of oversight by boards is expected to be twofold; firstly, it is to ensure corporate compliance with the country’s (state) laws and regulations and secondly, for corporations to institute internal measures to minimise the pressure of the country’s laws and regulations on the corporations. Where appropriate, corporations may also seek ways to influence the country’s laws and regulations in their favour.

In summary, the four corporate control models establish how the various interest groups, namely shareholders, stakeholders, managers and the corporation influence how corporations are run and in whose interest. The role of the board as an independent mediator between the interest groups and shareholders is to effect oversight to ensure that corporate managers act appropriately and in the best interest of the primary benefactor. Boards also have to ensure the corporation’s ongoing existence. Figure 2.3 depicts the impact or influence of shareholders, stakeholders and political factors on the corporations and on the board in discharging its oversight.

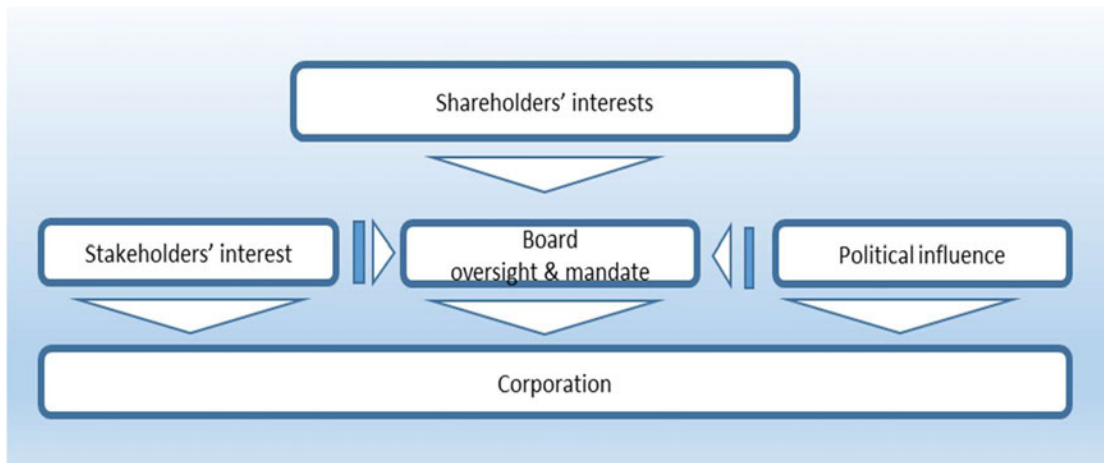


Figure 2.3: Interest groups' influence on the corporation

Figure 2.3 also shows the multiple sources of influence that impact on the corporation. These include stakeholders' interests, political influence that includes laws and regulations, and the overall oversight of the board. The board itself as the oversight structure is also influenced by the shareholders, stakeholders and politics.

Two types of board oversight structures may be established, based on the intensity of shareholders' and stakeholders' interests. These are a unitary board and a two-tiered board. A unitary board is established in a corporation where the primary interest of corporate outcome is the maximisation of returns on shareholders' investment. A two-tier board structure is established where other stakeholders' interests are of importance. To pursue the interest of stakeholders in two-tier board structures, stakeholders are represented on one of the boards of the two-tier board structures. However, other oversight responsibilities of boards, either unitary or two-tiered, include to ensure that corporations continue to exist and operate, that they are in compliance with the laws and regulations and are responsive to existing political power within their operation countries (state) (Aguilera & Jackson, 2010; Aoki, 2010). The overall role of the board is therefore to maintain good corporate governance.

The following section reviews and discusses the various corporate governance structures, principles and practices identified in the literature.

2.4. CORPORATE GOVERNANCE

The concept of corporate governance has existed since the emergence of the separation of “power” between corporate ownership, shareholders and managers of the corporation (Wixley & Everingham, 2010). This dates back to the era of the industrial revolution when corporations were established. “Incorporation” of enterprises established the corporation as a legal entity that is separated from its shareholders (owners). Incorporation created the opportunity for corporations to seek capital investment from many sources, thus expanding shareholdings or ownership. The separation of power necessitated the engagement of corporate managers to ensure that shareholders’ investments and interests were protected and yielded returns (Wixley & Everingham, 2010). Efficient professional managers were engaged to manage corporations whilst oversight structures like boards were established to oversee that managers were committed to pursuing the interest of the shareholders. This was the genesis of corporate governance and the identification of the shareholder or owner as the “principal”, managers as the “agents” or the “stewards”, and the corporation itself as a separate legal entity.

“Corporate governance” was first referred to as corporate controls and measures that ensure good governance of corporations in 1962 (Farrar, 2005). Corporate governance emerged in company law in the US in the 1980s and became more prominent after the scandals of corporate failures in the 1990s which were attributed to corporate governance failure (Veasey, 2004). Corporate governance experienced some transformation through the 1990s, which was driven by the various corporate failures in the US, UK and South Africa. These transformations consequently saw the inception of various definitions of corporate governance covering broad aspects of disciplines without a common agreement on its definition (Du Plessis, Bagaric & Hargovan, 2011; Mayes, Pini & McDonald, 2007). Corporate governance has been defined in various forms by different stakeholders and researchers alike to suit their areas of interest and study, as follows:

- “a system by which companies are directed and controlled” (Cadbury, 1992).
- “Corporate governance is concerned with holding the balance between economic and social goals and between individual and communal goals ... the aim is to align as nearly as possible the interests of individuals, corporations and society” (Cadbury, 1999 cited by King III, 2009).

- “Corporate Governance consists of the set of policies and internal controls by which organizations, irrespective of size or form, are directed and managed” (Von Solms, 2001).
- “It is the system that dictates how an organization is directed and controlled” (Posthumusa & Von Solms, 2005).
- “The system by which a company or organization is directed and controlled. Includes the appropriate board structures, processes and values; to enable the directors to carry out their legal duties and to drive the enterprise forward to achieve the organization’s purpose” (King III, 2009).
- “The relationship amongst various participants (shareholders, management, and the board of directors) in determining the direction and performance of corporations” (Monks & Minow, 2008).

The variation across these definitions indicates transformation within corporate governance practices itself. Rather than look for a single definition, it is worth noting the key components that are mentioned in these definitions. It is indicative from these definitions that corporate governance’s ultimate aim is to direct and control an organisation to enable the achievement of its purpose. This requires a system rather than individual components; a system of various components that have to work together to achieve the goal.

Components of corporate governance identified from these definitions include board structures, policies, procedures, legal requirements, social and economic goals, organisational purpose, values, performance measures and controls, and the role of other interested stakeholders. Corporate governance is therefore not about definitions but rather a mechanism of a system that combines various identified components.

2.4.1. Corporate governance mechanisms

Ultimately, corporate governance seeks to resolve and overcome the occurrence or instances of potential conflict of interest between the “principle” (shareholder) and the “agent” (management) (de Castro, 2009; Letza et al., 2008). The aim of corporate governance is to set out practices that favour both shareholders and management. Mechanisms have been instituted to minimise potential conflict between the management interest and that of the shareholders. Denis (2001) indicated that these mechanisms might be instituted internally

within the organisation or outside the organisation. He classified the following as internal mechanisms:

The board of directors of the organisation: The board of directors oversees the running of the organisation and guards against the agents' running the organisation in their own interest (Monks & Minow, 2008; Farrar, 2005; Posthumusa & Von Solms, 2005; King III, 2009). The board thus controls and monitors the behaviour of managers and provides expert advice and direction in the interest of the corporation itself, the shareholders, and other interested stakeholders (Krause et al., 2013; Akingunola et al., 2013). The board structure is a legal requirement and the board is empowered by the shareholders to protect their interests and to appoint and dismiss management (Stein, 2011; RSA, 2008).

Agents' compensation and ownership: As motivation for agents (management) to pursue the interest of shareholders rather than their own interests, agents are compensated for their performance (Ellis, 2013; Letza et al., 2008). Agents are rewarded fairly to encourage a win-win situation between the shareholders and themselves. Agents may also be given part ownership in shares (or stocks) of the organisation and are thus encouraged to act in the best interest of the organisation in order to improve the performance of the organisation and hence the share (stock) value. (Murphy 2012; Ellis, 2013). This aligns the interest of the agents as part owners to that of the other shareholders. Ownership is also extended to directors of the board who are non-managers as a means to encourage their maximum care in ensuring that the organisation does perform.

For external mechanisms, Denis (2001) noted the following:

Legal and regulatory: These are laws and regulations enacted at national and international level to control the operations of organisations. Applicable here are company law, commercial law, criminal law, stock market list regulations, labour laws, and federal laws of states, to list a few.

Market forces: The market expects organisations to perform and yield maximum returns for shareholders. Organisations that do not perform as well as others in the same industry become a target for buy-out by other high performing organisations and investors who see potential in those organisations. Poor performance is seen as poor management by the executives and poor return on the shareholders' investments. Shareholders are then prompted to sell their shares or the entire organisation to other investors at a premium and to reinvest

elsewhere. Executives do not want to lose their jobs and be labelled as poor managers; thus these external forces act as a control and deterrent against poor performance by executives (management).

It is expected that these mechanisms will protect organisations from poor performance, obtain high performance from the executives, and yield high returns for the shareholders, the executives and the board. However, this has not always been the case, and large and small organisations have failed despite all the instituted control mechanisms. The causes of or reasons for these failures should highlight the weaknesses or inadequacies of these mechanisms.

2.4.2. Corporate governance failures

The establishment of corporate control mechanisms does not guarantee the successful operation of corporations. Whilst the failure of the US giant energy company, Enron, in 2001 has been the most referenced corporate failure in literature, a similar failure had occurred before in the US in 1929 (Brown, 2005). According to Brown (2005), the factors that led to the collapse of Insull in 1929 and the crash of the US stock market were not different from those responsible for the failure of Enron. Brown (2005) evidently linked the failures of corporate governance and the events in 2001 to those that had led to the crash of the US stock market of 1929. Common between these two events are the following factors, among others: fraudulent financial accounting practices, lack of disclosure, conflict of interest, poor risk management or absence of leverage on exposed risk including financial and other risks. Due to the extensive nature of Insull's operation across the US, its failure had a spiral effect that later contributed significantly to the great crash of the US stock market of 1929.

The failure of Enron is a typical example of corporate governance failure in an organisation and an indication that the corporate governance mechanism can be compromised. It is evident that all the internal and external corporate governance control mechanisms were violated. The board of directors trusted to act in the best interest of the shareholders and Enron, colluded with the executives and auditor to hide and not disclose fraudulent accounting practice (Elson & Gyves, 2003; Brown, 2005). Although the board and executive compensation was in place, the directors found it more beneficial to engage in insider trading to inflate the share price and sell their shares at a higher premium whilst knowing that Enron was in trouble (Elson & Gyves, 2003). The existing rules of the stock market that regulate reckless transaction and regulatory laws, like the New Deal regulation framework, were not

enforced by the Securities and Exchange Commission (SEC) and government regulators to prevent Enron’s reckless and insider trading practice (Henderson & Cudahy, 2005; Elson & Gyves, 2003).

Brown (2005) argued that enforcement and upholding of ethical behaviour of directors by creating an ethical culture within the organisation is more effective than enforcing any number of control mechanisms, including laws, regulations and legislation. According to Brown (2005), the laxity of ethical practices, the low morals that have permeated the society and thus the leadership, have been significant causes of corporate failures. The greed and desire to get rich quickly became the primary order of those leaders. This raises the question of ethical leadership, sound moral conduct and selflessness of corporate leadership. Although these are not codified as mandatory laws and regulations, the adverse consequences of unethical behaviour and fraudulent activities are liable and prosecutable under common law, criminal law and other applicable laws. Examples of corporate governance failures and their causes are presented in Table 2.2.

Table 2.2: Corporate failures and their causes

Name of Corporation	Causes of failure	Country/Region
Polly Peck (1990) and BCCI (1991),	<ul style="list-style-type: none"> • Poor board oversight, fraudulent financial and accounting practices & reporting, poor internal controls, and money laundering 	UK
HIH (2001)	<ul style="list-style-type: none"> • Poor board oversight • Poor financial and accounting practices 	Australia
Enron (2001), WorldCom (2002)	<ul style="list-style-type: none"> • Poor board oversight • Fraudulent financial and accounting practices & reporting • Poor internal controls 	USA
Philip Holzmann AG (2002)	<ul style="list-style-type: none"> • Poor board oversight, and fraudulent financial and accounting practices & reporting 	Germany
Parmalat (2003)	<ul style="list-style-type: none"> • Fraudulent financial and accounting practices & reporting 	Italy
Leisurenet, Fidentia (2007)	<ul style="list-style-type: none"> • Poor board oversight, fraudulent financial and accounting practices & reporting, and poor internal control 	South Africa

It is notable that these failures of corporate governance have occurred across various countries (states) and regions that have different conditions, laws and regulations, markets, stakeholders and industries. However, the common structure of corporate oversight exists in all these corporations. The board failure to exercise effective oversight in the interest of all stakeholders (including shareholders) places the spotlight on the board and the corporate governance models and practices. How corporate governance models differ in shaping the oversight of boards is discussed next.

2.4.3. Corporate governance models

The varying environments across geographic regions and different contexts within which corporate governance operates inspire different and distinct corporate governance models. Having noted that corporate governance failures have occurred in different regions and with different models, it is of interest here to review these models based on their characteristics rather than comparing which are better than the others.

Ooghe and De Langhe (2002) argued that understanding the different models based on their similarities and differences is more important and adds value to the knowledge base of the subject matter than merely embarking on judging which is better or worse. According to them, the different corporate governance models that may be employed by companies in different countries or regions relate more to the ownership structure and control rather than the financial funding of the companies. Two models of this structure have been identified and employed, namely the Anglo Saxon model also known as the Shareholder model, and the Continental model also known as the Stakeholder model.

2.4.3.1. Anglo Saxon model

The Anglo Saxon model is popular within the Anglo-American countries (or regions) including the USA and the UK. It is characterised by a low shareholder concentration but with large companies that trade shares publicly to raise large capital. Shareholders within these countries also prefer to spread their investments across many companies due to the available options of many trading or listed companies (Ooghe & De Langhe, 2002).

To establish a corporate governance regime that ensures that the objectives of controls and regulations of corporations are achieved, it is essential to establish some formal structures. The UK Companies Act of 1844 was the first legal instrument to be established with the concept of the corporation being a legal entity and separate from its shareholders (Wixley &

Everingham, 2010). A ‘Companies Act’ is a legal instrument that specifies how companies are created, governed, behave and engage with stakeholders and other interested parties. It is these aspects upon which company law is established; company law is the legal structure that guides the nature of corporate governance models.

The Anglo-Saxon model consists of a governance structure of a top level “board of directors” (the board) that is appointed by the shareholders with the responsibility to oversee the activities of the management of the company and report back to the shareholders. Shareholders also appoint independent auditors to verify the accuracy and fairness of the company’s financial statements presented by management (Wixley & Everingham, 2010). The board is charged with fiduciary responsibility by the shareholders to ensure that the entrusted management of the company act in the best interest of the shareholders (Cernat, 2004). The board therefore ensures that the company and management abide by rules, laws and regulations to ensure the attainment of shareholders’ value, management incentives (rewards) and the continuous existence of the company.

Management consists of full-time management leaders appointed by the board as executives to lead the management team for the day-to-day operations and report to the board. The Anglo Saxon structure is also referred to as the “unitary board” (a single-tier structure) where the board effects oversight of management activities to ensure that the organisation achieves return on shareholders’ investments.

In the Anglo Saxon model countries, shareholders exercise lesser influence or interference with the board and expect the board structure to incorporate controls that ensure that the interests of the shareholders are protected and not compromised by the interest of management (Ooghe & De Langhe, 2002). Shareholders’ interests are therefore the primary goal of this model of corporate governance.

However, the Shareholder model has undergone some practical reforms that have elevated consideration of stakeholder interest within the model. These reforms have been driven by globalisation underpinned by changes in the political, legal and judiciary environments (Letza et al., 2008). The result of the reforms is the enlightened Shareholder model. This was first presented in 2006 by the Company Law Steering Group in the UK as part of corporate governance reforms in the UK (Taylor 2010; Letza et al, 2008). Protected by company law, the Enlightened Shareholder model provides for the consideration of stakeholders’ interests,

whilst shareholders' interests remain the primary goal of the organisation. However, critics of the model indicated that corporations have considered stakeholders' interest only if they advance the interests of shareholders. Hence stakeholders' interests are subsidiary to those of shareholders (Wixley & Everingham, 2010).

2.4.3.2. The Continental model

The Continental model is based on the stakeholder theory of the firm that indicates that the firm does not only serve the interest of the shareholders but also that of the stakeholders (Ooghe & De Langhe, 2002). Thus the stakeholders do have a say and take an active role in the strategic decision-making of the firm. The firm exists as an independent entity with the will to pursue its own objectives that may not necessarily be same as those of the shareholders or management (Cernat, 2004). This model is popular within the European and Latin American countries or regions including Japan and Germany.

The model establishes two board structures, a top tier structure, referred to as the supervisory board and a second tier referred to as the management board. The supervisory board is similar to the Anglo Saxon board structure (Ooghe & De Langhe, 2002). Its membership is elected by the shareholders on one hand, electing between 30% to 50% of the membership, and the company employees electing the remaining percentage (Government Commission, 2012). The supervisory board has the authority to appoint, remove or approve nomination to the board of management and also to advise and oversee the doings of the board of management (Wixley & Everingham, 2010). The supervisory board also ensures that the strategic objectives of the company are attainable and are indeed achieved. They approve the company annual budget, financial statements and the framework that derives these statements. The composition of the supervisory board includes stakeholder representation to ensure a balance between shareholders' interests and those of the other stakeholders. The supervisory board is therefore pivotal in the Continental model. The representation of stakeholders exerts power within the board structures to ensure the protection of stakeholder interests. Referred to as co-determination, the representation of employees (as stakeholders) on the management board underlines powers of employees within the model which is further strengthened by national legislation that protects continuous employment against retrenchments (Cernat, 2010).

The management board defines the long-term strategic goals of the company, and operational policies and principles. It is also responsible for the coordination and monitoring

of the company operations and reports to the supervisory board. Co-determination therefore ensures the company's policies and principles are in support of the long-term strategic goals of the company in the interest of stakeholders, especially employees.

Continental model countries have fewer listed companies and the diversity of shareholdings in these companies is low and dominated by large shareholder groups (Cernat 2010; Ooghe & De Langhe, 2002). These larger shareholding groups are mainly private companies and financial institutions. Very little individual shareholding exists within listed companies. Due to the small numbers of shareholdings, multiple and majority shareholdings by fewer investors (concentrated holdings), and mutual ownership are encouraged. This is supported by legislation within these countries. The legislation also allows private companies, institutions and individuals to directly hold shares in public companies (Ooghe & De Langhe, 2002).

The small but concentrated shareholdings often encourage investors to be involved with their investments and to establish strong relationships with the companies in which they invest; they thus also influence decision making within these companies (Lane, 2003; Ooghe & De Langhe, 2002). This results in high levels of conflict of interest, poor disclosure and a rather high pyramidal controlling power (Lane, 2003; Ooghe & De Langhe, 2002). This is in contrast with the Anglo Saxon model countries where, because agents are needed to act on behalf of the investors, shareholders' concentrations are low and the risk of shareholders' investments are spread across several trading shares. Also, shareholders are further away from their investments and thus have very little involvement and influence.

The Continental model of corporate governance ensures that stakeholders' interests are upheld in addition to those of the shareholders. It is important to note that the small numbers of shareholders and the diverse nature of stakeholders influence the power of control and thus uphold the interest of all stakeholders, including employees.

However, just like the Shareholder model, the Stakeholder model has also undergone some practical reforms driven by similar factors. The model therefore provides for consideration of the organisation's long-term value maximisation in the interest of the organisation as a whole (Letza et al., 2008). Rather than pursue the sole interest of stakeholders, the influenced model recognised the capital provision of the shareholder and the need to fulfil that interest as an integral part of the organisation's overall interest.

2.4.3.3. Aspects of corporate governance from the models

Corporate governance is not a pure economic reality that is isolated from social and “other non-economic conditions and factors such as power, legislation, culture, social relations and institutional contexts” but rather a dynamic practice influenced by both internal and external dynamics (Letza et al., 2008, pg. 26). Various corporate governance models and best practices around the world have been influenced by existing cultural, political, social and historical circumstances and contingencies. The different models can therefore learn from each other but not replace or substitute each other.

Shareholders’ and stakeholders’ interests are not independent of each other but rather interdependent, mutually influential and reciprocally supportive. Post 1990s, it is evident that the traditional Shareholder model of the Anglo-American society and dominant Stakeholder model of Germany and Japan have both shifted towards a more inclusive corporate governance model. The adaptation of these models has been very inclusive with significantly identifiable influences on each other (Ooghe & De Langhe, 2002).

In whichever way it is pursued, all the models seek to achieve the same goal which is to ensure the sustainability of the organisation in the best interest of all stakeholders, including shareholders and the organisation. The key aspects of these models can be summarised as follows:

- Shareholders’ power, control and interest in ensuring returns on their investment.
- The oversight role entrusted to the board to protect the interest of the shareholders and in other cases the interest of the organisation (corporation) and other stakeholders.
- Executive (management) control and compensation to discourage self-interest.
- Stakeholders’ (internal) interest in ensuring employment guarantee and sustainability of the environment and society (external stakeholders); stakeholders’ power.
- Market forces that reward high performing corporations and thus the entrusted boards and executives.
- Rules that govern listed corporations.
- Regulations and legislations to control and encourage good corporate behaviour.

These key aspects of corporate governance are thus expected to be present in corporate governance practices by corporations. However, differences in the external environment factors, such as politics, laws and legislation, may reflect slight differences in corporate governance implementation in regions or states (countries). Various countries have developed corporate governance codes that are characteristic of corporate governance within the country. Whilst these codes differ in scope and details, they share the same ultimate goal, which is to promote and improve good corporate governance (Seidl, 2007; Coombes & Wong, 2004; Aguilera and Cuervo-Cazurra, 2004; Weil et al., 2003).

The researcher assessed corporate governance codes in selected countries within regions that are dominated by the Anglo Saxon and Continental models of corporate governance – this assessment is presented in the next section. The objective of the assessment was to derive a conceptual model of corporate governance that incorporates identified key aspects of corporate governance models and practice codes common across the models and codes and thus regions. The conceptual model then formed part of the research framework.

2.5. CORPORATE GOVERNANCE CODES

This section presents the review of corporate governance codes in practice in four countries and how these models have sustained and effected corporate governance in corporations in those countries. The UK and the US are two examples of countries with institutionalised Anglo Saxon models in practice, whilst Germany is known for its Continental model. Although South Africa's corporate governance is modelled on the Anglo Saxon model, it has been greatly influenced by the enlightened variant of the Shareholder model.

2.5.1. Corporate governance in the UK

The Cadbury Report of 1992 was the first documented report on corporate governance in the UK and was intended for all listed companies in the UK. The report was commissioned by the Financial Reporting Council (FRC), the Advanced Certified Compensation Professional (ACCP) and the London Stock Exchange (LSE) to provide guidelines for the financial aspect of corporate governance. Following the failure of corporations like Maxwell Communication Corporation and Bank of Credit and Commerce, the Cadbury Committee was appointed and charged with the responsibility of investigating and providing recommendations to improve corporate governance practice in the UK.

The Cadbury Report (GEE, 1992)

As mentioned, the Cadbury Committee was formed as a response to the corporate scandal of Robert Maxwell and the collapse of companies such as BCCI and Polly Peck. The terms of reference of the committee were to investigate the financial and audit operations within UK organisations to identify inefficiencies and weaknesses and provide recommendations to resolve such gaps. The committee found inefficiencies at the board level and provided recommendations to address these inefficiencies. The recommendation covered the following areas:

- The need for an effective board that is capable to lead and control the corporation. The board should have the prerequisite knowledge and skills to do their work. This included the proposed composition of the board and appropriate board structures required.
- The chairman role of the board should be separated from the chief executive officer (CEO) position. This is to ensure a balance of power between oversight and operations (management).
- The inclusion of non-executive directors on the board to provide independent judgement and outsider view on strategic matters of the corporation.
- The implementation and auditing of internal controls to ensure transparency of the financial management of the corporation. This includes reporting of the financial position of the corporation and assurance of solvency.

The report became known as the Cadbury Report of 1992 and was later incorporated into a code of best practice in the UK. This best practice code was subsequently adapted by the London Stock Exchange and incorporated into its enlisting rules and mandatory code for compliance (Arcot, Bruno & Faure-Grimaud, 2010).

The Greenbury Report (GEE, 1995)

The Greenbury committee's term of reference was to identify and develop a code of good practice in determining executive remuneration. The Greenbury Report of 1995 recommended that organisations must establish board level remuneration committees with the responsibility of determining executive remuneration and compensation that are equitable. The report also specified other sources of remuneration to the directors, including incentive schemes and share options, service contracts and compensation. The Greenbury committee recommended that the remuneration committee should report directly to the shareholders on behalf of the board.

Hampel Committee (GEE, 1998)

The Hampel committee reviewed the Cadbury and Greenbury reports and provided additional codes for responsible investment for the institutional investor. This was to address the issue of transparency and appropriateness of investment decisions made by institutional investors and to protect fund owners, e.g. pension funds. The recommendations covered issues of transparency and disclosure to be effected by corporations to inform investors and to encourage responsible investment. It also included improvements to the role of the board relating to control over business risks, its assessment and appropriate response in keeping the business solvent.

Other reports that followed:

The Myers Report of 2001 followed and reviewed the Hampel recommendation on institutional investors and then recommended stronger investment decision rules. This led to the institution of the Pensions Acts 2004 and 2007 of the UK. The UK government identified the need to address the financial and operational risk exposure of corporations and their compliance with legislation. There was also the need to address the behaviour of institutional investors in listed corporations and to heighten the important role of non-executive directors on the boards of corporations. This led to the Turnbull Report of 1999 and the Higgs Report of 2002. The Smith Review of 2003 on the independence of company auditors, the Walker & Turner Reviews of 2009 on banks and financial institutions, and others followed. All these contributed to the enactment of legislation and subsequently led to the development of the UK's corporate governance Code of 2003 and subsequent amendments. The code has since simply been referred to as the UK Code.

2.5.2. The UK Code

The preface to the UK Code of 2012 specifies that the intention of the code is to give clarity and guidelines to the function and responsibility of the board and how it makes decisions. It is a set of principles and a guide as to how the board should carry out their oversight responsibility effectively. It is based on a “comply or explain” philosophy, where the board has the flexibility to employ other principles that still guarantee equal success and then provide a clear explanation for its decision to the shareholders. One such addition to the set of principles is the UK Stewardship Code as a guide and good practice on how investors should evaluate and select UK organisations worthy of investing in.

The UK Code of 2012 defines corporate governance as “the system by which companies are directed and controlled. Boards of directors are responsible for the governance of their companies. The shareholders’ role in governance is to appoint the directors and the auditors and to satisfy themselves that an appropriate governance structure is in place. The responsibilities of the board include setting the company’s strategic aims, providing the leadership to put the aims into effect, supervising the management of the business and reporting to shareholders on their stewardship. The board’s actions are subject to laws, regulations and the shareholders in general meeting” (UK Code, 2012, pg.1).

The key pillars of the UK Code (2012) include leadership, effectiveness, accountability, remuneration, relationship with shareholders, risk management, transparency, improving the company’s long-term value and entrepreneurial leadership.

Leadership: The board is the overall head and fully responsible and accountable for the long-term success of the company. This board has a unitary structure with a chairman, members of the board of directors, which must include non-executive directors and the responsibilities distinct from the management of the company which is the responsibility of the executives. Thus, the position of the board chairman cannot be held by the chief executive director or any other executive.

Effectiveness: In order for the board to be effective, the code lists the following as prerequisites:

- The selection process for board members must be rigorous.
- Members must have adequate skills, experience and be of independent mind.

- The skills across the board must be diverse to enable a balanced knowledge required to discharge their duties and responsibilities.
- Whilst new members are to be given induction, the board must also continuously update its skills and knowledge and assess its performance. Where necessary, upskilling interventions must be undertaken.
- The board must be provided with all required and necessary quality information to enable it to discharge its duties.
- Members are subject to re-election and evaluation of their individual performance.

Accountability: The board is accountable for the overall performance of the company and must ensure that the company's performance and position are presented transparently and accurately. Being accountable at this level, the board is responsible for determining the risk levels the company and its executives are allowed to take and how all the internal controls and reporting should be carried out.

Remuneration: The UK Code advocates for sufficient remuneration that is market related and enough to attract and retain qualified and skilled board members. It also states that the process of determining remuneration and its adjustments must be transparent and related to the company's performance and the individual director's performance as well. This must be driven by a well-developed remuneration policy.

Relations with shareholders: The board's main and official communication of the company's performance to the shareholders takes place during the annual general meeting. However, in the interest of the board and the shareholders alike, the board has to establish continuous dialogue with the shareholders regarding the objectives of the organisation in order to ensure mutual understanding of the objectives.

Overall, corporate governance in the UK is supported by the Company's Act of 2006, the Financial Services Authority, the listing rules for listed companies, and other relevant legislation.

2.5.3. Corporate governance in the USA

According to Veasey (2004), the term corporate governance emerged in the United States in the 1980s and basically defined the structures, relationships, control mechanisms and objectives of corporate enterprises. The significant occurrence in corporate governance in

the USA was the establishment of the Treadway Commission by the US Congress in the 1980s. It was formed to investigate and give recommendations regarding the failure of some government agencies, namely Drysdale Government Securities, Washington Public Power Supply System, Baldwin-United Corporation and ESM Government Securities. The Treadway Commission findings included inaccurate reporting of financial records, omission of transactions in financial reports, and fraudulent practices. In addition, it concluded that financial reports needed to be explained in detail and guided by an approved reporting framework, and there had to be independent verification of reports. This, however, was followed by more corporate failures like Enron and Worldcom in 2001.

The American Congress response to the scandals of Enron and Worldcom was the genesis of significant corporate governance reforms in the US. The Sarbanes Oxley (SOX) Code was enacted into law in 2002 (Damianides, 2005) and became the legal corporate governance framework for all USA-based corporations. The New York Stock Exchange (NYSE) adopted SOX as a mandatory enlisting requirement.

2.5.4. The USA Code: Sarbanes-Oxley Code

The main objective of the Sarbanes-Oxley Code of 2002 is to disclose all relevant activities, interests and actions that impact an organisation's performance and to report accurate information, including the financials to increase the reliability of financial reporting. SOX was passed and legislated into law in the US in 2002 (Damianides, 2005).

SOX mandates CEOs and CFOs to endorse and certify all financial reports, communications, information, etc. in compliance with the internal controls of the organisation. They are therefore accountable for the accuracy and completeness of the reports. Consequently, they are criminally responsible for any falsified financial reported information (Section 303, SOX).

This was a reactionary measure to improve accounting practices, financial controls and reporting within corporate governance structures of organisations in the USA (Keasey, Thompson & Wright, 2005). SOX defined various internal controls regarding financial reporting and disclosure. SOX further mandated executives to ensure that these controls are established, evaluated and monitored effectively within the organisation at all times. By legislating SOX, the USA expected that fraudulent accounting practices, unethical board

practices and compensation that had led to the Enron and Worldcom cases would not be repeated (Damianides, 2005), at least within the USA.

However, Macleod (2006) argued that SOX's risk prevention or reduction approach wouldn't prevent corporate governance failure. According to Macleod, risk is an integral part of the concept of the market economy driven by the paradox of higher risk and higher returns. Organisations will continue to take higher risks with the expectation of higher returns. However, an organisation's risk affinity and risk appetite are determined by the board of directors and driven by the executive management within its strategic intent. By focusing on transparency and accountability of the board, legislation like SOX makes it possible for stakeholders to gain access and assess the risk level or exposure of the organisation. The board's response is thus to be prudent in determining the organisation's risk affinity levels and ensure that a balance between the organisation's capacity and risk level is achieved whilst pursuing its strategic objectives.

The strength of the USA code is therefore its enforcement of transparency and accountability by the board and executives.

2.5.5. Corporate governance in Germany

The German Corporate Governance Code was first passed in 2001 as mandatory legislation with which companies have to comply or explain in cases of non-compliance. However, transformation in corporate governance in Germany became prominent after the unification of Germany in 1992. Notable factors were the exposure to global markets (globalisation), international investors, expansion of sub-business units beyond the borders of Germany, the formation of the EU and the financial market drive for a single EU currency, the drive for more financial transparency, and finally reforms within Germany itself driven by the formation of the German Government Commission on corporate governance (Zhang, 2010; Lane 2003).

Following a Continental Corporate Governance model, the structure of German corporate governance is implemented via a dual board system as prescribed by law (Government Commission, 2012). The two boards, the Board of Management (BOM) and the Supervisory Board (SB), are jointly obliged to ensure the continuous existence of the corporation and sustained value creation. The shareholders constitute a third structure of corporate governance and exercise their power through (or during) the Annual Shareholders' Meeting

(ASM). The relationship, control and power lines between the three structures are best depicted in Figure 2.4.

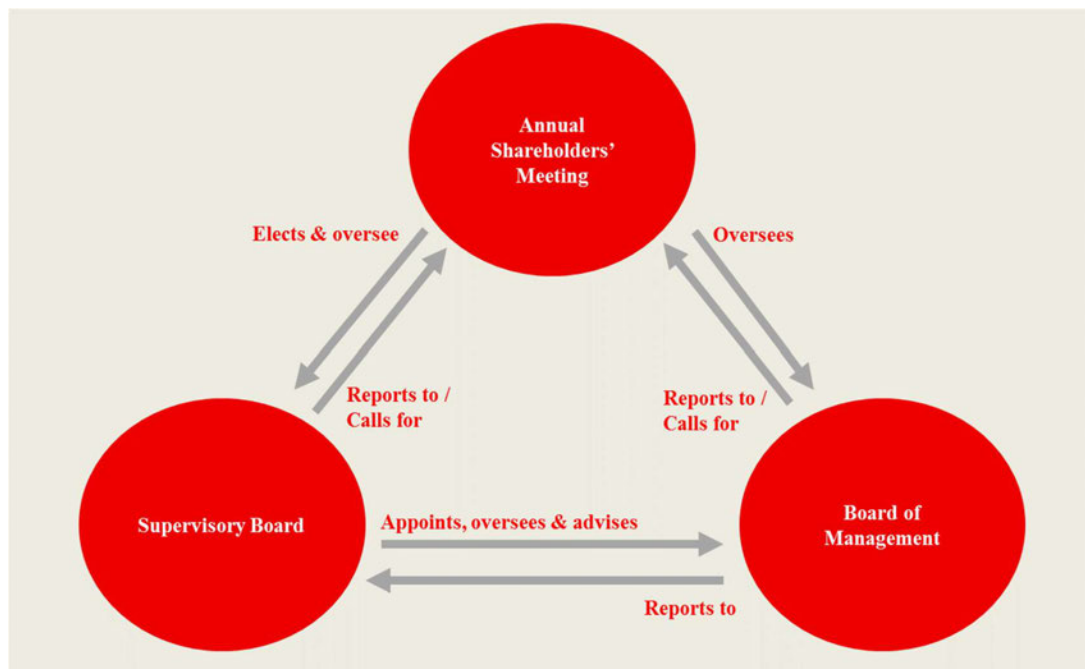


Figure 2.4: The German corporate governance model

The relationship between the three structures of corporate governance as depicted in Figure 2.4, enables both shareholders and stakeholders to influence the management of the organisation and hence its performance. Shareholders' power is effected through the ASM where shareholders elect members of the SB and hold the BOM accountable for the performance of the organisation. Where necessary, both the SB and the BOM have the audacity to call meetings to address or report back to shareholders through the ASM. The SB which is made up of both executive and non-executive directors (stakeholders' representatives included) is responsible to appoint, oversee and advise the BOM. The BOM therefore also have a reporting line to the SB. Through this relationships within these three corporate governance structures, shareholders and stakeholders (including management) are able to share common goals of long-term stability and growth to achieve stakeholders' desire and shareholders' desire for returns on their investments (Zhang, 2010). Other structures such as work councils also provide avenues to resolve management issues without resorting to legal actions.

Initial shareholding in German companies was concentrated among families, non-financial and some financial institutions, with the banks and insurance companies playing a central role, and with involvement of others like portfolio investors, e.g. investment funds and pension funds, being minimal (Lane 2003; Wójcik, 2003; Jürgens & Rupp, 2002). However, following the unification and the formation of the EU, Germany has experienced an increased inflow of investment funds from western countries underpinned by the Anglo-American model of corporate governance practice – this influenced the German stock markets and listed firms to increase their focus on shareholder value as against overall stakeholder interests. The response by German stakeholders and firms was to further concentrate their capital and to pursue mergers and acquisitions, which were not popular in Germany. Through these mergers and acquisitions, companies were able to consolidate their market size and influences to prevail against international competitors (Zhang, 2010).

Other influences of the Anglo-American model, like organisational performance measures by the use of precise financial indicators, have however been positively accepted and incorporated into the German Corporate Governance system. There was also political support for these approaches to financial liberation as was evident by the Takeover Law of 2002. Although firms are required to put in place anti-takeover measures approved by the two-tier boards, the law emphasises the commitment of the German legislator to improve shareholder value, compelling management of local organisations to improve performance and value for the shareholders or face a possible takeover by international organisations (investors) that promise more value for shareholders' interests (Lane, 2003).

2.5.6. The German Code

Implemented via a dual corporate governance structure, the German corporate governance code ensures that both the returns and risk of the organisation are equitably shared by the shareholder and stakeholders (Lane, 2003). This ensures that the interest of the shareholder is not compromised with that of the organisation as a whole which provides the basis of the interest of the other stakeholders, especially employees. The supervisory board mainly acts in the interest of the shareholders and ensures that the organisation's continuous existence allows for return on shareholders' investments. The management board on the other hand acts in the best interest of the organisation in support of the stakeholders' interest, especially that of employees.

Board members have to discharge their duties with due diligence, and comply with rules of proper corporate governance. These codes comply with both international and nationally recognised standards for good and responsible governance (Government Commission, 2012).

The two boards need to collaborate effectively in order to implement corporate governance within the organisation. Although no corporate governance principles have been instituted or enacted, the following key corporate governance aspects apply, as detailed in the German Corporate Governance Code 2012:

- Strategy formulation and coordinated implementation.
- Risk management and a controlling system implemented to ensure effective risk management.
- Compliance with laws and regulations.
- Confidentiality.
- Avoid conflict of interest and disclosure of all such conflicts and related matters.

For board level committees, the code recommends the formation of the following committees:

- Audit committee, which is responsible for ensuring that effective internal controls are in place for risk management; that an effective accounting system exists; and that the annual financial reports are audited. The committee also oversees the appointment, duties and fees of an independent auditor.
- Nomination committee, which has to oversee the proposals for nomination of suitable candidates to the supervisory board – for consideration and approval by the general assembly (i.e. the annual general meeting).

Overall, corporate governance in Germany has evolved and responded to global changes. The code has been continuously reviewed, updated as recently as 2015 and considered as meeting the same international standards as those of the UK and USA (Hopt, 2016).

2.5.7. Corporate governance in South Africa

In South Africa, the long apartheid regime in the country isolated it from international trade and economies which resulted in corporate governance practices lagging behind global and

international standards (Vaughn & Ryan, 2006). On the global scene, corporate governance reforms began to receive prominent attention of policy makers in the 1990s (De Nicolò, Laeven & Ueda, 2008). Key corporate governance reforms in the UK began in 1991 and in the USA in the 2000s (Keasey et al., 2005). However, after South Africa's independence in 1994, corporate governance had to be urgently considered as an important component of the development agenda of the country, as an emerging economy and with its potential leadership role on the continent (Vaughn & Ryan, 2006). Fortunately, significant advancement of corporate governance in South Africa did commence after its independence.

However, classified as a developing country, South Africa had to reform and grow its economy fast. This required political stability in order to attract infusion of international investment and foreign aid into the country to fuel the required economic development and growth (Adeoye, 2015; Akisik, 2008; Vaughn & Ryan, 2006; Aguilera & Cuervo-Cazurra, 2009). According to a survey by the McKinsey Consulting Group in 2008, good corporate governance attracts investors and increases share premium up to about 28%. It was therefore important for South Africa to improve its corporate governance to attract the needed inflows of capital and aid into the country (World Bank; IMF, OECD).

The post-apartheid South African government proceeded with its reforms, commencing with the financial sector. It instituted regulations that dismantled existing shareholding structures that restricted extended shareholdings. This broadened shareholding by encouraging investment inflow and lowered the number and level of minority controlled firms (Vaughn & Ryan, 2006). According to Vaughn and Ryan (2006), the JSE responded positively in support of the government and instituted listing rules in 2002 that prohibited firms with pyramid structures or with low voting shares from listing.

Once convinced that improvement in its corporate governance regime was yielding results, South Africa forged forward with more corporate governance reforms, including the development of its first code of corporate governance in 1996 referred to as the King I Report, which was later updated and improved in 2002 as King II. During the same period and in continuous support of government initiatives, the JSE also instituted more rules including the following:

- Mandatory requirement of disclosure by listed companies regarding the extent of their compliance with the King Code of good corporate governance and an explanation if not compliant.
- Adherence to international accounting and financial reporting standards and also structures (a panel) to monitor the performance of listed companies in relation to the various rules it had instituted.
- The insider trading Act passed in 1998 to guard against illegal insider trading and to enforce actions against perpetrators and disclosure of such behaviour to the media with intended results that would negatively impact on their share prices (i.e. the effect of poor corporate governance practice by the alleged perpetrator).

Other rules included the JSE's own Social Responsibility Investment Index (SRI) which measures a listed company's level of good practice relating to its corporate social responsibility (CSR), financial, social, environmental, health and safety policies and records, HIV/AIDS and Black Economic Empowerment reforms.

These changes together with further government legislation boosted investor confidence. According to the World bank, the South African economy recorded a significant increase in direct foreign investment of about 88% from 1994 to 2004 (www.worldbank.org).

The South African Companies Act of 1973, which had been in existence before 1994, was finally amended in 2006 and replaced with the new "Companies Act of 2008", in response to the demand for corporate governance improvements and changes that aligned to international standards and practices. The new Companies Act of 2008 aligned South African company legislation to the global jurisdiction and best practices. (Stein & Everingham, 2011). It also responded to the socio-economic circumstances that prevailed within the country at the time and the need for improvement of the welfare of the people. The new Companies Act of 2008 therefore adopted the enlightened variant of the Shareholder model which protects the interests of shareholders as well as those of other stakeholders at large.

Various other laws (Acts) were incorporated into the statutes of the country of the country's laws, which also positively enhanced the nature of corporate governance in the country (Stein, 2011). Some of these laws are:

- The Financial Intelligence Centre Act of 2001.

- The Security Services Act of 2004.
- The Auditing Professions Act of 2005.
- The National Credit Act 2005.
- The Corporate Laws Amendment Act of 2006.
- The Consumer Protection Act 2008.

2.5.8. The South African Companies Act 2008

As stated, the new South African Companies Act was enacted in 2008 to effect changes that had taken place post the 1973 Act. According to Cassim, Cassim, Cassim, Jooste, Shev and Yeats (2012), the old Companies Act of 1973 was amended 42 times in its 37 years of existence in a reactionary manner to align with the continuous changes occurring in South Africa. This inevitably led to conflicting and complex company law regimes which were inconsistent and counter to existing economic transformation. It was evident that the post 1973 years saw much transformation of the local and global economies driven by globalisation, socio-political evolution, constitutional regime, technological advancement, investors' influence, and capital sensitivity. These changes and transformations rendered the 1973 Act archaic, obsolete and stifling to the development and growth of the South African economy (Cassim et al., 2012).

The South African Companies Act of 2008, like other similar legal instruments, specifies how a company must be established, its purpose, operation, intended strategy, ownership (shareholders), and governance (board) structure to control and direct the operations of the company. According to Stein (2011), the South African macro-economy is influenced by the various political groupings and evidently integral to the country's company law structure and content. Based on this evidence, in its enactment the South African Companies Act of 2008 recognises the 'company' as both an economic and social entity and thus the need to constrain its economic objectives within the confines of social and environmental imperatives (Stein, 2011; Carciumaru, 2009). This commitment to assurance of good corporate governance by companies is further evident in the partial codification of the common-law fiduciary duties of directors within the Companies Act of 2008. The Act clearly specifies the duty of directors to "act in the best interest of the company" but falls short of specifying what the duty and the expected actions are. According to commentators, the gap here is filled by common law constructs and other statutes of the country that govern the

way corporations are to be run. The Act makes reference to a company's Memorandum of Incorporation (MOI) that specifies there must be clarity of roles between shareholders and the board, a code of conduct to guide behaviour of managers and directors, company rules that address important aspects of internal governance of the company and related intra-corporate matters were applicable, and any instruments that provide transparent and high standards of corporate governance (Cassim et al., 2012; Stein, 2011; Wixley & Everingham, 2010).

The release of King III in 2008 was thus based on and in alignment with the legislative framework provision within the South African Companies Act of 2008 for the attainment of good corporate governance in South Africa (Cassim et al., 2012; PWC, 2011).

2.5.9. The South African Corporate Governance Code – King III (2009)

The King III Code of good corporate governance was a response to the need and essence for good guiding principles on corporate governance, following the enactment of the new Companies Act of 2008 in South Africa. Although not legally binding, it has been accepted widely as a guiding principle for the institution of good corporate governance in South Africa and is internationally recognised (Idowu and Caliyurt, 2014). It is a mandatory requirement for all JSE listed companies (JSE, 2011). The initial code, King I, was released in 1994 following the end apartheid in South Africa in the same year. Subsequent updates and amendments led to King II in 2002 and King III in 2008.

According to the King I Commission, the King Code qualifies as a model of good corporate governance that meets international standards against which to measure the effectiveness of corporate governance in South Africa and beyond. Accompanied by its practice notes, the King III Code offers 15 corporate governance principles and explains how to implement such principles in alignment to the Act of 2008 and other statutes including those of common law. These principles are classified under nine broad corporate governance categories, as presented in Table 2.3.

Table 2.3: King III corporate governance principles

No.	Corporate governance category	The principle
1	Leadership	The board is to provide effective and ethical leadership; define and communicate its responsibilities; ensure that ethical behaviour and conduct permeate throughout the organisation; and ensure that the organisation is a responsible corporate citizen.
2	Boards and directors	Take custody of the organisation's overall corporate governance; have a non-executive and independent chairman; effect all corporate governance principles of the entire King III Code; develop and adopt a governance framework to guide its oversight function; effect the strategy and its implementation, risk management, compliance management and the overall sustainability of the organisation.
3	Audit (committee)/Auditor	The board should establish a board level audit committee made up of independent non-executive directors and chaired by one of them. The committee must report to the board and shareholders. Its responsibilities include overseeing the appointment and work of the independent external auditor; overseeing all assurance and internal controls, risk management, and mitigation; and overseeing integrated reporting of the organisation.
4	Risk governance	The board is responsible for the governance of risk. It has to seek assistance from the audit committee; obtain continuous feedback from management on risk matters, risk assessment, responses, monitoring, assurance and disclosure; and must determine and communicate the organisation's risk appetite and tolerance levels.
5	Information technology governance	The board has to be responsible for IT governance and ensure that it is aligned to the organisation's performance and sustainability objectives; the board has to monitor and evaluate significant IT investments and expenditure and IT has to ensure that such investments are appropriate and add value to the organisation. The board also has to oversee the effective management of information assets.
6	Compliance	The board must ensure that the organisation complies with all laws, rules, codes and standards and must have a working knowledge of all these factors and the impact of non-compliance on the organisation. It should ensure that all compliance risks are managed.
7	Internal audit	An internal audit function must be established in the organisation and a board level audit committee assigned the responsibility of overseeing the function. The internal audit function is a management level one and responsible for all internal controls and risk management. It is to act independently and report directly to the audit committee and the board.
8	Stakeholders	The board needs to consider stakeholders' input and perceptions, and where there is an actual gap in performance, endeavour to bridge it. It should also ensure that the interests of the various stakeholder groupings are balanced and in the interest of the organisation.
9	Reporting	The board has to provide an annual performance report that covers financial information, sustainability and disclosure. They need to be accountable for the content of this integrated report.

Other areas covered in detail by King III within the listed categories in Table 2.3 include the following:

- The composition of the board should include a majority of independent non-executive directors and the positions of the CEO and Chair should be separate.
- The board is permitted to establish board level committees to advise the board and also use external experts, without abdicating its responsibility.
- Board members are to undergo continuous training and their experience and performance assessed annually.
- Board members are to act with transparency, avoid any conflict of interest and disclose any such conflicts.
- The board must ensure that the organisation is transparent in all its dealings and disclose any material matters of interest to all stakeholders.

To ensure that the organisation is a good corporate citizen and considers the interest of stakeholders, the board has to ensure that, as part of the audit committee's responsibilities, the organisation reports on how its operation impacts socially, economically and environmentally on the community within which it operates.

IT risk has to form an integral part of the organisation's risk management.

2.5.10. Summary of corporate governance codes in practice

In practice, corporate governance within the USA, UK, Germany and South Africa presents similar characteristics, as highlighted by the forgoing review of corporate governance models and codes. The key aspects of corporate governance practices are captured below:

- Shareholders' influence and interest
A shareholder's expectation is to obtain return on investment (ROI). Should this be achieved, the organisation would continue to exist to the benefit of all stakeholders. However, the behaviour of shareholders differs in two ways, the short-term investment practice and expectation of the investor in the USA and the long and sustainable practice of investors in Germany. The influence of the shareholders is controlled by the board, which in all the countries is incorporated into legislation, regulations, rules, and codes of good corporate governance.

- Stakeholders' influence and interest
In Germany, the interests of stakeholders, especially employees (labour), are legally protected and implemented via a dual board structure through representation on the management board, and receive significant attention. The interest of stakeholders are also recognised by the enlightened shareholder model. Laws and legislation regulations have also been enacted in the interest of stakeholders in South Africa.
- Board structure and leadership
Although the German corporate governance leadership structure has a dual board structure, the role of the board (supervisory board) is to ensure continuous existence of the organisation – putting the interest of the organisation first and ensuring continuous and sustainable performance of the organisation. This is likened to the unitary board in the UK and South Africa. In both models, the boards' structures include board level committees that assist the board in specified areas of corporate governance.
- Social responsibility
In discharging their corporate governance oversight responsibilities, boards have become more aware of the need to support and protect the environment within which the organisation exists. Investors have also become more concerned about how their investment impacts the environment and they have thus become influential in investing in socially responsible organisations, countries or regions. Laws and regulations have also played a major role in enforcing good socially responsible organisations and investments.
- Risk exposure and management
This is seen at two levels. Firstly, the investor that expects higher returns in a short term and therefore takes higher risks; secondly, the investor that takes a longer-term investment view with lesser risk but secure returns. The market growth potential and investment climate within the country shapes these risk categories. Laws and legislation within countries either encourage high risk or controlled risk. Post-apartheid South Africa presented an open market with great growth potential for investors but also presented the need for transformation. Managing the market risk and investment risk is the integral responsibility of the board to ensure sustainability of the organisation and compliance to existing laws and legislation.

- **Disclosure and ethical leadership**
Internal to the organisation, the board and executive leadership are expected to uphold ethical leadership and abstain from pursuing self-interest. Where conflicts of interest exist or arise, disclosure is expected. The organisation as a whole, led by the board and executives, is expected to disclose any bad corporate practice of extreme risk exposure that adversely affects the organisation and hence shareholders' and stakeholders' interests. Rules, laws and regulations also exist to either encourage or enforce this practice and behaviour.
- **Standards and best practice codes of corporate governance**
Corporate governance in practice in the USA, UK, Germany and South Africa is supported by rules, codes of good governance, conduct and practices. Listed companies have to abide by enlistment rules of the respective stock exchange house, which are enforceable by the governing bodies of these respective stock exchange houses. Corporate governance standard codes developed within countries and other certified international codes have also been accepted and applied by boards across these countries. Various codes of corporate governance have been devised and revised within countries and accepted as dynamic principles that the boards and executive leadership adhere to and apply to effect good corporate governance on an ongoing basis.
- **Laws and legislation**
In all the countries reviewed, various laws exist that cover the incorporation of an organisation, its leadership and operations. In the US, the existing corporate governance code, the SOX of 2002 (Damianides, 2005), is legislated in its entirety. Company laws and Acts exist to cover aspects of corporate governance that are found to be lax or newly evolving. Laws exist for each stage and aspect of company formation, its governance structures and practices. Compliance with these laws is mandatory and enforced.

The review of the legal frameworks existing within corporate governance practices and codes indicates the importance of the law in the establishment of a company and the economic activities it can pursue. Company law sets the rules for how companies are led and operate. The company leadership behaviour and management of the

company must ensure that the best interests of the company shareholders and other stakeholders are upheld.

The summarised key aspects of corporate governance codes in practice in the US, UK, Germany and South Africa contribute to the overall conceptualised corporate governance framework presented in the next section.

2.5.11. Corporate governance conceptual framework

To appropriately conceptualise corporate governance based on governance models it was necessary to review governance models in the literature. The literature revealed that corporations within governance regimes are impacted by various factors, and described how corporations have responded to these factors and adopted corporate controls and governance mechanisms. Established corporate governance models and codes of practice in the US, UK, Germany and South Africa were reviewed to assess the variations in models and practices across these diverse regions.

The various aspects of corporate governance identified from the reviewed literature in the chapter are collated into four identifiable groupings. From the details obtained from the various corporate governance codes and practices, these groupings include aspects that influence corporate governance establishment within an organisation; aspects that are features of established (and implemented) corporate governance; aspects of control within established corporate governance; and finally, aspects that reflect leadership within corporate governance. Table 2.4 presents these groupings and the details of the aspects.

Table 2.4: Aspects of corporate governance factors

	Groupings	Aspects	Details
1	Influencing factors	<ul style="list-style-type: none"> • Shareholders influence • Stakeholders influence • Organisation's strategic objectives • Laws and legislation • Political influence 	<ul style="list-style-type: none"> - Employees - Society/communities - Environment - Investment risk - Operational risk - Compliance risk - Adherence to Companies Act - Compliance to laws & regulations - Enlistment rules
2	Implementation features	<ul style="list-style-type: none"> • Shareholders influence • Stakeholders influence • Internal advisory • External advisory • Compliance to laws and legislation • Ethics, disclosure & conflict of interest 	<ul style="list-style-type: none"> - Use of expert advice to the board - Board level committees - Adhere to ethical leadership - Uphold good conduct - Avoid conflict of interest - Organisation to be a good corporate citizen
3	Control mechanisms	<ul style="list-style-type: none"> • External audit • Codes of good practice • Listing rules • Market reaction • Laws and legislation 	<ul style="list-style-type: none"> - Controls effective leadership and thus corporate governance - Adopting and implementing corporate governance principles - Corporate governance standards - Reward good organisational performance - Verification of internal controls - Accounting and financial performance - Verification of risk management - Adherence to Companies Act - Compliance to laws & regulations - Enlistment rules
4	Leadership	<ul style="list-style-type: none"> • Board structure • Board oversight • Executive leadership 	<ul style="list-style-type: none"> - Board structure and composition - Responsibilities - Independence - Skills and experience
5	Effective Corporate Governance Outcome	<ul style="list-style-type: none"> • Sustaining performance 	<ul style="list-style-type: none"> - Achieving the interest of shareholders, the organisation and executive management, and stakeholders

Table 4.2 also includes organisational performance as an outcome of effective corporate governance. From the literature it is evident that the primary objective of corporate governance is to ensure that corporations achieve their purpose; with the three key corporate purposes being: (1) to achieve shareholders' interest of return on investments, (2) to sustain

the existence of the corporation as a going concern, and (3) to achieve the interest of other stakeholders, especially employees for continuous employment. These purposes are attained only when the corporation performs. Hence, it follows to state that effective corporate governance should then impact on corporation performance and lead to a sustainable performing organisation.

A conceptual corporate governance framework is established from Table 2.4 by incorporating all the aspects of corporate governance and organisational performance as the expected outcome. The conceptualised corporate governance framework presented in Figure 2.5 depicts the link between corporate leadership, influencing factors, implementation features and control mechanisms as independent variables and effective corporate governance as the dependent variable that effects corporate performance outcomes as a result of effective corporate governance. Effective corporate governance enhances organisational performance which in turn attracts investors (Denis, 2001; OECD, 1999).

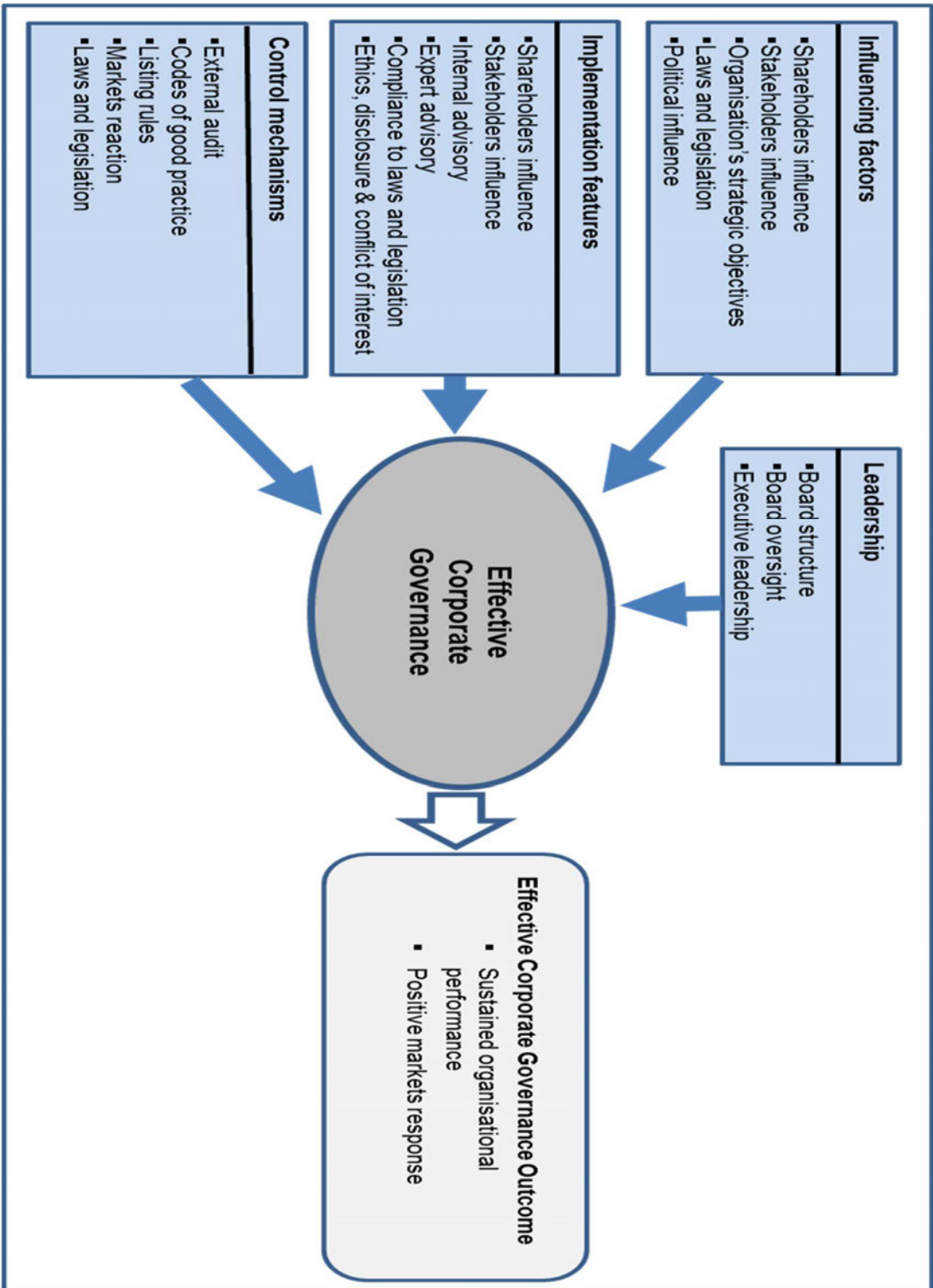


Figure 2.5: Conceptualised corporate governance framework

IT governance did not feature as a consistent aspect of corporate governance within the reviewed literature on corporate governance; it was not identified as a direct aspect of corporate governance. The introduction of IT governance as a corporate governance principle by King III (2009) was the first and there are limited studies on the concept. Whilst various IT governance frameworks and standards exist, only a few have aspects to guide boards in implementing IT governance within corporate governance. IT governance development, frameworks, standards and its evolution within corporate governance are reviewed and discussed in the next chapter of this study.

2.6. CONCLUSION OF THE CHAPTER

The purpose of this chapter was to derive a conceptual corporate governance framework from the basis of existing governance models. The chapter reviewed governance and corporate governance models, mechanisms, codes of corporate governance and existing external factors within the operating country (state). The chapter ended with a review of the South African corporate governance code, the basis for including IT governance in its corporate governance code, and the IT governance principles recommended by the code.

In completing the review, a conceptual governance framework was derived which highlighted the key aspects of corporate governance, influencing factors from governance models, external and environmental factors. The framework identified the influence of corporate governance practices, the implementation features, the controls and the measurable outcomes of effective corporate governance. The conceptual framework thus specifies corporate governance as shaped and formulated on the basis of governance models and through the evolution of corporate governance practices and codes.

The chapter has provided a comprehensive review of corporate governance that enabled the identification of the need for its conceptualisation within which IT governance fits. The conceptual framework forms the basis on which to review IT governance from a corporate governance perspective. The chapter has therefore concluded by introducing IT governance within corporate governance.

The next chapter presents a review of IT governance literature.

CHAPTER 3

CHAPTER THREE: IT GOVERNANCE

3.1. INTRODUCTION

In 2003, the publication of Gartner's survey results on what the Top Ten CIO Management Priorities are, highlighted the emergence of the importance of IT governance in organisations (Allen & Gerald, 2005; Nolan and McFarlan, 2005; Van Grembergen, 2004). From the results, "Improving Governance" was rated as third of the top ten management priorities for the CIO in an organisation. In another survey by the Information Technology Governance Institute (ITGI) (2003), over 80% of CIOs interviewed responded that good IT governance positively impacts the attainment of organisational strategic goals.

Following these findings and publications, various papers were published on IT governance with the attempt to prescribe what IT governance should entail and what organisations must do in relation to IT governance. This resulted in a proliferation of definitions on IT governance and what IT governance entails. The proliferation of definitions prompted Webb et al. (2006) to find an acceptable definition of IT governance that encompasses its key aspects.

According to De Haes and Van Grembergen (2005), the term IT governance emerged in academic literature in 1999 by Sambamurthy and Smud (1999) and later in professional business management research in 2003 by Gartner. This was challenged by Allen and Gerald (2005), stating that the term "IT Governance" had emerged earlier in research work, citing the work by Loh and Venkatraman (1992) and that of Henderson and Venkatraman (1993). However, the specific reference to the subject as "IT Governance Framework" by Sambamurthy and Zmud (1999) was the genesis of its emergence in academic works as presented by De Haes and Van Grembergen (2005). Since its emergence in 1992 until 2005, IT Governance received very little attention within the corporate governance structures (Allen & Gerald, 2005; citing Trites, 2004 & Huber, 2004).

3.2. DEFINITION OF IT GOVERNANCE

The definitions of IT governance within the literature are divergent as a result of various research studies and academics defining it in a manner that befits their interest and areas of research or expertise. Webb et al. (2006) expressed the importance of eliminating the

confusion posed by the various definitions and to have a clear definition that is acceptable and shared by all as a useful guide to enhance future research in the field. Out of the various definitions, Webb et al. (2006) employed the concept of content analysis to formulate the following definition for IT governance that captures the key elements found across the various definitions:

“IT Governance is the strategic alignment of IT with the business such that maximum business value is achieved through the development and maintenance of effective IT control and accountability, performance management and risk management”.

This definition captures the various aspects of IT governance, which have been of interest to researchers, and the principles of IT governance being practically employed. These aspects of IT governance are the assurance of IT strategic alignment with the business strategy and the subsequent attainment of value to the business, the effective control and management of IT risk to the business, ensuring IT performance management and assignment of accountability for IT within the organisation.

Further study by Simonsson and Johnson (2006) on the definition and aspects of IT governance indicated that whilst researchers have focused on different aspects of IT governance and presented various facets of it, what has been omitted is the identification of the allocation of decision-making powers that relate to IT governance matters. In their work titled “Defining IT Governance, A consolidation of literature”, Simonsson and Johnson (2006) reviewed the works of various researchers including that of Sambamurthy and Zmud, (1999, 2000); Weill and Ross (2004); Weill and Woodham (2002); Ross (2003); Luftman (1996 & 2004); and frameworks including the Control Objectives for Information and Related Technologies (COBIT), Information Technology Infrastructure Library (ITIL) and BS 7799/ISO 17799. Upon reviewing and assessing these works, totalling about 60 different articles and publications from accredited and peer reviewed publications and journals, conferences and workshops, they concluded their definition of IT governance as:

“The preparation for, making of and implementation of decisions regarding goals, processes, people and technology on a tactical and strategic level”.

This definition captures the decision making within IT governance to be located at both tactical and strategic levels within the organisation. Simonsson and Johnson (2006)

classified their aspects of IT governance as domains which include IT goals (its setting and implementation), IT processes, IT people and the technology employed. They explained that strategic decisions made within these domains must be implemented at the tactical level and be effectively monitored continuously to ensure attainment of the expected outcomes.

Simonsson and Johnson's key contribution to IT governance is the need to identify who makes decisions regarding the various domains and how these decisions are made. However, to ensure that the right decisions are made, it is important that the right IT people, process and technology are selected and employed. Allocating decision making to the right people and clearly defining the accountability processes are important to IT governance implementation within the organisation. IT governance requires the allocation of decision-making responsibility and accountability to ensure oversight of successful implementation of decisions (King III, 2009).

3.3. IT GOVERNANCE DECISION MODELS

IT governance decision-making practices have taken various forms. Prior to the works of Webb et al. (2006) and Simonsson and Johnson (2006), the work of Sambamurthy and Zmud (1999) set the arena for other works on IT governance to proceed. Sambamurthy and Zmud (1999) noted that studies done within the space of 20 years (prior 1999) focused mainly on IT decision making and authority over IT utilisation (what IT is used for), IT usage (extent of usage/how much is used), and IT project management (IT implementation) in business. It can be inferred from this that IT governance then was about the delegation of authority in decision making on "what" IT to use, "how" much or the amount of it is to be used. IT decision-making authorities were found to be structured in three different ways, thus leading to the classified models of IT governance as being centralised, decentralised and federal IT governance models. The locus of the decision making may reside along the continuum of power within the organisation from a centralised point on the one hand to a decentralised point at the other end, as depicted in Figure 3.1.



Figure 3.1: Models of IT decision making

According to Peterson (2004), in a centralised decision-making model, all IT investment decisions across the organisation, including its subsidiaries, sub-units and branches are made from the organisation's central offices (head office or parent company). On the other hand, in the decentralised decision-making model, IT decisions are delegated to the individual business units (whether it is a sub-unit, branch, local business, or line of business, etc.).

The centralised and decentralised models do come with advantages and disadvantages, as stated in Figure 3.2 below (Peterson, 2004). However, over the years, most organisations have where possible adapted a combined approach in order to obtain the best from both models. Such an approach is referred to as the federal model of decision making. (Peterson, 2001 & 2004; Sambamurthy & Zmud, 1999; Weill, 2004). As depicted in Figure 3.2, organisations with a federal model are able to gain central IT vision, strategic control and leadership whilst at the same time they are able to give business units ownership and control of their applications, control over their IT priorities, and share synergies across the various business units. Through a federal model, an organisation is also able to achieve economy of scale, control standards across the organisation and gain access to a central mass of developed skills.

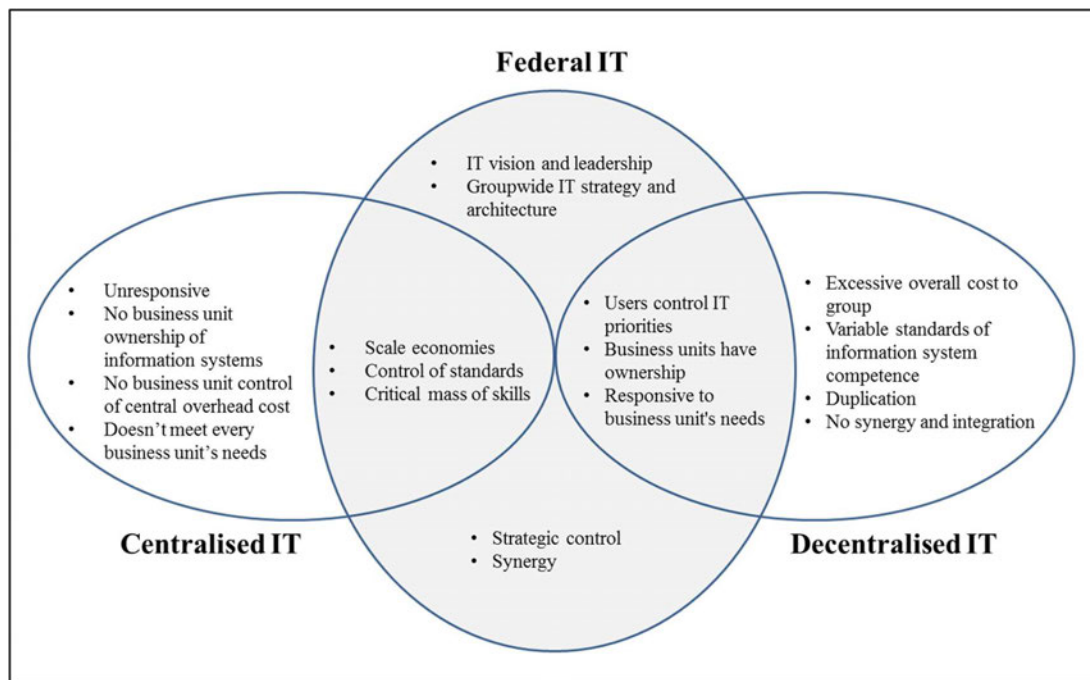


Figure 3.2: Federal IT decision making

Source: Peterson, R.R. 2004. Crafting IT Governance. *Information Systems Management*, vol. 21, no. 4, pp. 7-22.

Smaller organisations are mostly functional in structure and tend to centralise most of their functional operations. As the organisation grows, its operations become divided which results in decentralisation of some of its operations. These changes equally affect IT governance which then transforms from a centralised to decentralised model.

Pearlson, Saunders and Galleta (2009) indicated that an organisation's IT governance model is influenced by what it stands to gain from the adopted governance model and evolves along the continuum between centralised and decentralised models. In their research, Sambamurthy and Zmud (1999) identified various factors that influence the choice of IT governance model organisation, and referred to them as "contingencies". They defined "contingencies" as existing conditions that may be specific to a given environment or diverse across multiple environments within which an organisation exists. Where these contingencies are reinforcing or dominate, organisations tend to pursue either a centralised or decentralised IT governance whilst in cases where these factors are conflicting, a federal IT governance model is pursued. Contingency theory therefore has been applied practically in organisations in the adoption of an appropriate model of IT governance.

From the above reviews, it is evident that IT governance includes decision making, (either centralised, decentralised or federal), decisions that relate to the domains of IT employment (IT investments, applications, services and infrastructure), ensuring IT strategic alignment to business strategy, IT control, risk management, accountability, attainment of business value, and performance management.

3.3.1. Influence of corporate governance on IT governance decision models

Brown and Grant (2005) confirmed an association between IT governance models within organisations and the organisation's corporate governance model in their study in which they reviewed various existing literature on IT governance models implemented within organisations. However, in a study by Peterson (2001), he argued that an organisation's IT governance model is actually influenced by the organisation's strategic value agenda. He explained that irrespective of the IT governance model, an IT decision may be taken in the interest of the organisation's strategic goal even if it contradicts the decision-making powers of the IT governance model. This is where, for example, a business unit IT domain decision-making power is overwritten by a central decision power in the interest of the organisation as a whole. Therefore, although an organisation's corporate governance model may reinforce its IT governance, this can be overwritten or overturned if the strategic intent necessitates it.

In a follow-up study, Peterson (2004) further indicated that the IT governance model of an organisation may actually differ from that of the organisation's corporate governance model due to the influence from a decision-making entity outside the formal organisation structures (internal structure) as a result of the delegation of such power or responsibility to such entity. Peterson (2004) is of the view that in an outsource relationship where an organisation's IT service is provided by an external IT service provider, decisions made relating to a given domain of IT utilised by the service provider is located with the service provider and thus outside the control of the organisation's IT governance model. Therefore, both internal and external factors can influence an organisations' selection of an IT governance model. Peterson (2001) concluded that for an organisation to implement effective IT governance, it must build a particular capability to underpin its IT governance decision-making structures.

3.4. IT GOVERNANCE CAPABILITIES

According to Peterson (2001 & 2004), in order for an organisation's IT governance to be effective in driving the intended strategic alignment between the organisation's strategy and its IT strategy, the following must be developed: structural capabilities, process capabilities and relational capabilities

3.4.1. Structural capabilities

Structural capabilities include formal positions created within an organisation and the assigned role of overseeing the implementation and management of IT governance-related decisions. It also includes any form of committee, council, and advisory board that is likewise charged with IT governance decision making or recommendation in its terms of reference (Peterson, 2004, Van Grembergen et al., 2004; Huff et al., 2012; Ali and Green, 2007; Andriole, 2009; Bart and Turel, 2010; Jewer and Mckay, 2012).

3.4.2. Process capabilities

These are defined and formalised processes and procedures to follow in making, developing or drafting IT strategy, assessing and selecting strategic options presented and the implementation thereof (Peterson, 2001 & 2004). It also includes putting IT-related decisions and processes in place that monitor the performance of the implemented IT strategy (Peterson, 2004; Dahlberg and Kivijärvi, 2006, ITGN, 2007; Marks, 2010; Schwertsik et al., 2010; Jewer and Mckay, 2012; Mohamed and Kaur, 2012)

3.4.3. Relational capabilities

These are established communication and collaboration mechanisms that enable active participation of stakeholders in making joint choices relating to IT that transcend the functional interest within the organisation (Peterson, 2004; Ali and Green, 2012). These are decisions that are in the best interest of the organisation as a whole rather than in the interest of individual functions. Participating stakeholders include corporate executives, business management and IT management. Relational capability also encompasses the knowledge and competences gained and utilised through the communications and collaborations with stakeholders (Peterson 2004; Valentine and Stewart, 2013; Balsmeier et al., 2013).

Relational capabilities encourage involvement, participation and collaboration of key stakeholders in the IT governance decision process to make creative and innovative decisions. According to Peterson (2001), the three capabilities, namely structural, process and relational, influence and ensure the effectiveness of IT governance implementation. According to Pearlson et al. (2009), good IT governance implementation includes the right structures to enable good decision making and that these capabilities should exist within the IT governance structures of the relevant organisation (Van Grembergen et al., 2004; Mohamed and Kaur, 2012)

3.5. IT GOVERNANCE DECISION-MAKING RESPONSIBILITIES

In the detailed description of the three capabilities, Peterson (2004) highlighted the need for processes and procedures for the selection and prioritisation of decision options, and the relationship and participation of key stakeholders in making IT governance decisions within the organisation. He also identified roles such as committees, advisory boards, councils, and individuals at both management and executive levels that participate and contribute to IT governance-related decision making.

Whilst these identified roles are established to participate and collaborate in the decision-making process and make choices with regard to existing options, there is still a need for accountability. According to Weill and Ross (2004, pg. 2), IT governance is about “specifying the decision rights and accountability frameworks” that ensure that persons or structures with decision-making rights are held accountable for their decisions. This therefore establishes two components to IT governance – the assignment of decision-making authority and responsibility, and the decision-making mechanisms (Weil & Ross, 2004).

IT governance establishment involves the identification and assignment of decision-making rights either to an individual or to a group of individuals. However, this can only be ascertained once the type of decision has been identified, as only then can the most appropriate selection be made about who to assign the right to (Pearlson et al., 2009). Figure 3.3 depicts the link between the IT governance decision-making capabilities; roles and responsibilities; the IT domains within which decisions are required; the actual decisions made in relation or alignment to the strategic intent of the organisation; and the organisational overall corporate governance decisions and structures.

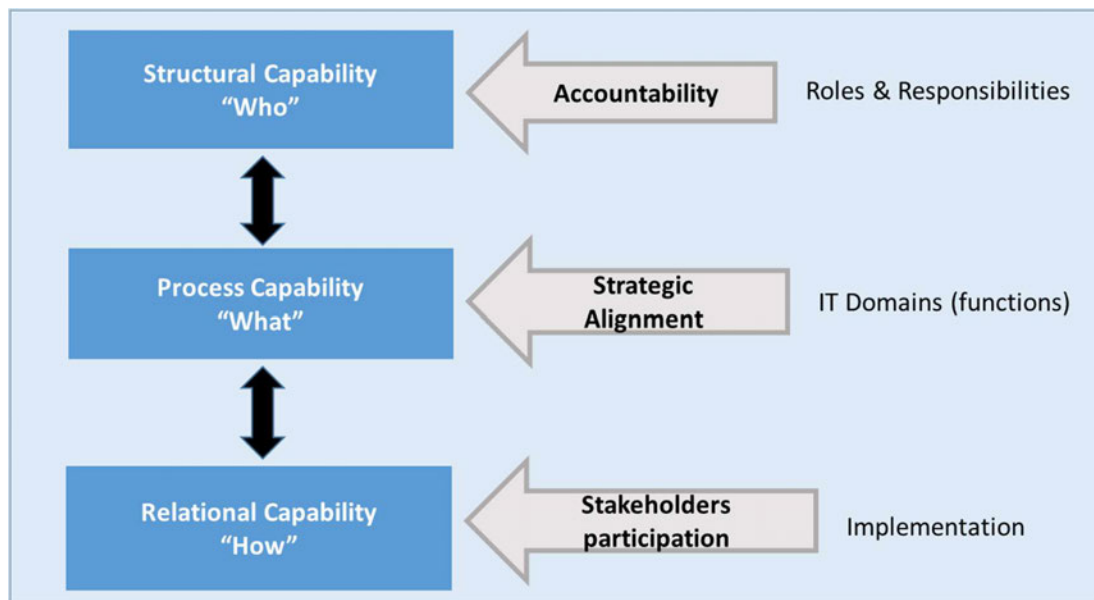


Figure 3.3: IT governance decision making

Figure 3.3 illustrates the IT governance decision-making structure that aligns the “who”, “what” and “how” of IT governance decision making by Weill and Ross (2004) to the required (or needed) capability for decision making of Peterson (2004) and the required governance structure of Pearlson et al. (2009). The alignment enables the identification of who makes IT governance decisions and is thus accountable for such decisions. However, accountability requires clearly defined roles and responsibilities. What IT-related decisions need to be made is determined by the strategic alignment between IT and the organisational strategy to identify IT and IT domain (classification). How implementation of IT decisions are effected depends on established relationships between management and other stakeholders (as implementers of the decisions).

Weill and Ross's (2004) empirical research classified the possible combination of decision-making roles and responsibilities, including individuals, groups, committees or councils, into six archetypes, namely Business Monarchy, IT Monarchy, Feudal, Federal, IT Duopoly and Anarchy. As presented in Table 3.1, these groupings consist of corporate and business unit executives, IT executives, business process owners, IT business unit and in some cases, users. A classified archetype is a particular pattern of a grouping that is assigned an IT governance decision-making right.

According to the findings of Weill and Ross (2004), after examining 500 organisations across 23 countries, IT governance exhibits a pattern that aligns to an organisation's performance parameters such as its asset utilisation, its profitability levels and its growth. Accordingly, IT governance does not align to a predefined best fit arrangement but rather in a dynamic response to the organisation's performance parameters.

Table 3.1: Decision-making roles

Decision rights or inputs rights for a particular decision are held by:		CXO Level Execs.	Corp. IT and/or Business Unit IT	Business Unit Leaders or Process Owners
Business Monarchy	A group of, or individual, business executives (i.e. CxOs). Includes committees comprised of senior business executives (may include CIO). Excludes IT executives acting independently.	✓		
IT Monarchy	Individual or groups of IT executives.		✓	
Feudal	Business unit leaders, key process owners or their delegates.			✓
Federal	C level executives and at least one other business group (e.g. CxO and BU leaders) – IT executives may be an additional participant. Equivalent to a country and its states working together.	✓	✓	✓
		✓		✓
IT Duopoly	IT executives and one other group (e.g. CxO or BU leaders).	✓	✓	
			✓	✓
Anarchy	Each individual user.			

Source: Weill, P. & Ross, J.W. 2004. IT governance. How top performers manage IT decision rights for superior results. Harvard Business School Press, Boston, MA.

To further endorse the finding of Weill and Ross (2004), Pearlson et al., (2009) in a similar research, noted two additional decision-making bodies that are also prevalent, namely the IT Governance Council (ITG Council) and the IT Governance Committee (ITG Committee). Although these may be seen as being integral to Weill's Business Monarchy archetype, the ITG Council is usually made up of top level executives and the CIO (if there is one). The key role of this committee is to provide strategic direction and to authorise funding for major IT projects. The IT Governance Committees on the other hand are made up of lower-level players (below director level) and representatives from the various business units. IT decision-making authorities within the literature have included the CIO (Jewer and McKay, 2012; Nfuka et al., 2009), IT management committees (Brown, 2015; Nfuka et al., 2009), IT executive committee (Griffiths et al., 2014) and business units (Boamah-Adu, 2010).

The important point here is that the council does not make the final decisions on these matters but rather provides direction to the board to make the final decision (Weill and Ross, 2004 ; Pearlson et al., 2009; Ho, 2010). It leaves the IT governance decision making and accountability to the board. The online Business dictionary defines the "board" as:

"Governing body (called the board) of an incorporated firm. Its members (directors) are elected normally by the subscribers (stockholders) of the firm (generally at an annual general meeting or AGM) to govern the firm and look after the subscribers' interests. The board has the ultimate decision-making authority and, in general, is empowered to (1) set the company's policy, objectives, and overall direction, (2) adopt bylaws, (3) name members of the advisory, executive, finance, and other committees, (4) hire, monitor, evaluate, and fire the managing director and senior executives, (5) determine and pay the dividend, and (6) issue additional shares. Though all its members might not be engaged in the company's day-to-day operations, the entire board is held liable (under the doctrine of collective responsibility) for the consequences of the firm's policies, actions, and failures to act. Members of the board usually include senior-most executives (called 'inside directors' or 'executive directors') as well as experts or respected persons chosen from the wider community (called 'outside directors' or 'non-executive directors')" (Business Dictionary, 2016).

The new Companies Act 71 of 2008 of South Africa defines a “board” as follows:

Board, directors and prescribed officers

- (1) The business and affairs of a company must be managed by or be under the direction of its board, which has the authority to exercise all of the powers and perform any of the functions of the company, except to the extent that this Act or the company’s Memorandum of Incorporation provides otherwise.
- (2) The board of a company must comprise:
 - (a) In the case of a private company, or a personal liability company, at least one director; or
 - (b) In the case of a public company, or a non-profit company, at least three directors, [Para. (b) Substituted by s. 44 of Act 3/2011]

“In addition to the minimum number of directors that the company must have to satisfy any requirement, whether in terms of this Act or its Memorandum of Incorporation, to appoint an audit committee, or a social and ethics committee as contemplated in section 72(4)” (Companies Act & Regulations, 2012, p. 151).

It therefore follows that the board is the responsible governing body of the organisation and establishes related committees or councils within its powers. The assigned responsibilities of these committees or councils are defined by the board. The IT Committee/Council (or whatever name it’s given) therefore reports to the board its recommendations and the board then makes the final decision as the oversight/governing body. These committees or councils may comprise of directors (executive or non-executive), business unit leaders, individual managers (senior or otherwise), users, and consultants (Weill & Ross, 2004; Pearlson & Saunders, 2009; Nfuka et al., 2009; Griffiths et al., 2014; Brown, 2015).

The overall responsibility of IT governance decision making is a part of the board’s governing responsibility. This establishes the link between IT governance and corporate governance as both are a responsibility of the board. Whilst IT governance decision making maybe be assigned or allocated to committees, councils, archetype, or any persons or structures as per the findings of Weill and Ross (2004), and Pearlson et al. (2009), the overall accountability resides with the board. The IT governance “accountability framework” sought by Weill and Ross (2004) and the decision rights and accountability referenced by Pearlson et al. (2009) can be distinguished. Also, whilst the decision-making rights may be allocated

or assigned by the board to other entities, the accountability for implementing the decisions and the outcome thereof is that of the board. In the conclusion of their findings, Weill and Ross (2004) stated that an organisation's IT governance is influenced by its overall corporate governance mode.

3.6. IT GOVERNANCE AND CORPORATE GOVERNANCE LINK

Following their conclusion on the influence of corporate governance mode on an organisation's IT governance model and the conformance between the two, Weill and Ross (2004) also confirmed that factors that influence corporate governance inevitably also influence IT governance (Jaafar and Jordan, 2009; King III, 2009; Sethibe, Campbell & McDonald, 2007). Based on this, Brown and Grant (2005) followed-up with a similar study and also concluded, that existing conceptual IT governance frameworks aligned to the existing corporate governance models established within organisations (ITGI 2006; Tu 2007; Posthumus et al., 2010; Debreceeny, 2013). They noted that there is unanimous agreement among researchers that no universal best IT governance structure exists and that the best IT governance fit is dependent on the various factors that cut across the organisation, its operational structure and corporate governance (Larsen et al., 2006). Weill and Ross (2004) identified the following corporate governance factors that also influence IT governance: (i) strategic and performance goals of the organisation; (ii) organisational structure, size, regional and operational diversity; and (iii) industry and governance experience of the organisation. These factors align to the internal factors or characteristics of an organisation being its structure, size, location and diversity; and also its external factors or external influences from its operating industry and how it conforms to its corporate governance. These factors when superimposed on the IT governance decision making model represented in Figure 3.3, show the position of IT governance within corporate governance and the factors that ultimately influence both. This is depicted in Figure 3.4.

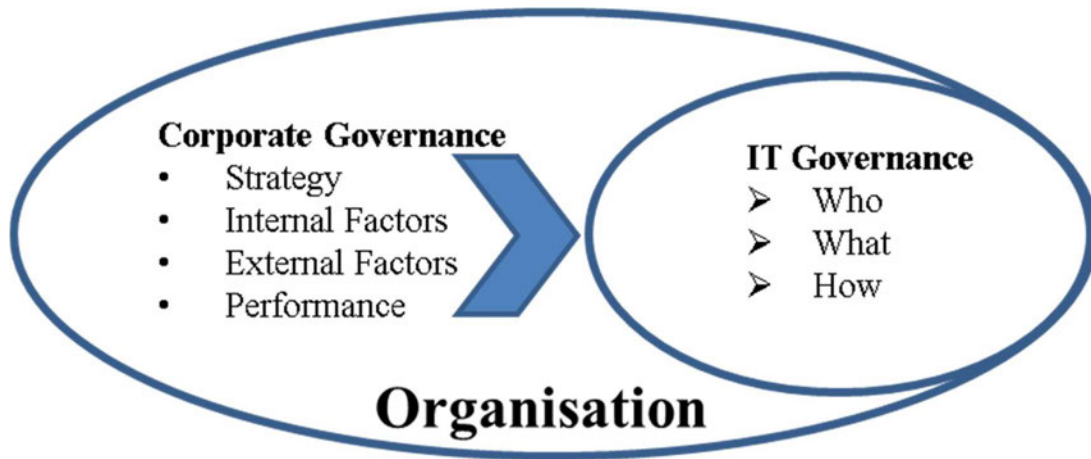


Figure 3.4: Factors affecting corporate governance and IT governance

An organisation's corporate governance is influenced and guided by its strategic objectives, intended performance target (asset utilisation, profitability, and growth), internal factors and external factors to the organisation and its industry. The "who", "what" and "how" of IT governance and its related structures within the organisation are thus influenced by the modelled corporate governance established. Established as being responsible and thus accountable for the organisation's corporate governance, the board is therefore also accountable for IT governance. Effective IT governance requires accountability to ensure that maximum business value is obtained from an organisation's IT deployment and ultimately enables attainment of its strategic objectives (Webb et al., 2006). The establishment of IT governance accountability therefore enhances IT governance within an organisation's corporate governance set-up (Pearlson et al., 2009; Weil & Ross, 2004).

3.7. IT GOVERNANCE ACCOUNTABILITY

The board as the highest level of an organisation's structure has the overall authority of the organisation's corporate governance oversight structure (OECD, 2009; King, 2009; Minichilli et al., 2009; Langevoort, 2005). Whilst the concept of a top-down strategy formulation and implementation from corporate level to business and functional level has become less popular, the overall approval for an organisation's strategy is still located at the top (Stevenson and Radin, 2015). The overall decision, approval and accountability of any strategy within the organisation is still a top-down approach. The board makes the ultimate decisions and the executive management follow up with implementation whilst the board

still maintains accountability for the decisions and the implementation (Stevenson & Radin, 2015; Hendry and Kiel, 2004).

According to Weill and Woodham (2002), IT governance is enhanced if it aligns effectively with all aspects of corporate governance and follows generally accepted guidelines for corporate governance which encompass broad-based inputs and tightly controlled decision rights. This is effected by a “top-down” approach and therefore, “IT governance must be driven from the highest levels within the organisation [and] not from the IT department or business unit levels across the organisation” (Webb et al., 2006).

The point of convergence and the rise of IT governance as a concern of corporate governance emanates from this top-down approach of decision making within the organisation as inherent within the role of the board. IT governance shouldn't be considered in isolation because it is linked with other key enterprise assets of the organisation and share decision-making structures (such as executive committees and budget processes) with other assets' governance processes within the organisation (Gheorghe, 2010; Guldentops, 2007a). IT, just like the other business functions, is an integral part of the organisation and equally critical to the success or failure of the organisation and thus requires the board's oversight (Short & Gerrard, 2009; Guldentops, 2007a). As already emphasised, the board's responsibility and accountability for corporate governance within the organisation thus inherently includes all aspects of IT governance.

Weill and Ross (2004), De Haes and Van Grembergen (2008), and Butler and Butler (2010) ascribed delegated IT governance responsibility to the following roles within the organisation; the executive committee, IT management, the chief executive officer, the chief information officer, the IT steering committee, the risk committee, the audit committee, and in certain situations the chief operations officer and the chief financial officer. The allocation of IT governance responsibility therefore includes both executives and management (or non-executives). However, these roles are expected to report on their deliverables back to the board to assume its accountability and oversight responsibility. Weill and Ross (2004), supported by Posthumus and von Solms (2008) and Burk et al. (2008), indicated that the board must be clear on what IT is deployed and its expected outcomes upon which assigned IT governance responsibilities can be effectively coordinated to enable the board to be accountable.

To enable the board to delegate or assign IT governance to other roles within the organisation, oversee implementation and take accountability for the resultant IT governance outcome, additional approaches have been proposed and adopted by organisations and researchers. These approaches include recommended best practices with accompanying guidelines for the adoption and implementation of the practices. Frameworks and tools that incorporate these guidelines and detailed practices have been developed to facilitate the implementation and repetitive use of the guidelines. The content of these frameworks include areas or aspects of IT being deployed and used within organisations and others that seem relevant to researchers. These include IT utilization domains, IT decision authorities, underlining processes, factors and contingencies, IT components deployed, organisational characteristics, and organisational performance-measuring parameters. How these are incorporated in the frameworks is reviewed in the following section.

3.8. IT GOVERNANCE FRAMEWORKS

A framework maybe defined as “a real or conceptual structure intended to serve as a support or guide for the building of something that expands the structure into something useful” (WhatIs.com, 2016). The term “framework” has been used throughout various literature without a clear definition; it may be real or conceptual. The elements of a framework should therefore support, guide and extend the use or application of the framework.

Larsen et al. (2006) identified and reviewed 17 existing IT governance frameworks (some referred to as tools) developed by various researchers, institutions and organisations, with the objective of analysing the challenges of IT governance adoption and implementation approaches. According to Larsen et al. (2006), failure of an organisation to implement effective IT governance oversight exposes it to the risk of reduced profitability. Effective IT governance ensures that the right IT decisions are made with the underlying objectives that IT adds value to the organisation and impacts its profitability (Glassman, 2000; Weill & Ross, 2004; Larsen et al., 2006).

In their study, Larsen et al. (2006) classified these frameworks (including those referred to as tools) by the set of processes they support within the organisation. These processes are either decision-making processes, core business processes or support processes, as illustrated in Table 3.2. The frameworks are made up of either a series of procedures or activities which are applicable at a business unit level or across the organisation (several business units), as illustrated as columns in Table 3.2. In their study, decision-making processes were

considered as governance related whilst core business and support processes were considered as management related. From their findings, Larsen et al. (2006) concluded that only four of the 17 frameworks covered IT governance decision making and related process tools across an organisation, and this fulfilled the intention of their study which was to investigate how IT governance had been adopted in a case company “Novozymes A/S”.

Table 3.2: IT governance frameworks

	Implementation Level			
	Procedure	Activity	Business unit	Business system (Enterprise wide/corporate) *
Decision-making processes	SAS70	COBIT[4.0/4.1]**		1. IT Governance Review 2. IT Governance Assessment 3. IT Governance Checklist 4. IT Governance Assessment Process Model
Core business processes	ITIL / BS13000	CMM / CMMI IT Audit IT Due Diligence	Six Sigma	IT Service CMM
Support processes	ISO 17799/ BS7799 SysTrust	ASL PRINCE2		SOX

*modified to give clarity; **before COBIT 5.0.

Source: Larsen, M.H., Pedersen, M.G. & Andersen, K.V. 2006. *IT Governance: Reviewing 17 IT Governance Tools and Analysing the Case of Novozymes A/S*. [Online].

The four tools are briefly discussed next to assess the level of their applicability within the organisation. As initially indicated, most of these tools are applicable and have been implemented at management level but not at board level.

1. IT governance assessment process model (Peterson, 2001)

The IT governance assessment process provides a high-level assessment model of IT governance in terms of existing IT governance architecture and effectiveness. It assesses the governance of IT value drivers and how effective the organisation’s value realisation is. In essence, it assesses the performance of the organisation as being affected by IT. It also assesses the existing IT governance decision authority that has been assigned and the capacity employed for its effectiveness.

2. IT governance review (Weill & Ross, 2004)

An organisation's IT governance review process is actually an auditing process that reviews the organisation's existing IT governance implementation against an intended set of outcomes. This requires the organisation to have in place an IT governance tool or framework that has been adopted or developed. According to Weill and Ross (2004), the auditing process entails reviewing and documenting the existing (current) IT governance parameters. The auditing process then compares the existing against the initially intended set of outcomes of the organisation's IT governance implementation. As with auditing processes, the identified gap is then used to review and update the intended outcomes to set new future outcome parameters. The organisation proceeds with initiatives to improve its IT governance processes and mechanisms by focusing on effectively communicating the improvements required, training, obtaining buy-in, and other measures to improve the success of its IT governance implementation.

The challenge with this process is that the organisation still requires an IT governance framework which, according to Larsen et al. (2006), ITGI (2007) and Mohamad (2012), focuses on specific aspects of IT governance rather than IT governance across the organisation. The level of application of these frameworks has also been inconsistent and confusing (Ko, 2010; Webb et al., 2006).

3. IT governance assessment (Weill & Ross, 2004)

The Weill and Ross (2004) IT governance assessment framework provides an organisation with the tool or means to assess its implemented IT governance practice. The checklist is thus a post implementation rather than a pre-implementation tool. It does not provide guidelines for the implementation of IT governance practice within an organisation but rather how to assess what has already been implemented. Based on their definition of IT governance as specifying the decision rights and accountability framework to encourage desirable behaviour in IT usage, the assessment framework assesses how well the organisation's governance arrangement has encouraged attainment of the organisation's behaviour necessary to achieve its performance goals. The framework therefore enables an organisation to have a snapshot assessment of its current IT governance performance but provides no benchmark nor how to address design-related issues of IT governance (Larsen et al., 2006). However, it does address board level-related issues of IT governance as it

includes areas of enterprise setting of IT governance, governance arrangements, governance awareness, governance performance, and financial performance.

4. IT governance checklist (Damianides, 2004, 2005)

This is more of a diagnostic tool to assess IT governance implementation within an organisation. The checklist covers areas of IT value delivery, IT strategic alignment, risk management, and performance. According to Damianides (2005), the use of the checklist should enable the organisation to identify IT issues and how management addresses those issues. The first section of the assessment checklist seeks to uncover IT issues existing within the organisation. Whilst the checklist covers mainly management level IT issues, others like IT budget, strategic employment of IT, and success of and expected or defined IT value add to an organisation are issues that require board input and decision. The second section of the assessment questions how management addresses IT issues within the organisation. The third and last section asks direct questions about the board's approach to IT governance. Criticism of the checklist is that while it seeks to assess the board's performance on IT governance, it has been based on perceived expectations rather than initially defined expectations, and it also does not provide the guidelines along which IT governance should be implemented and overseen by the board.

Whilst all these are assessment tools rather than implementation guidelines, they provide a resultant effect that enables the organisation to take action to address the shortcomings in its IT governance implementation. According to Larsen et al. (2006), there is no single IT governance framework (or tool) which covers all aspects of IT governance. Each of the four identified covered only some aspects or factors of an effective IT governance model as captured in Table 3.2.

3.9. IT GOVERNANCE PRINCIPLES

Following the works of Larsen et al. (2006), Parent and Reich (2009) noted that whilst tools and frameworks provide principles and processes for IT investments, deployment, operations and support, none of them spell out the board's role, duties and responsibilities relating to IT governance. Most boards find tools and frameworks either too technical or over-simplified and more directed at managerial and operational levels rather than at the board's fiduciary responsibility level (Larsen et al., 2006; Parent & Reich, 2009). This gap is bridged by the Australian Standard for Corporate Governance of Information and

Communication Technology developed framework in 2005, AS8015, which was later accepted as a standard ISO/IEC 38500. This consists of six principles for good corporate governance, as presented in Table 3.3. According to ISO/SEC 38500 (2008), the six principles should inform and guide directors in governing the use of IT in an organisation. The board’s fiduciary duty is captured by the principles to guide IT-related decision making at the board level.

However, ISO/SEC 38500 does not provide explicit prescription of how, when or by whom each of the six principles should be implemented. This is based on the preface that organisations are not the same, and have different strategic agenda and different environmental factors to consider when pursuing their strategic objectives. Organisations therefore have to consider their individual circumstances in constructing structures, and then allocate roles and responsibilities for the implementation of the principles. Table 3.3 describes the IT governance role which includes considering current and future strategies of the organisation and IT and the alignment between the two: IT investments against IT benefits and IT risk, IT policies and standards, IT capabilities and capacity, information management and security, professional guidelines for IT use, and IT skills.

Table 3.3: ISO/IEC 38500 principles

No.	Principle	Details of deployment
1	Responsibility	The right person or group is assigned the appropriate IT responsibility and given the authority to perform the assigned work.
2	Strategy	The business strategy and the IT strategy are well aligned to deliver the expected benefit that meets the current and future needs of the organisation.
3	Acquisition	Ensures a balance between benefit, opportunities, cost and risk of IT investments and acquisitions in the achievement of the organisation’s strategic objectives or goals. Both the short-term and long-term perspective must be considered and that such analysis to maintain the balance must be ongoing.
4	Performance	IT provides the needed services at the required levels of quality that meet the current and future needs of the organisation.
5	Conformance	All mandatory legislation and regulations are identified and complied with. Also, that the right policies and practices are defined, implemented and enforced to achieve compliance where necessary.
6	Human behaviour	Existing IT policies, practices and decisions are in alignment and conform with appropriate human behaviour within the organisation and that it evolves accordingly.

These principles and factors are implementable at the corporate level of an organisation and are thus the responsibility of the board. These principles are thus aligned to the corporate governance principles discussed in Chapter 2.

From the detailed implementation guidelines provided, it is noted that ISO/IEC 38500 positions IT governance within corporate governance and specifies the aspects of directing, controlling, evaluating and selecting plans, and monitoring to ensure achievement of IT plans. This highlights the differentiation of decision making at the corporate governance level from the actual implementation. To effect the implementation of these principles, directors are to apply corporate governance responsibility of evaluating, directing and monitoring each of the aspects covered by the principles. This is modelled as depicted in Figure 3.5.

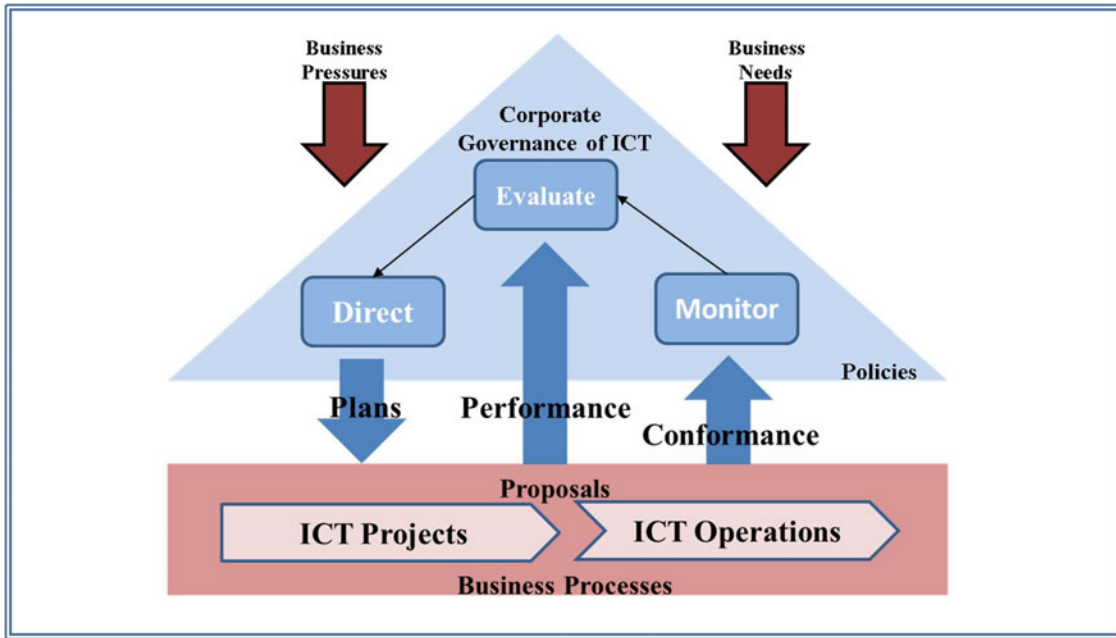


Figure 3.5: ISO/IEC 38500 model for corporate governance of IT

The model (Figure 3.5) illustrates the distinction between corporate governance roles and management roles in the implementation of IT governance in an organisation. It also shows aspects of IT governance standards presented by ISO/IEC 38500 that are implemented at governance level and at management level. According to ISO/IEC 38500 (2008), corporate governance of IT involves given directives, monitoring its implementation by management

in conformance to the directives and evaluating the outcome in terms of organisational performance. This cycle of “direct”, “monitor” and “evaluate” is a continuous process in response to various business needs and development of policies to ensure effective corporate governance of IT. Whilst the corporate aspect of corporate governance of IT is ascribed to the board, implementation is the responsibility of management. In implementing the given directives, management develops various proposals for IT projects, implementation plans and business processes to effect successful implementation of approved IT projects and improvement in IT operations.

From the ISO/IEC 38500 model and the identified corporate governance factors and principles reviewed in Chapter 2, the governance roles and management roles between IT governance and corporate governance are established in Table 3.4.

Table 3.4: IT governance roles

Principle No.	Governance role	Management role
1	IT Leadership – Identify and appoint	Managing ICT/ICT leadership
2	IT Strategic alignment to business strategy	Develop and implement ICT plans
3	IT Strategic investment	Develop ICT project proposals
4	Monitoring and evaluating strategic IT performance	Implement projects – project management
5	Compliance to rules, regulations & legislation	Implementation and management
6	Ethical employment of IT	Management of ICT

As established, the role of management in IT governance cannot be ignored. The governance role and responsibilities of the board are presented in Table 3.5 below. However, the board would have to assign implementation responsibility to management. According to Buck, Liu and Skovoroda (2008), for the board to be effective in accomplishing this IT governance oversight, the board must be clear about the deliverables, information or reports expected from management (and others to whom it assigns responsibilities).

Table 3.5: ITG practical approach

Responsibility area	Action to take
IT Strategic alignment	Ensure that an “effective strategic planning process is in place” that would guide the alignment of IT initiatives to the business goals.
Value delivery by IT to business	Verify that management has implemented “adequate processes and practises” for IT value delivery to the business.
IT Resource management	Ensure that adequate IT investments are made available.
Utilisation of IT resources	Monitor and assess effective utilisation.
IT Risk management	Ensure that IT risks are reported and adequately mitigated, and that there is a balance between IT risk and opportunities.
IT Performance management	Define, monitor and assess IT performance at a high-level.

Buck et al.(2008) prescribed a practical “action to take” approach to IT governance, as illustrated in Table 3.5, that would enable the board to better comprehend IT governance. In adopting this practical approach, boards would be able to overcome the high risk of IT deployment and implementation and be able to realise the benefits expected from IT.

3.10. INFORMATION TECHNOLOGY RISK

An organisations’ investment in IT can run over 4.2% of their annual revenues (Gomolski et al, 2001) and form about one-third of their overall capital investment. Of the organisation’s overall expenditure, about 40% falls beyond the approval powers of individual directors or managers and is only approved by the board (Parent & Reich, 2009). Such significant capital expenditure requires the board’s attention to ensure successful implementation of the projects approved and the achievement of the expected return on the investment.

The board’s responsibility in the approval of capital investments of significant value includes the assurance that potential risk of such significant investment is well assessed before approval (Parent & Reich, 2009, ITGI, 2008). Risk management is effected as a top-down process and thus executives and senior management must inform the risk policy that is cascaded down the organisation for implementation (Dickinson, 2001). The board’s responsibility extends to include the assurance of risk management which is informed by the

organisation's risk policy developed by top executives and senior management (Spremic and Popovic, 2008). The board thus has to ensure that the organisation's IT risk exposure and management are in tune with its risk affinity and appetite prescribed in the risk policy (Stulz, 2014). However, in their research in the area of IT investment management, Parent and Reich (2009) found that there is lack of formal guidelines to assist directors on how to govern IT investment risk. This included an omission of IT risk profiling within their risk policies.

According to Parent and Reich (2009), over 65% of IT projects fail and less than 25% deliver on their expected return on investment, leading to the loss of millions of dollars on IT-related projects. It is thus expected that boards will be meticulous in the discharge of their IT oversight role in order to minimise the impact of such investment disasters on the organisation. It is also expected that the board be prompt and swift to positively intervene in situations where IT projects face imminent failure. However, according to a study by Marnewick and Labuschagne (2011) on the state of IT project governance in South Africa, it was found that IT projects are poorly governed and their expected outcomes poorly linked to organisational goals. Furthermore, the study identified that boards do not spend sufficient time on IT issues and that discussions on IT issues at board level are limited in scope and depth, thus depriving the board the opportunity to identify troubled IT projects and to act in time to rectify associated problems (Ali & Green, 2012). This weakens the expected oversight from the board, leaving the organisation exposed to possible risk which could have been identified and managed had the board been more rigorous (Parent & Reich, 2009). A boards' lack of attention to and limited time spent on IT matters could also be attributed to limited IT skills of the board and thus the inability to spend time to interrogate IT-related issues (Parent & Reich, 2009; Guldentops, 2007; Huff et al., 2012; Gomolski et al., 2001). On completion of their exploratory research, Parent and Reich (2009) affirmed that the board needs to spend more time on IT-related issues and that these issues should be made a high priority item on its agenda. They identified and validated the IT risk areas, listed in Table 3.6, as being the most important for directors to consider in ensuring IT governance. Accordingly, good IT governance ensures that these areas of potential IT-related risks are managed and ensures that expected returns on IT investments are achieved.

Table 3.6: IT risk areas

No.	IT Risk classification	Risk details
1	IT Investment risk	Making the right investment decision that aligns to the strategic goals of the organisation is the oversight role of the board.
2	IT Competency risk	Ensuring the right IT competency exists at both the board level and at management level. The board must have the needed IT knowledge to make IT-related decisions.
3	IT Infrastructure risk	Managing and maintaining IT infrastructure efficiency and continuity is an operational issue and the responsibility of management.
4	IT Project risk	Projects emanate from approved investment proposal which, where significant capital investment is required, falls within the oversight role of the board.
5	Business continuity risk	The board is obligated by law (Act, ss4(1)) and corporate governance principles to be responsible for the continuous functioning (existence) of the organisation. Any risk that would otherwise affect the existence of the organisation is therefore the responsibility of the board.
6	Information risk	Information integrity and security are management level responsibilities. However, the board requires relevant information to effect its role of governance oversight. Lack of such information disenfranchises the board.

3.10.1. IT risk management

IT risk management seeks to prevent or minimise the occurrence of IT-related disasters and catastrophes that may result in great losses to the organisation. According to Parent and Reich (2009), IT risk management also includes assuring the presence of capability to minimise the impact of such disasters on the organisation should they occur. This ensures that the organisation establishes accountability to prevent or minimise the downside of IT risk to the organisation.

According to Nolan and McFarlan's (2005) IT Strategic Grid, organisations with extensive reliance on IT and intensive use of information systems, would invest more in IT and be exposed to higher IT risk. It is thus prudent for boards of such organisation to place more attention on IT risk management and governance. Although Nolan and McFarlan (2005) identified the banking and financing sectors as being IT intensive and therefore more exposed to higher IT risks, today more and more organisations rely extensively on IT. With organisations' IT capital expenditure rising to as much as 45% to 50% of overall capital expenditure (Nolan & McFarlan, 2005; Short & Gerrard, 2009) and the heavy reliance of

business on IT (Gartner, 2003), the organisations' are exposed to increasing IT risks of significant proportion. The issue of the board overseeing IT governance has become a critical risk to be addressed and thus cannot be ignored.

The institution of IT risk management procedures ensures that organisations are equipped with the capability to prevent or minimise the impact of IT risk and as a result are able to maximise IT employment within the organisation (Parent & Reich, 2009). By establishing a strategic balance between minimisation of risk and maximisation of returns, organisations are able to pursue opportunities presented by IT and to improve the performance of the organisation (Macleod, 2006). IT risk governance must therefore precede IT value governance and enable the organisation to create value by maximising the use of resources and assets (Parent & Reich, 2009).

3.11. IT VALUE

IT has been employed in organisations to effect value to the organisation. IT has been used to improve process efficiency, drive innovation and to effect cost savings across the organisation (ITGI & PWC, 2008; Nolan & McFarlan, 2005; Parfitt & Tryfonas, 2009). More IT initiatives continue to be approved by organisations due to expected benefits, either financial or non-financial. An organisation's expectation is that the successful implementation of an IT project would translate the envisioned benefits into quantifiable added value to the organisation. However, according to ITGI and PWC (2008), the attainment and measure of value added by such IT initiatives have been contradictory.

In a survey by PricewaterhouseCoopers (PWC) conducted on behalf of ITGI in 2008, 75% of respondents stated that IT adds value, whilst a contradicting 50% responded that they do not measure the value realised from IT. IT value can only be verified if measured and thus without measuring the expected or realised value, the respondents have been contradictory in their response. This raises the issue of how these organisations define and measure "IT value". It is thus important to have a clear definition of "IT value" that is understood across the organisation, especially at senior management level and above. According to COBIT 5 (ISACA, 2012), value is attained in a commercial or non-commercial resource and includes the optimal utilisation of provided resources and the cost of ensuring optimal risk control. Value may be financial or non-financial and thus involves both the financial returns to the organisation as well as the improvement in service delivery (within and without) the organisation (Gheorghe, 2010, ISACA, 2012). As IT continues to be an important part of the

organisation and permeates all functional areas within the organisation, the resulting efficiencies including timely service delivery, improved quality, improved customer service and satisfaction ultimately reflect positively on an overall performance and reflect the value attained by the use of IT.

Strategic IT investment decisions with significant capital value are usually approved by the board as may be guided by the organisation's investment policy and in alignment with the organisation strategy (Parent & Reich, 2009; ITGI, 2005). It is expected that the acquired and employed IT adds value to the organisation. The board thus ensures that the employment of IT is effective and any risk exposure to the organisation is managed effectively. The role of the board therefore includes the assurance that IT plans are executed as planned, that the projects and initiatives are implemented, and that the expected benefits and returns are achieved. Only then can IT continue to deliver as expected and add value to the organisation (Nolan & McFarlan, 2005; Weill, 2004; Thorp, 2003; ITGI, 2008; King III, 2009).

Weill and Ross (2004) concluded that effective IT governance is the single most important predictor of the 'value' that an organisation generates from IT. According to Weill (2004), good IT governance influences benefits realised from IT investments, and organisations with good IT governance can achieve up to 40% higher return on IT investments than their competitors with similar IT investments but with poor IT governance. Such organisations also achieve 20% more profitability than those with poor IT governance. Good and effective IT governance requires effective implementation and institutionalisation of all IT governance processes and practises (Weill, 2004). The resulting value is evident in the measurable increase in the organisation's turnover or profitability or both.

Van Grembergen and De Haes (2009) and Ho et al. (2011) confirmed what has already been emphasised by others, namely that an organisation's overall corporate governance must be good and effective for its IT governance to also be effective. Accordingly, the organisation's realisation of the intended value from IT investments requires both effective overall corporate governance and IT governance. It is evident that IT governance within an organisation is influenced by factors similar to those that also influence corporate governance (Weill & Ross, 2004). It thus follows that an organisation has to incorporate its IT governance structure as an integral component of its corporate governance setup.

3.12. IT GOVERNANCE STRUCTURE

An organisation's overall governance structure, which is also its corporate governance structure, impacts on its IT governance structure and implementation. According to Sambamurthy and Zmud (1999) and Brown and Grant (2005), in organisations where corporate governance structures and processes are isolated, disparate and incoherent, IT governance would ultimately fail. Thus to improve the potential success of IT governance, corporate governance processes and structures should be clearly defined and consolidated into a more intentional IT governance design and aligned with the organisation's corporate governance implementation. As indicated before, the responsibility for the organisation's overall corporate governance sits with the board and requires effective leadership to ensure effective alignment between IT governance and corporate governance (ITGI, 2001).

3.12.1. Leadership at board level

Since IT governance is an integral part of overall organisational governance, it should not be isolated or neglected by the board. Any lack of oversight of IT governance at the board level exposes the organisation to high risk because IT is critical to the successful achievement of the organisation's strategic goals (Nolan & McFarlan, 2005). Whilst the board oversight is critical, the implementation of governance principles and risk management is the responsibility of the various appointed executives heading the respective functional sections within the organisation. This distinguishes governance oversight and accountability from management and implementation of governance practices (ISACA, 2012).

3.12.2. Executives' involvement

The impact and success of IT governance efforts are enhanced by the involvement of executives who are directly responsible for implementing the organisation's strategy, including policies, principles and related frameworks. According to Weill and Ross (2004), 74% of organisations (surveyed) with effective IT governance have c-level executives (CEO, CFO, CIO) as IT governance champions. In instances where the CEO is the champion, IT governance implementation and success has had more positive impact than instances where only the CIO acts as the champion. The involvement of executives ensures that IT governance delivers and that IT remains in line with the organisation's strategic objectives.

3.12.3. IT governance ownership

It is important to understand the business imperative of assigning ownership to processes. Corporate governance principles prescribe to boards the option or power to delegate some governance responsibility to persons or a group without abrogating their corporate governance accountability. The CIO and in some cases IT committees have been assigned the responsibilities for IT governance. Whilst some organisations have been successful at this, most others are having challenges in getting the board participation and buy-in (Vogel, 2006). According to Weill and Ross (2004), organisations with good or high overall governance performance also have a greater percentage of their managers' understanding and buy-into IT governance. CIO Leadership Survey (CIO, 2007) found that one-third (about 33%) of large corporations' CIOs surveyed, where formal governance is assumed to be critical, indicated that about 75% of managers were well informed and supported IT governance. Ensuring that IT governance is well understood and has buy-in across the organisation enhances and increases the success of its implementation.

3.12.4. IT governance mechanisms

IT processes, structures, policies and related mechanisms are capabilities that influence IT governance (Jewer and McKay, 2012). Such capabilities provide the board with the needed information to govern IT. Where IT governance mechanisms, processes, policies and structures are clearly defined and effectively communicated, IT governance processes are improved (Bowen et al., 2007). Implementation of the IT mechanisms must be enforced and where exceptions exist, provision must be provided for exemptions and alternatives. Process and structure for these exemptions and alternatives must be transparent and clearly understood. IT governance should provide the organisation with mechanisms through which the organisation can learn and refine its IT governance to better improve the value add and benefits to the organisation.

3.12.5. IT governance performance measures

IT governance must ensure that business strategic goals and objectives are achieved. To effectively measure any form of benefit from business governance, the expected benefit should be clearly articulated. Measures of IT governance performance and benefit must align the business strategic goals and the IT objectives. Weill and Ross (2004) suggested that IT governance measures should be defined in terms of the following: cost effectiveness, asset utilisation, business growth and business flexibility. Each of these must then be appropriately

prioritised and weighted according to its importance to the organisation and effectively monitored right from the beginning of the initiative and implementation.

3.12.6. Evolution of IT governance

The implementation of IT governance is a change process and thus follows a learning process curve. Aligning IT governance implementation and evolution to business objectives such as cost reduction, innovation, agility, simplification, customer satisfaction, and compliance would not only simplify the adaptation of the process but also increase its infusion and success. It is thus expected that IT governance infusion and benefits are better understood and learnt over time within the organisation.

3.13. IT GOVERNANCE PRE-ENRON

The late 1990s recorded a number of corporate governance failures and scandals that led to the collapse of big corporates like Enron, WorldCom and others, including those failures due to the Asian financial crisis (OECD, 2009; Du Plessis et al., 2011). Some of the factors identified as contributing to these failures include poor and outdated laws and regulations, poor accounting standards and practices, greed of executives and excessive pay packages, and high risk investments with poor or weak controls (OECD, 2009; Herderson & Cudahy, 2005; Elson & Gyves, 2003). Following these events, various entities like the OECD (2004), the World Bank (Aguilera & Cuervo-Cazurra, 2009), and the SEC of the US through the Sarbanes-Oxley Act (2002), among others, advocated for more stringent corporate governance codes and regulations to rectify and guard against the recurrence of these failures. For instance, the Sarbanes-Oxley Act (2002) extended its control requirements to cover IT system controls. This is a response to address the issue of IT failure as a contributory factor to corporate governance failure.

Well configured and managed IT systems are expected to be effective to flag or generate alerts in instances of system manipulation and inconsistencies in data capture and computation. Some blame for these corporate governance failures have been attributed to poor accounting systems and weak overall IT oversight, including poor IT systems management, configuration, utilisation and inadequate IT risk management (Macey, 2008; Parent & Reich, 2009; Damianides, 2004). To address these issues, effective IT controls need to be instituted. These controls are implemented via IT frameworks which are governed by the existing corporate governance framework of the organisation. The failure of IT

controls and lack of instituted frameworks implies that these corporate failures are also IT governance failures.

Whilst King III (2009) has directly incorporated IT governance principles in the code, others like SOX (2002) adopted a more indirect approach. SOX of 2002 (Damianides, 2005) incorporated stringent internal controls that extend to information capture, manipulation and computations that generate final financial reports. SOX of 2002 (Damianides, 2005) also recommended an internal control framework to be adopted to affect these controls; IT systems are utilised in the capturing, manipulation and computing of these financial reports. IT governance frameworks therefore had to incorporate these controls and adopt them as part of the overall IT governance oversight. Subsequently, IT governance has been highlighted as a high priority item for boards and executive directors (Damianides, 2005). The additional potential value add of effective IT governance that is evident by an increase in organisational performance has also been highlighted by researches like Weill and Ross (2004).

3.14. IT GOVERNANCE AND COBIT FRAMEWORK

The COBIT framework was first developed in 1996 by ISACA (Information Systems Audit and Control Association), then called Electronic Data Transmission Auditors Association (EDTAA), as an IT control guideline for data capturing and transmission by computers in that era of computing. Since then, COBIT has evolved beyond a data capturing guideline to cover many aspects of IT controls within organisations. The second and third versions of COBIT were released in 1998 and 2000 respectively, with extended focus on management guidelines to assist management to effect IT controls within the organisation. Due to its success and strict controls, it was then applied to financial statements audits, operational and compliance audits (Turtle & Vandervelde, 2007). COBIT 4.0 and 4.1 followed (2005 and 2007) and COBIT 5, the current version, was released in 2012. Whilst the previous versions of COBIT focused on management level processes, COBIT 5 included both management and governance level processes and for the first time highlighted the distinction between the two sets of processes. This distinction is very important for the purpose of this research study which is aimed at IT governance rather than IT management.

The IT Governance Network (Network, 2011) commentary on COBIT 5 noted that unlike its predecessors, COBIT 5 has been improved to include all three levels of an IT governance framework, namely the operational level, management level and corporate governance level.

Whilst COBIT 4.1 addressed IT practices at the operational level, it fell short of providing management practices necessary to drive efficient and effective IT resource utilisation and also did not give any essential directives or practices required for directing and controlling the use of IT at the corporate governance level. This underscores the author's argument that the various existing so-called IT governance frameworks are limited to IT operational level practices and issues and do not address executive level issues and expected practices relating to IT. Although COBIT has been referred to as an IT governance framework, it has not succeeded in being a "governance" instrument as per the definition of "governance" within corporate governance, which deals with accountability and responsibility at the executive and board level of business management.

In the drive to address the management and executive level shortfall, COBIT 5, unlike COBIT 4.1, has considerable components that seek to position it as a reference model for IT governance up to the corporate governance level (Network, 2011). Accordingly, Network (2011) referred to COBIT 5 as "an IT process modelled into an IT governance framework with a set of governance practices for IT, a management system for the continuous improvement of IT activities and a *process model* with baseline practices".

COBIT 5, principle 5, distinguishes between the application of COBIT 5 at governance level and at management level. At the governance level, the principle defines and recognises governance as a role to evaluate, direct and monitor an organisation's overall endeavours, whilst at the management level it defines management as the role that involves planning, building capacity, running and monitoring the organisation's operations and activities. It specifies the board as being responsible for governance and the executive management responsible for management.

"Governance ensures that stakeholders needs, conditions and options are evaluated to determine balanced, agreed-on enterprise objectives to be achieved; setting direction through prioritization and decision making; and monitoring performance and compliance against agreed-on direction and objectives".

"Management plans, builds, runs and monitors activities in alignment with the direction set by the governance body to achieve the enterprise objectives" (COBIT 5, 2012).

COBIT 5 recognises the difference in responsibilities of management level roles and board level roles, and accordingly differentiates the processes, practices and principles that align to each (ISACA, 2012; Network (2011). It also clearly specifies that the board is responsible for governance-related issues and management is responsible for the implementation and managing what is implemented. This therefore presents a clear set of governance practices that the board should focus on. Principle 5 of COBIT 5 highlights the role of governance as the responsibility of the board to evaluate, direct and monitor governance-related issues.

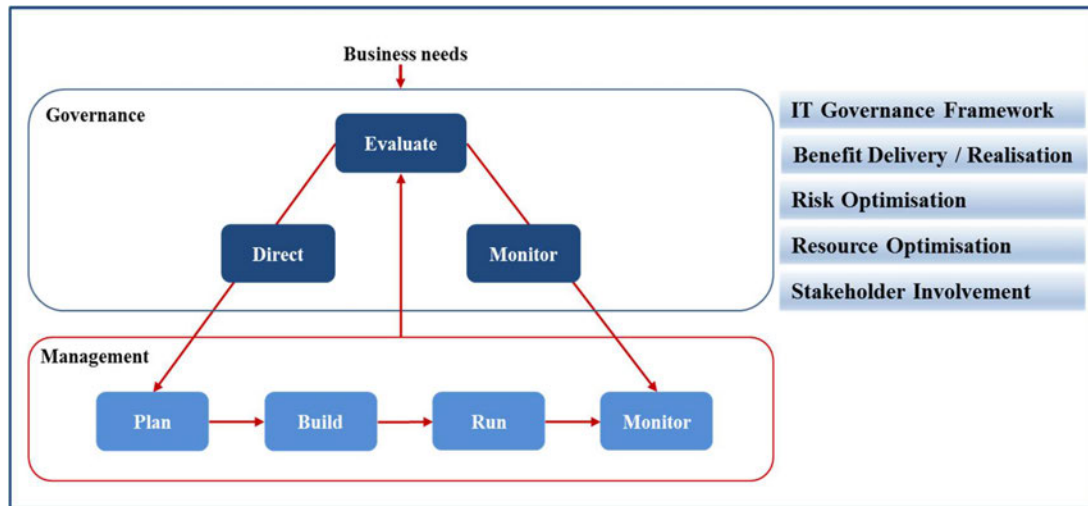


Figure 3.6: Governance and management’s role

As depicted in Figure 3.6, management implements the directives from the board and provides feedback on outcomes and performance measures to the board. The board therefore requires relevant and appropriate information from management and management has to ensure that it provides the required information (OECD, 2009). According to ISO/IEC 38500 (2008), the board’s oversight role that includes IT governance should involve the following:

- Evaluating the current and future use of IT by the organisation;
- Directing the preparation and implementation of plans and policies required to effect the appropriate utilisation of IT to ensure the achievement of the business strategic objectives;
- Monitoring conformance with policies and the performance of IT against the plans to ensure that deficiencies are identified and rectified to ensure achievement of the business objectives.

These roles are in alignment with COBIT 5, Principle 5. For the board to achieve these responsibilities to effect its corporate governance oversight of IT as indicated by COBIT 5, the following key IT-specific responsibilities should be undertaken (King III, 2009):

- An appropriate IT governance framework is implemented and functional.
- IT delivers as expected to ensure benefit realisation.
- IT risks are optimised.
- IT resources are optimised.
- Relevant stakeholders are engaged in all IT-related matters.

This aligns ISO/IEC 38500, COBIT 5 and King III to the key IT governance oversight responsibilities expected within corporate governance, as depicted in Figure 3.6. For the board to achieve these, it requires management to implement and report back to the board. The role of management is therefore important and supports the board in each of these aspects. The planning, acquisition and implementation, the continuous operations and monitoring of IT is the responsibility of management. It is thus imperative that management provides feedback and reports on IT performance to the board. Based on this, the board is then able to ascertain and execute its oversight responsibility to ensure that IT adds value to the business, that IT risk and resources are optimised and that all relevant stakeholders are engaged as appropriate. The board thus requires the necessary additional capacity and capability to effect its oversight of IT governance in all these aspects of IT governance.

3.15. IT GOVERNANCE AND THE BOARD

The pervasiveness of IT in all types of organisations and industries has resulted in Boards of Directors having IT governance and control issues on their board agenda (Damianides, 2005). IT has become an important discussion item for management and executives alike. However, organisations are not the same and pursue different strategic agendas which place different demands on IT resources and hence different decision making approaches (Kaplan & Norton, 1992). Although the board's oversight transcends all aspects of the organisation, including IT, very few boards have the fundamental knowledge needed for overseeing IT governance (Short & Gerrard, 2009). However, with high IT capital investments and expenditure, the issue of IT governance by the board is very critical. Hence, with only few boards having fundamental IT knowledge to effect the needed IT governance oversight, many organisations face poor IT governance oversight and risk major IT failures. The need

to rectify this IT knowledge deficit is therefore high in order to improve IT governance across all industries.

According to Damianides (2005), IT maturity among senior management of Fortune 500 companies revealed that whilst about 66% of senior management are involved in approving IT strategy, only 10% ask questions relating to IT. One reason identified for this is that IT is technical and requires technical skills to comprehend issues of IT, including IT risk, opportunities IT creates and how it strategically enables an organisation. In addition to that, Damianides (2005) assessed this as also being a gap in the traditional training or induction of board members. Board induction and training programmes have focused mainly on issues of structures, composition and size, independence and management reporting, with very little focus on IT-related risk issues and other practical IT governance-related subjects.

The role of the board and executives (CEO, CIO, COO, CFO and other executive level titles) in IT governance has been identified throughout the literature as responsible for decision making on IT-related matters (ITGI, 2003; Dahlberg & Kivijarvi, 2006; Weill, 2004; De Haes & Van Grembergen, 2004; Van Grembergen, 2003). These IT-related matters as identified throughout the literature cover various categories or classifications involving various items on which such decisions are to be made (Weill, 2004; Dahlberg & Kivijarvi, 2006; ITGI, 2003). Although De Haes and Van Grembergen (2006) presented IT governance as existing at all levels within an organisation, COBIT 5 (ISACA, 2012) made a distinction between “governance” and “management”. Governance is defined as the art of directing and controlling, which involves being at the helm of decisions to be implemented by others. It therefore implies that “governance” is to lead for others to follow, whilst “management” involves the art of implementing decisions made and thus overseeing the day-to-day activities being carried out or implemented.

IT governance therefore focuses on the provision of “IT direction and control” and IT management on the implementation of the directives and controls. IT governance exists at a strategic level, i.e. the level of the board. Peterson (2004) provided a better expression of this differentiation and specified IT governance as being the assurance of IT performance and transformation to meet the present and future business demands. Peterson (2004) thus expressed IT governance as being a strategic level issue and stated that any other focus area of IT that relates to IT effectiveness and efficiency of internal supply of IT services, products and operation is ‘IT management’ and not ‘IT governance’. He further equated this definition

to that of the ITGI (2003) that IT governance is the responsibility of the executives and the board of directors. Dahlberg and Kivijarvi (2006) also argued that although some IT governance responsibility may be shared by both management (including executive level roles) and the board, the board has the overall oversight responsibility and the endorsement of roles and responsibilities assigned to management.

Effectively, IT governance must be given the same level of commitment as the overall governance of the organisation and be included as an integral part of the induction programme for all board members. Corporate governance is the responsibility of the board and IT governance forms an integral part of this. Since IT governance is the responsibility of the board, it needs to have the same understanding of “leadership, structures and processes which ensure that the organization’s IT sustains its strategies and objectives” (Damianides, 2005). Implementing effective IT governance at the board level therefore transcends just asking questions relating to IT but includes all other components of corporate governance and its related principles.

3.15.1. Board time spent on IT

The amount of time that boards spend on IT-related matters during board meetings is minimal compared to other matters, according to Huff et al. (2012), Nolan and McFarlan (2005), Damianides (2005) and others. Of further concern is the finding that most IT matters discussed at board meetings are IT operational issues rather than governance and strategy related. This is counter to the expected role of the board as defined by corporate governance which is to provide strategic direction and be responsible for oversight of the entire organisation. Whether IT issues are discussed routinely as a permanent agenda item or on an ad hoc basis, IT issues at the board level must be strategic and governance related, and less operational (King III, 2009). In addition to IT issues discussed at the board level and their relevance, it is important to identify which King III principles have been implemented and which have not and the reason why.

3.15.2. Board IT skills and expertise

In taking ownership of IT governance in the organisation, the board must be seen to be providing leadership and direction on IT governance. To be effective in their IT governance role, the board must have a basic comprehension of IT and be exposed to or trained in key IT governance concepts and principles (Butler & Butler, 2010). However, Trites (2004)

noted that boards have limited IT knowledge and this affects their ability to be effective in discharging their IT governance responsibilities. According to Butler and Butler (2010), board members must have sufficient understanding of IT just like other functional skills (finance, marketing, HR, and other functional expertise) required as part of the prerequisite for becoming a board member. Damianides (2005) proposed that IT knowledge must be inclusive of the skills and expertise required for board members (Damianides, 2005; Reich & Benbasat, 2000).

3.15.3. Board information requirement

The overall oversight duties of the board include monitoring of the overall performance of the organisation and also the performance of the executives in achieving the strategic objectives of the organisation (Dahlberg & Kivijarvi, 2006). To function effectively, the board requires information from management, through the respective executives, to make decisions and assess performance. The information demanded by the board from management must be timely, accurate and complete, and in a comprehensible format (OECD, 2009).

However, this demand suffers the inevitable limitation of information either due to incomplete management information, management deliberately withholding information from the board, or the provision of false information (Macey, 2008). Boards rarely have direct access to company information and thus have to rely on management (executives). This creates the phenomenon referred to as “board capture” whereby the board’s source of information is via or from management. This usually occurs in instances where the majority of board composition comprises non-executive and independent directors. The opposite, where there are more executive directors, the board enjoys better access to management information. Such boards experience more meaningful participation of the executive directors in making decisions relating to managerial issues as they have a better understanding of the information provided. The problem with “board capture” was evident and highlighted in the case of Enron (Keasey et al., 2005; Henderson & Cudahy, 2005; Macleod, 2006) where management and the external auditor compromised information reported to the board.

The first approach to overcome “board capture” is for stringent conditions and structures to be incorporated in regulations and corporate governance codes to mandate external auditors to report directly to the board audit committee, as already implemented by SOX of 2002

(Damianides, 2005). Further to that, SOX of 2002 (Damianides, 2005) also requires the CFO and CEO to endorse all financial reports presented to the board and regulators. This places direct liability on the CFO and CEO should there be any misleading or compromised information reported.

A second approach is to include more independent directors on unitary boards, i.e. in organisations that employ a unitary board structure, like in the United States, South Africa and others. This, according to Macey (2008), effectively reduces the possibility of collusion between management and executive board members. A third approach is found in the United Kingdom where independent directors provide mentoring and advisory support to the executive directors and management to encourage transparency and adequacy of information provision to the board.

Macey (2008) however highlighted that, although these approaches are important and helpful, they do not resolve the issue completely. He proposed that the emphasis must be on achieving an ethical and honest management leadership. This must also be balanced by board level independent instruments that verify the accuracy and completeness of information provided by management. To date, no such instrument has been proposed nor has such an instrument been identified in the literature. In addition to that, how the board verifies the accuracy of information received from management would be of interest in an empirical study like this.

3.16. CORPORATE GOVERNANCE OF IT

According to Thorp (2003), IT governance is not a functional responsibility of the Information Systems or Technology division but rather an enterprise-wide governance issue. As organisations expect to obtain value and returns from any investments made, investment in IT must also yield returns and value to the organisation. Therefore, ensuring that IT yields returns or value is a business issue and not an IT/IS functional issue. Hence IT governance cannot be separated from the overall governance oversight of the organisation.

The failure of an organisation's IT systems would be devastating and any such potential failure should be treated as a high risk factor and appropriately managed (Gray, 2004). Organisations' dependence on IT is extensive with almost all functions within the organisation having one or more systems and many processes dependent on IT (Spremic & Popovic, 2008). Organisations' information assets account for over 50% of capital

expenditure (Loh & Venkatrahman. 1992). Such expense requires the attention and oversight of the board. However, according to Nolan and McFarlan (2005), most boards are not fully aware of the extent of the impact IT has on the organisation's strategy. They attributed this to the board's lack of understanding and comprehension of IT governance.

IT governance has since obtained much attention at the board level. In South Africa, the King III Code (2009) introduced IT Governance, for the first time, as one of the key pillars within the code of corporate governance. However, just having codes on IT governance does not lead to effective IT governance. For the code to be effective, the board must have adequate IT knowledge to be able to ask intelligent questions relating to all areas, including IT risk, assets, expenditure, and competitiveness (Nolan & McFarlan, 2005). The high capital expenditure on IT (assets) and heavy reliance of business on its IT, especially for its financial information, signals the need for board oversight and involvement in IT governance (Spremic & Popovic, 2008; Doughty & Grieco, 2005; Loh & Venkatrahman. 1992.).

To improve IT governance effectiveness and provide sources of IT knowledge for decision making at the top, IT committees such as IT steering committees (ITSC) (also referred to in other organisations as the IT councils, IT governance committee, IT projects committee and a few others) were established. These committees include members with a combination of IT and business knowledge, representatives from various organisational functions, and divisional and senior managers that are able to contribute effectively and knowledgeably to IT decision making (Bowen et al., 2007; Vaughn & Ryan, 2006; Prasad, Heales & Green, 2010). The role of these ITSCs and their level of positioning within the organisation varies. According to Trites (2004), some ITSCs are accountable to board level structures such as board subcommittees and as such provide advisory services to the board via these subcommittees. ITSCs introduced or adapted by organisations may therefore assist both the executive leadership and the board in making IT-related decisions and thus reducing IT-related risk exposure of the organisation (Trites 2004; Bowen et al., 2007).

An observation is that diverse ITSC structures have been developed and utilised by different organisations with different levels of success (Peppard, 2005; Brown & Grant, 2005; Peterson, 2002; Ribbers, Peterson & Parker, 2002). The notable evidence is that "one-cap does not fit all" and organisations have adapted IT governance structures and approaches as appropriate to their organisation. Nolan and McFarlan (2005) listed some factors that have influenced an organisation's decision in selecting a specific IT governance approach as

including the size of the organisation, the industry and the competitive landscape (which also includes the history, financial position, and quality of the IT management).

According to Nolan and McFarlan (2005), IT governance structures and the approach adopted by an organisation are dependent on how it utilises IT. An organisation either utilises IT “offensively” or “defensively” with a few found in between. Offensive IT utilisation involves the reliance and use of IT to gain competitive advantage through IT-driven value-added services, IT-driven innovation and innovative products. Organisations that utilise IT offensively, do so to respond quickly and efficiently to their customers’ demands and to improve the organisation’s operational efficiency. This level of IT employment is costly and the organisation becomes extensively dependent on IT with serious consequences should it fail. IT governance in offensive IT employment is more critical and requires board oversight that ensures timely execution of the IT strategy as per schedule, implementation of all turnaround IT on schedule, on budget, and on the attainment of the turnaround strategic objectives. In this environment, established IT steering committees to assist the board are effective and provide continuous IT governance-related advice to the board.

Defensive IT utilisation exists in organisations that rely on IT for cost-effective business operations, and require continuous and uninterrupted IT operations. Such an environment requires assurance of efficient and reliable technology with more technical oversight in ensuring prevention and prompt resolution of IT interruptions. IT governance in this environment requires more ongoing IT assurance and effective auditing to minimise or eliminate any potential IT failures. However, overall board oversight in making strategic IT improvement or advancement decisions is still required. The issue of business continuity is indeed important and the board oversight should involve the existence and reliable security systems and disaster recovering processes and capabilities. The board level audit committee structure becomes very effective in this instance.

Nolan and MacFarlan (2005), however, concluded that irrespective of how an organisation utilises IT, the board’s IT governance responsibility and oversight includes ensuring that (1) the organisation’s IT assets and investments yield returns to the organisation; (2) IT risk issues including IT security and potential IT failures are managed effectively, including IT services obtained from third party service providers; and (3) legal and regulatory compliance must be achieved and observed. These are consistent with previous findings within the literature and reviewed previously in this thesis.

Corporate governance of IT therefore involves overseeing the matters that are more business related rather than technical IT issues. IT governance at this level is part of the organisation's overall corporate governance and is the responsibility of the board (ITGI, 2001). IT governance cannot be isolated as it is equally critical to the success or failure of the organisation (Short & Gerrard, 2009). Successful IT governance would ensure that "the organization's IT sustains and extends the organisation's strategy and objectives" (ITGI, 2001).

Organisations expect that adherence to corporate governance policies and principles should result in a positive yield of returns on their investments. However, not all organisations that have stated compliance to governance policies, principles and practices, and have ticked all compliance boxes, have achieved the expected return on their investments (Taylor, 2010; Van Vuuren & Schulschenk, 2013; King III, 2009). This also includes costly IT projects that did not yield the expected returns and value even in instances where stringent project management standards and principles had been applied and adhered to and the project had been completed on time, within budget and scope. This, according to the IT governance institute round table panellist (ITGI, 2007), is attributed to emphasis being placed more on governance implementation processes and less on post implementation processes that evaluate and monitor the attainment of the expected outcome.

IT governance monitoring in practice places more emphasis on obtaining positive answers to assessment questions on IT governance compliance. Management and directors are driven to focus more on IT governance compliance, ticking boxes of compliance to the application of the principles but paying less attention to performance assurance to validate whether or not expected outcomes have been achieved (Macleod, 2006). Effective governance is not only about implementing processes and principles but also ensuring continuous evaluation of processes to assess if the expected outcomes are being achieved. It must also include intervention processes that enable termination or rescue of initiated projects that perform poorly or seem unable to achieve expected results.

As previously emphasised, IT governance should not be isolated and treated in a silo but rather as an integral part of existing corporate governance within an organisation. Gheorghe (2010) argued that an organisation's corporate governance should not be considered as governance of functional units in isolated governance silos ("finance governance", "HR governance", "marketing governance", and others) but rather as a single governance

oversight. Accordingly, IT governance cannot be isolated considering that it is linked to the other key enterprise assets such as financial, human, intellectual property, etc. and thus IT governance must share governance mechanisms such as executive committees and budget processes that exist within the organisation. This enables the achievement of coordinated enterprise-wide decision-making processes as integrated within the organisation-wide governance setup (Gheorghe, 2010).

IT governance effectiveness is also challenged by the continuous advancement of IT. This poses several decision challenges where decisions on adopting new technologies must be balanced with maintaining existing technologies or upgrading them to still obtain maximum output from them (Thorp, 2003; ITGI, 2008). The strategic impact of new technologies on the organisation and the cost implications make such decisions an IT governance issue. In many instances the impact may also include the need to develop new skills or the acquisition of expert skills. The challenge is exacerbated where the board has exhibited low IT knowledge and lack of confidence in making such decisions (Gartner, 2003, Short & Gerrard, 2009). Whilst the rapid pace of changes of IT is beyond the control of the board, ensuring that IT knowledge is present on the board is within its control and must be an integral part of the prerequisite skills required in appointing a board member and must be incorporated into board induction and training programmes (Reich & Benbazat, 2000).

Being an integral part of business, the employment of new and advanced IT, the changes and adoption of the newer technologies and the new requisite skills, require good change management processes within an organisation (Amali, Mahmuddin & Ahmad, 2014). This makes the governance of IT also a change management issue (ITGI, 2009). The success or otherwise of such changes depends on the change culture within the organisation. A change management culture or a climate receptive to change must be cultivated, encouraged and entrenched by the governance practices that exist within the organisation. The board must strive to create a climate or organisational culture that is receptive to change. The role of the board in such an environment must be to strive for the organisation to be able to adapt to new technologies and still continue to be competitive in the market or its industry. IT governance as implemented by the board must endeavour to ensure that the performance of IT transforms to business value and to effectively meet the demands of the business and its customers (Van Grembergen, 2004; Gheorghe, 2010). IT governance therefore involves

effective change management culture that is encouraged by good corporate governance practices.

Since IT governance is a component of corporate governance, a successful IT governance implementation must be driven by equally effective corporate governance practices. The board should therefore have the requisite knowledge and comprehension of IT governance practices to be able to effect the implementation of IT governance. The board requires a defined and structured way to carry out IT governance oversight within existing corporate governance structures. IT governance cannot be independent of existing internal corporate governance structures and processes in an organisation (Short & Gerrard, 2009). Existing IT governance implementation identified within the literature varies in many aspects. Various frameworks and standards have been applied and various contingencies considered in the implementation. In addition, varying implementation structures, processes and mechanisms have been identified through the literature with equally varying levels of success. Whilst a bias exists in the acceptance that IT governance is an integral part of corporate governance and therefore the responsibility of the board, studies on how the board is practically executing that responsibility have been limited. This study thus proposes a derived conceptual framework for IT governance at the board level.

3.17. IT GOVERNANCE CONCEPTUAL FRAMEWORK

IT is deployed across all divisions of the organisation, creating an extensive dependency on and making a case for the need for effective IT governance oversight. (Kordel, 2004; De Haes & Van Grembergen, 2009). Organisations endeavour to ensure that IT that is employed enables the organisation to achieve its strategic objectives. IT strategies and goals are expected to be aligned with the organisation's strategic objectives. As investment in IT and its deployment within the organisation increases, it is expected that such investments would yield returns and add value to the organisation. Such large investments and expectation expose the organisation to extensive IT risk. All IT resources employed and related IT risks should be optimised to enable the organisation to attain its set strategic objectives.

Organisations therefore have to ensure that IT-related decisions are taken at the right level, by the right people and are appropriate in enabling the achievement of the organisation's goals. The achievement of the strategic goals is dependent on the effective implementation of the decisions taken, be it an IT investment or deployment of other IT resources. This once

again highlights the importance of the decision-making structure and process as well as the monitoring of its implementation. IT governance, if effective, ensures that this happens.

The introduction of IT governance into organisations' corporate governance setup has been challenging especially due to the absence of explicitly tested IT governance models that have comprehensive coverage of the IT governance concerns (Raghupathi, 2007). The need for appropriate IT governance mechanisms suited to the realities facing contemporary organisations (Sambamurthy & Zmud, 2000) is urgent and crucial. This requires more empirical research and analysis of relevant factors and further exploration of the concept of IT governance to develop alternative conceptualisations within corporate governance. Accordingly, existing theoretical IT governance models and tools have insufficient support for successful practical solutions. This represents a gap between the theoretical frameworks and the contemporary IT governance implementation and practices (Jordan & Musson, 2004). IT governance incorporation into corporate governance, being relatively new, requires more investigation, research and development of both prescriptive and normative IT governance models (Raghupathi, 2007). Additional insight may also be obtained from existing IT governance and corporate governance "best practices" from successful organisations.

The literature review has brought to the fore various aspects of IT governance practices both within and without corporate governance structures. It has been emphasised that it is important for the board to have structures, skills and information to successfully implement effective IT governance within the organisation. As explained, this is not easy and boards have experienced challenges in various ways in their quest to implement and institute efficient IT governance within the organisation.

Within the literature, no single IT governance model exists that captures the relevant elements of IT governance to enable the board to effectively implement IT governance at its level. A model derived from the various divergent and convergent findings from the literature review is depicted in Figure 3.7.

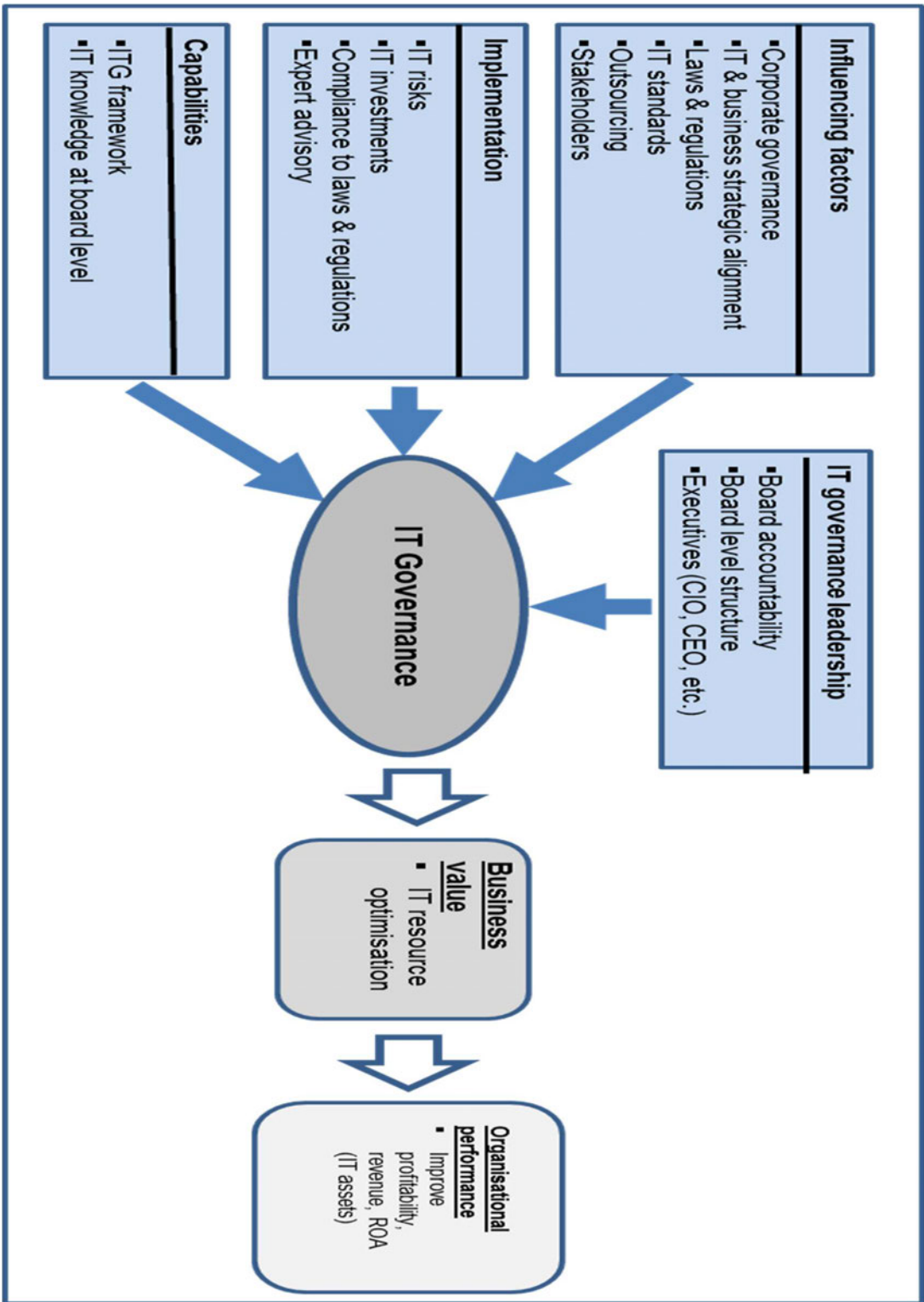


Figure 3.7: IT governance conceptual framework

The applicability of this framework at the board level is reviewed in the next chapter. Since IT governance is applicable at the board level, assessing the components of the framework within corporate governance at the board level will validate the appropriate and relevant board level IT governance components.

3.18. CONCLUSION OF THE CHAPTER

The chapter reviewed IT governance, its evolution, frameworks and the influence of corporate governance on IT governance and concluded with a conceptual IT governance framework. Following the review of existing IT governance frameworks and standards, IT governance structure, capabilities and accountability were established. The influence of corporate governance on IT governance enabled the distinction between the corporate governance role within IT governance and the management role. The conceptual IT governance framework therefore identified key aspects of IT governance from a corporate governance perspective. The framework suggested a relationship exists between IT governance, business value derived from IT governance and its resultant effect on overall organisational performance. The conceptual IT governance framework is further evaluated in the next chapter to establish aspects that fit within board level IT governance in order to derive the research framework to guide the following parts of the study.

CHAPTER 4

PROPOSED RESEARCH FRAMEWORK

4.1. INTRODUCTION

This chapter presents the research framework that was used for the study. The chapter explains how the research framework was developed by merging the IT governance conceptual framework and the corporate governance frameworks derived at the end of Chapters 2 and 3 respectively. The research framework, referred to as the “board level IT governance framework” (BLITGF), describes the relationships that may exist between the various aspects of board level IT governance. Derived by means of a thorough review of available literature and various theories of corporate governance, the BLITGF was used to guide the rest of the study through data collection, analysis, findings and conclusion of the study.

4.2. BOARD LEVEL IT GOVERNANCE FRAMEWORK

The BLITGF consists of factors that directly impact on or influence board level IT governance. Table 4.1 presents the resultant set of factors (from the conceptual IT governance framework and the conceptual corporate governance framework) included in the BLITGF.

Table 4.1: Components of the board level IT governance framework

Components	Explanation	Variables
Leadership	This refers to the nature of IT leadership at the board and executive levels. It also considers the IT leadership within the organisation entrusted with ensuring ITG at operational level.	<ul style="list-style-type: none"> Executive level IT leadership Board level ITG structure
Influencing factors	These are factors that influence the nature and components of ITG design and implementation. This is split into internal and external factors.	<p><u>Internal factors</u></p> <ul style="list-style-type: none"> Corporate governance mode of practice (model) The need to align IT strategy to the organisation's strategy <p><u>External factors</u></p> <ul style="list-style-type: none"> Laws and regulations to comply with IT standards adopted and implemented Outsource concerns and management Stakeholders with IT deployment concerns
Implementation features	These features refer to ITG in practice, reflect what aspects of IT deployment are of concern and how they are being governed.	<ul style="list-style-type: none"> Risk management IT investments selection, monitoring implementation, measure attainment of returns/value Compliance levels: monitoring level of compliance to laws and regulations Expert advisory used, including vendor influence
Control mechanisms	Refer to any mechanisms instituted to ensure effective ITG government practices.	<ul style="list-style-type: none"> Auditing: internal and external audit Enforcements
Capabilities	These are any key capacity and capabilities required uniquely for ITG implementation and oversight at the board level.	<ul style="list-style-type: none"> Board level IT knowledge ITG framework adoption
IT value attained	IT adds value to an organisation in various ways, as identified in the literature. How this is defined, attained and measured is of essence to the research.	<ul style="list-style-type: none"> Defined IT value Impact of IT initiatives
Organisational performance	Measures of organisational performance used in measuring the impact of effective IT governance on the organisational overall performance.	<ul style="list-style-type: none"> Increase in profitability Increase in revenue Return on (IT) asset

Table 4.1 lists the seven components included in the BLITGF. Each of these components has a corresponding set of variables that further represent the factors within the component. The components (aspects), factors and their variables in the table are as discussed in Chapters 2 and 3. This collates the details in Section 2.5.11 and Section 3.17, Figure 2.5 and Figure 3.7.

Based on the objectives of the study, some variables of the factors were excluded from the BLITGF. The variables and the reasons for their exclusion are provided as follows:

Political influence

Political influence was excluded because whilst it may have a direct influence on corporate governance, its influence on the board's IT governance responsibility is through compliance to laws and legislation. Thus, whilst political influence is relevant as a direct influence on corporate governance, its influence is effected through compliance to government laws and legislation within IT governance (Ndiweni, 2008; Adu-Amoah et al., 2008; Aguilera et al., 2006) and is thus represented as an integral part of compliance to laws and legislation within the developed BLITGF.

Shareholders' influence

Shareholders' influence is not effected directly on directors but rather on their appointment. Within corporate governance, shareholders' power and influence are exhibited through structures such as annual general meetings and stock exchanges. Shareholders have the power to invest where they want, and to appoint directors and auditors (in the South African context). Once directors are appointed, their responsibilities are guided by their fiduciary duties and by corporate governance codes and practices to effect good governance. Directors thus carry out their fiduciary responsibilities independent of the shareholders' direct influence. The board's IT governance responsibility is thus not directly influenced by shareholders. A similar arrangement exists between shareholders and appointed auditors. The work of auditors is thus not influenced by the shareholders who appointed them.

Subsequently, shareholders' influence is excluded from the BLITGF.

Ethical aspects, disclosure and conflict of interest

Ethics, disclosure and conflict of interest within corporate governance are mostly incorporated into organisations' codes of conduct, rules, and policies that guide behaviour of the boards and other employees within the organisations (Werder & Talaulicar, 2011; Kjaer, 2010; King III, 2009; Macey, 2008 Farrar, 2005). Organisations take stringent measures to ensure adherence to these conducts, rules or policies and impose punitive measures on perpetrators.

Ethics, disclosure and conflict of interest form part of various adopted codes of corporate governance. They are also instituted in government laws and legislations. In South Africa, the King III code of governance, the Companies Act of 2008 and the JSE enlisting rules all mandate organisations to disclose conflict of interest and various other forms of information including financials, impact of the organisation's operations on the environment and society, and any other significant breaches of relevance within the public domain.

Ethics, disclosure and conflict of interest are therefore an integral part of laws and legislation, best practices and enforcement (of JSE enlisting rules). Thus, ethics, disclosure and conflict of interest are effected through the other components of the BLITGF which are "compliance to laws and legislation" and "corporate governance codes and practices".

Market reactions

Market reactions have been explained to be directly related to good corporate governance and organisational performance (Bhasin, 2016; LSE, 2016; Zeni & Griffith, 2016; Shah, 2014; JSE, 2011; McGregor, 2011; Chugh, Meador & Meadow, 2010; Hasan, 2015). Within corporate governance, organisations with good corporate governance will perform better than those with poor corporate governance. Performing organisations will positively influence the markets which results in higher share prices and stability in their share prices (Chugh, Meador & Meadow, 2010). A negative market response is reflected by a drop in share prices, and also shareholders selling off their shares (stocks) (Kjaer, 2010; Zeni & Griffith, 2016, Hasan, 2015). Thus, market reaction and organisational performance are related and high performing organisations will experience a positive market response.

Effective corporate governance improves organisational performance which then results in a positive market reaction and response. However, negative market reaction indicates poor organisational performance and prompts organisations to review their corporate governance (leadership and strategy). Market reaction and response are thus indicators of an organisation's performance and its corporate governance. Thus whilst market reaction is considered as a factor that influences corporate governance and thus IT governance, its influence is not direct but rather a measure of the outcome of a good or bad corporate governance. Market reaction thus prompts improvement in corporate governance where required. It is thus not established as a factor in IT governance effectiveness.

Outsourcing

Outsourcing is a resultant action after a corporate governance decision has been made, rather than being an input or influence factor in corporate governance itself. Outsourcing of IT occurs after a decision to outsource has been made and final approval by the board takes place, where applicable (Tjader et al., 2014; Kern & Willcocks, 2000). According to Udo (2000), as a practice, an organisation would normally not outsource aspects of IT that are strategic to the organisation. IT outsourcing could be part of an organisation's strategy with intended outcomes that align to the attainment of the strategic objectives of the organisation (Atkinson et al., 2015; Tjader et al., 2014; Udo, 2000).

From the above brief assessment of outsourcing, it is evident that whilst outsourcing is broadly included as a corporate governance issue and thus a responsibility of the board in the conceptual corporate governance framework, IT outsourcing has more far-reaching aspects that have been included in the BLITGF. These include IT strategic alignment, approval of IT strategies, role of IT within the organisation, IT risk, and organisational performance. IT outsourcing is therefore not an isolated factor of the BLITGF but rather integral to the other factors.

4.2.1. BLITGF and underlying corporate governance theories

Figure 4.1 illustrates the assumed relationships and possible impact of the various factors within the framework. The factors and related variables are as captured in Table 4.1.

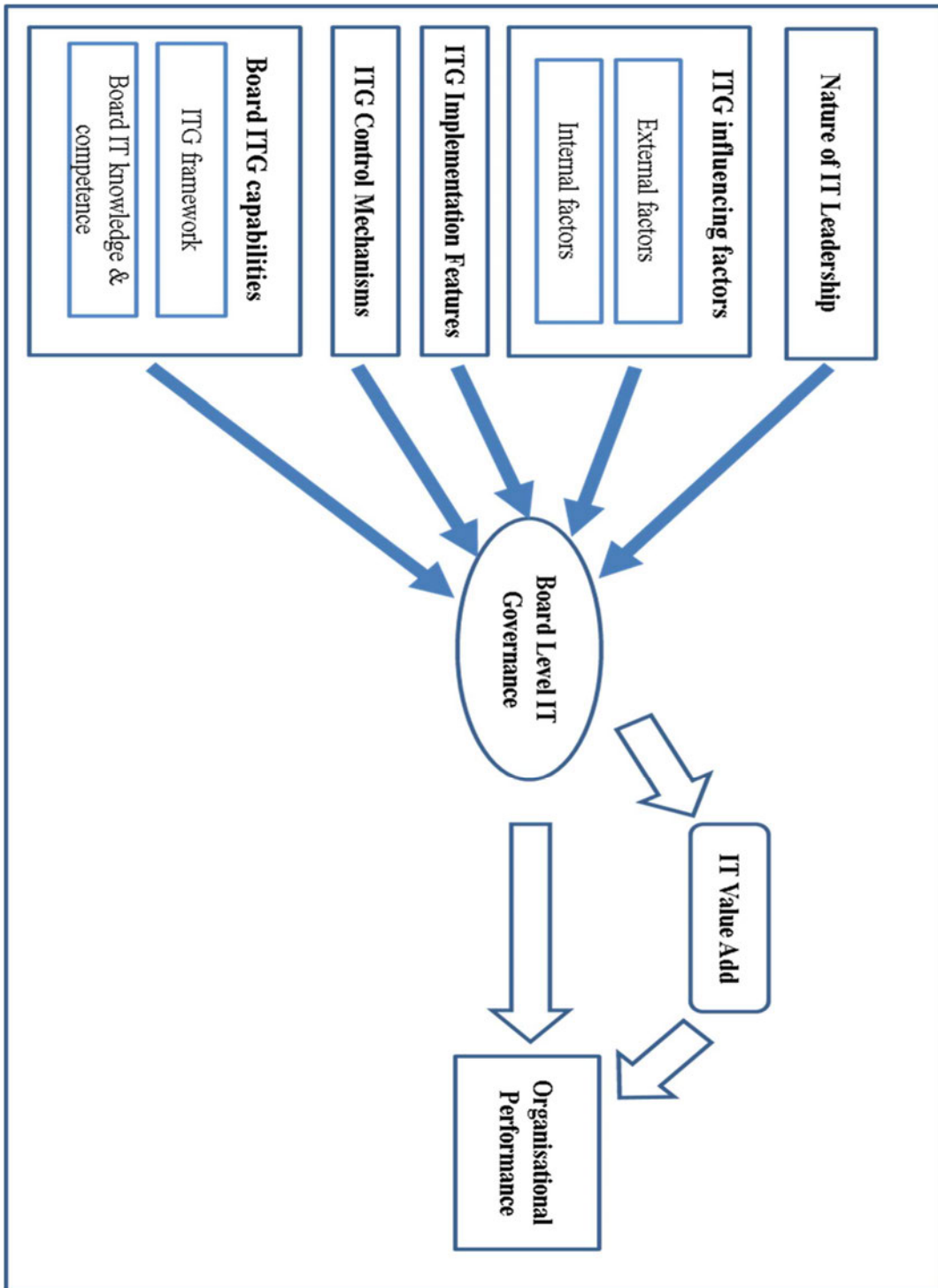


Figure 4.1: Conceptualised board level IT governance framework (BLITGF)

In Figure 4.1, the BLITGF depicts the assumed influence/relationships between the factors presented in Table 4.1. The figure illustrates that the central dependent variable is board level IT governance which is influenced or impacted by the five main category of factors as independent variables. The second dependent variable is organisational performance which suggests that it is directly influenced by the level of effectiveness of board level IT governance. However, it is suggested that effective board level IT governance should ensure that IT deployment adds value to the organisation. IT value add enables attainment of organisational goals and thus influences organisational performance. IT value add is therefore positioned as possible mediator between board IT governance and organisational performance. Each of the categories of factors has been explained briefly in Table 4.1; while the details of the factors and their components (variables) have been discussed in Chapters 2 and 3 where each variable was identified and included in the first constructs of governance frameworks.

However, the basis of the relationships between the factors in the BLITGF and their impact on each other are explained by the underlining theories of corporate governance. The various corporate governance theories that underpin the corporate governance models and corporate control, discussed in Chapter 2, are now discussed in support of the BLITGF.

4.2.1.1. The agency theory

The agency theory (also referred to as the shareholder theory) underpins the simple finance model of corporate control, covered in Section 2.3.3.1. According to the agency theory, the shareholders (“principles”) seek maximisation of their capital and require managers (“agents”) to manage the corporation to achieve that goal, to maximise returns from their invested capital (Denis, 2001). Based on the shareholder theory, the primary role of the board is to protect shareholders’ interests. Shareholders, as providers of capital, expect return on their investment. The board has to ensure that corporate management acts in the interest of shareholders (Wong & Bajuri, 2013; Shleifer & Vishny, 1997). The board thus directs, controls and monitors the actions and decisions of corporate management to ensure that such actions and decisions result in organisational performance and attainment of maximised returns (Wong & Bajuri, 2013; Buckby, Best & Stewart, 2005).

The board’s IT governance oversight should therefore in turn direct, control and monitor the actions and decisions made by corporate management regarding IT investment and its use within the organisation (Posthumus & von Solms, 2008).

4.2.1.2. The stakeholder theory

The stakeholder theory underpins the stakeholder model of corporate control, covered in Section 2.3.3.3. The stakeholder theory stipulates that corporations seek to achieve the interest of all their stakeholders. The pretext of the stakeholder theory is that a corporate has diverse stakeholders that collectively enable the corporation to operate.

According to Buckby et al. (2005), the board's fiduciary responsibility is to all stakeholders which implies that the board has to provide directive and control to ensure that corporate management and thus corporate performance outcomes meet the interest of all its stakeholders.

4.2.1.3. The stewardship theory

The stewardship model underpins the stewardship model of corporate control, covered in Section 2.3.3.2. The theory is based on the view that corporate management are good stewards and would manage the corporation efficiently to achieve high organisational performance that is consistent with shareholders' interest (Wong & Bajuri, 2013). Corporate management would do so without persuasion or influence from any source. Corporate performance in maximising shareholders' value also satisfies all other stakeholders.

The board's role is to support and motivate corporate management at all times. Their role is also to ensure clarity and consistent alignment of organisational goals and shareholders' interests (Wong & Bajuri, 2013).

The stewardship theory is somewhat relaxed regarding the issue of separation of powers between corporate management and governance oversight. Boards with a majority of executive directors rather than non-executive directors and the dual role of the CEO as board chairman are accepted (Yusoff & Alhaji, 2012; Clark, 2004). The stewardship model of corporate governance is practised in the US where the country's laws and regulations support such a corporate governance setup.

4.2.1.4. Resource dependency theory

The resource dependency theory is based on the view that organisations may possess resources or require resources that are unique or critical to their operations. Such resources enable the organisation to differentiate itself or enable it to be competitive. Organisations

thus establish strong relationships with such critical or unique resources (Wong & Bajuri, 2013). These relations are important and need to be sustained in times of supply uncertainty.

Within corporate governance, boards are considered as sources of unique human and network capital that foster, establish and maintain such relationships (Wong & Bajuri, 2013; Buckby et al., 2005; Hillman & Dalziel, 2003). The board's unique human capital may include board members' experience, skills, competence and expertise. The board's network and connection to other critical resources and human capital of other organisations and boards are strong and significant network capital to the benefit of the organisation (Hillman & Dalziel, 2003). According to Wong and Bajuri (2013), board members may possess highly sought after specialised skills and expertise that impact on organisational performance.

The theory thus supports the sourcing of directors that serve on multiple boards. The sourcing for directors is driven by the exposure to IT skills, competences, and the knowledge acquired by the director from serving on these diverse boards. Such directors are critical resources that would enhance the IT governance abilities and contribution to the board IT governance.

4.2.1.5. Strategic choice theory

The premise of the strategic choice theory is that decisions and actions taken by organisational leadership influence the organisational outcomes. The strategic choice theory postulates that organisational leadership has the mandate to make proactive choices that effectively influence organisational outcomes (Bogale, 2016; Jewer & McKay, 2012; Jewer, 2009). However, organisational leadership should be able to understand the organisational environment, the available options and the impact of the choice made (Hsu, Tan & Zailani, 2016). According to Hsu et al. (2016), strategic choice made by organisational leadership should be appropriate in effecting the organisation's continuous performance improvement. According to Hambrick (2007), organisational leadership consists of the decision-making authority and its skills. From the view point of corporate governance, organisational leadership constitutes the board and corporate management. Therefore, the board and corporate leadership require the appropriate skills to make strategic choices that effect a positive impact on organisational performance. According to the King III (2009) code of corporate governance, boards should possess a mixture of adequate skills relevant for board leadership.

Following from the strategic choice theory, the board and corporate management must have the prerequisite IT skills to be able to effect strategic choices relating to IT employment within the organisation. Board IT skills therefore influence the board's IT governance abilities.

4.2.1.6. Institutional theory

Institutional theory postulates that an organisation's existence is as a result of its response to and adoption of its external and internal environments (Keohane & Martin, 2014). An organisation's behaviour is thus understood and explained by its external environment and its internal capabilities and controls instituted in response to the external environment (Suddaby, 2015). Whilst the external environment may constrain or enable the organisation, the organisation's internal environment determines its response to the external environment and thus its continuous existence.

According to institutional theory, an organisation does not remain passive in its environment. It institutes structures, processes and controls to enable it to respond and withstand the external pressures and mitigate any exposed (or exposed) risks. As an organisation exists within a country, it is bounded by the country's laws and regulations and complies with them. The organisation also adopts the norms and practices within its industry. Institutional theory comprises groupings of organisations, with their enlistment rules and expected performance outcomes (Keohane & Martin, 2014). An example of such a grouping is the JSE listed companies bounded by JSE enlistment rules and expected returns from investors and shareholders.

Based on institutional theory, the role of the board is to focus on ensuring that the organisation understands its external environment and is able to institute compensational measures. The board ensures that board structures and capacity are adequate and effective to direct and control overall organisational actions, such as compliance with laws and regulations, auditing of compliance, employment of IT, and organisational performance in the pursuit of its goals.

4.3. CONCLUSION OF THE CHAPTER

In conclusion, this chapter has explained how the BLITGF as the research framework was developed. This chapter presented the factors and variables included in the BLITGF and

those that were excluded. The chapter then identified the factors and variables excluded and provided an explanation for their exclusion.

The chapter also discussed the corporate governance theories underlining the BLITGF due to the multi-theory approach to its conceptualisation. This answers the call by previous researchers for a multiple theory approach in the study of board level IT governance.

From the literature review, the model of governance established corporate governance as analogous to state governance. Just like the government of a state, the board is the highest decision making authority within the organisation empowered with the responsibility of ensuring good corporate governance. IT governance is an integral part of corporate governance and hence a board responsibility. As a board responsibility, IT governance should exist only at the board level and should not be delegated to an operational level steering committee or any other levels as has been described in the literature review. Board level IT governance (BLITG) and the research framework (BLITGF) would henceforward be referred to as IT governance (ITG) and IT governance framework (ITGF) respectively throughout the rest of the study. This introduces and locates ITG at the highest decision making level of an organisation.

The next chapter is the methodology chapter which describes in detail how the research was carried out, how data was captured and analysed, and how answers were arrived at for the research questions.

CHAPTER 5

THE RESEARCH METHODOLOGY

5.1. INTRODUCTION

This chapter discusses the research methodology which includes the type of study, the location and participants of the study, the sampling technique used, the type and technique of data collection and the data analysis techniques used. The study followed an exploratory case study and used a mixed methods approach, combining a positivist and interpretivist paradigm. Board level IT governance in South Africa is new as it was elevated as a board responsibility by recommendations by King III in 2009. Since 2009, very limited studies have been conducted to understand how boards are effecting that new responsibility to govern IT at that level. An exploratory case study approach was therefore deemed as the most appropriate type of study to use as it enables the researcher to explore further to understand the phenomenon in order to gain more insight and add to existing knowledge (Sekaran & Bougie, 2010; Ghauri & Gronhaug, 2002). By means of an exploratory case study approach, the researcher was able to apply objectivity through the literature review and background fact finding process and able to analyse the information to gain further understanding of the existing knowledge without influencing the obtained data (Denscombe, 2014).

5.2. THE RESEARCH PROBLEM

Information technology has become an integral part of business operations and is used strategically in some cases and as an enabler of business processes in other cases (ITGI, 2008; De Haes & Van Grembergen 2009; Brown 2015). Businesses require IT to function optimally to enable improvement of organisational operations and performance which subsequently enable achievement of the organisation's strategic objectives (Khaiata and Zulkeman, 2009). The strategic alignment between business and IT has become critical to organisational performance and achievement of business strategic objectives (ITGI, 2008). The governance of IT has therefore received strategic attention and been elevated in importance within the organisational structures of organisations (Brown, 2015).

The importance of IT is evident by business's reliance on IT for all aspects of its functions. Whilst this creates great benefits and opportunities for the business, it also exposes the business to associated risks (ITGI, 2003, 2005 and 2008; Posthumusa & Von Solms, 2005).

The elevation of IT governance within the organisation was thus to achieve a balance oversight of IT benefits and its associated risk in the interest of the organisation. King III provided this oversight awareness to organisations as part of its corporate governance codes.

The introduction of IT governance in corporate governance was hence to place the control and leadership of IT at the highest level within the organisation, which is the board. Whilst this might seem obvious, corporate governance has had its own challenges and even though great successes have been achieved, some failures have also been experienced. Some of the corporate governance failures recorded in the 1990s have attributed some of the underlining causes of failure to poor IT oversight of management using and manipulating information within IT systems (Macey, 2008; Parent & Reich, 2009; ISACA, 2012). Placing IT governance as a board responsibility and supported by corporate governance practices was seen as fitting to address some of the issues of corporate failures.

The introduction of IT governance within corporate governance further challenged boards of South African organisations because at the time they were still struggling to comply with the new Companies Act of 2008 (RSA, 2008). New research in the field was required to provide insight from successful organisations on how they implemented IT governance at the board level within their existing structures (Raghupathi, 2007).

Some preliminary empirical studies found that the technical nature of IT is a challenge to boards as they lack the necessary IT technical skills to fully comprehend IT employment within their organisations. This lack of understanding of the technical nature of IT and IT-related issues at the highest level of organisations has been a contributory factor to poor IT oversight and thus corporate governance. This lack of understanding also affects sound decision making on IT matters, including dealing effectively with related IT risk issues (Macey, 2008).

5.3. THE AIM OF THE RESEARCH

This study aimed to establish how IT governance has been implemented at the board level by JSE listed companies in the KwaZulu Natal province (KZN). JSE listed organisations are mandated by the JSE listing rules to adopt and implement King III corporate governance principles. It is thus expected that boards would be guided by King III IT governance principles in their implementation of their IT governance oversight.

5.4. RESEARCH OBJECTIVES

To achieve the aim of the research, the following objectives were pursued:

- i. To assess IT governance implementation by JSE listed companies, as recommended by King III.
- ii. To identify aspects of IT governance implemented in practice by JSE listed companies.
- iii. To identify the gap between the King III recommended IT governance principles and implemented aspects of IT governance in practice.
- iv. To establish the link between board level IT governance oversight and organisational value obtained from IT.
- v. To establish the link between IT governance implemented by boards and overall performance of their organisations.
- vi. To construct a conceptualised board level IT governance oversight framework for organisations.

The successful achievement of these research objectives would provide in-depth understanding of how IT governance is actually positioned and implemented within JSE listed organisations located in KZN.

5.5. RESEARCH QUESTIONS

Research questions that are formulated properly and answered well, will enable the researcher to achieve the research objectives. According to Agee (2009), the research questions focus the research on relevant and significant aspects of the phenomenon being studied and direct the research in discovering the needed answers. Thus, research questions specify and provide a logical process to investigate and validate what is unknown based on what is already known (Lipowski, 2008). Based on the understanding of the elevation of IT governance oversight to the board level in South Africa by King III, the following research questions were formulated:

1. How are boards of JSE listed companies responding to their new IT governance responsibilities included in the King III (2009) Code of corporate governance?

2. How are these organisations aligning their corporate governance practices to accommodate IT governance?
3. What are the key success factors in the implementation of IT governance?
4. What are the challenges being faced in the implementation of IT governance principles?
5. What are the key differences between current IT governance implementations and those proposed by King III?
6. What does the current IT governance implemented within these organisations look like?
7. How is the current IT governance implementation enabling the improvement of the organisation's performance?

The basis of these questions is also supported by the fact that all JSE listed companies are mandated to adopt the King III principles of corporate governance which include IT governance. The research is thus focused on the appropriate target population, being JSE listed companies.

Table 5.1 presents the alignment between the research objectives and research questions. The research objectives are achieved when the research questions are answered.

Table 5.1: Alignment of research objectives and research questions

Research Objectives	Research Questions
a. To assess IT governance implementation by JSE listed companies, as recommended by King III.	<ul style="list-style-type: none"> • How are boards of JSE listed companies responding to their new IT governance responsibilities included in the King III (2009) Code of corporate governance?
b. To identify aspects of IT governance implemented by JSE listed companies.	<ul style="list-style-type: none"> • How are these organisations aligning their corporate governance practices to accommodate IT governance?
c. To identify the gap between the King III recommended IT governance principles and actual implementation aspects of IT governance in practice.	<ul style="list-style-type: none"> • What are the key success factors in the implementation of IT governance? • What are the challenges being faced in the implementation of IT governance principles? • What are the key differences between current IT governance implementations and those proposed by King III?
d. To establish the link between board level IT governance oversight and organisational value obtained from IT.	<ul style="list-style-type: none"> • How is the current IT governance implementation enabling the improvement of the organisation's performance?
e. To establish the link between board level IT governance implemented by boards and overall performance of their organisations.	
f. To construct a conceptualised board level IT governance oversight framework for organisations.	<ul style="list-style-type: none"> • What does the current IT governance implemented within these organisations look like?

Table 5.1 shows the questions that answer and enable achievement of each objective. As shown, whilst some objectives and research questions are aligned one-on-one, others require multiple questions to be answered.

5.6. LOCATION OF STUDY AND PARTICIPANTS

The study sought to establish how JSE listed organisations have implemented IT governance. The details of listed companies were obtained from the JSE information available to the public either electronically or as printed material. Since there are only 20 listed companies in the KZN province, all of them were contacted and invited to participate in the study (Singh & Masuku, 2014; Miles, 2004). Ten companies responded, issued gatekeepers' letters and then participated in the study. Some of the organisations that did not participate indicated that their executives and directors were busy and hence not available. The response rate of the study was therefore impacted.

The American Association for Public Opinion Research (AAPOR) (2015, pg.5) defined "response rate" in a study as "The number of complete interviews with reporting units divided by the number of eligible reporting units in the sample". The indication from this definition is that not all units within a sample may be eligible. However, Lynn, Beerten, Laiho and Martin (2001) indicated that the dominator in the definition should also include the non-eligible units and units that may have been omitted as possible members of the sample (referred to as "unknowns"). In reference to this, the AAPOR (2015) indicated that the inclusion of all the other units proposed by Lynn et al. (2001) would produce a "minimum response rate" which they referred to as "Response Rate 1" (RR1). The RR1 for this study was therefore computed as follows:

In this study, the sample of JSE companies located in KZN at the time of sampling amounted to 23 companies. This was explicitly recorded by the JSE SENS data and published by ShareData (2015). Hence, there were no "unknowns" to be included. Out of the 23 companies, three companies were on suspension and thus not contacted or invited to participate. Therefore, only 20 companies were contacted, out of which ten responded and actually participated and completed the interviews. The response rate for the study is therefore computed to be $[(10/23 * 100) = 43.5\%]$.

Ogbechie (2012) stated that research on directors has generally received a response rate averaging 20% due to directors' busy schedule and the confidential nature of their work.

Bhatt, Grover and Grover (2005) also noted that IT research that requires information from top management has usually yielded low response rates. Other studies that recorded lower response rates include Minichilli et al. (2009) with a response rate of 15% from their research on boards in Italian companies, and Ogbechie (2012) with a response rate of 15% from his research on determinants of effectiveness of board directors. Since research studies differ, there has been no fixed response rate value specified within the literature as the most appropriate and acceptable response rate (Morton, Bandara, Robinson & Carr, 2012). Therefore, a response rate of 43% is higher than what exists within the literature and was considered acceptable.

As the targeted respondents were board members and others who participated at the board level, the organisations that participated nominated executive directors with board level responsibilities within the selected company. Each nominee was either interviewed individually or together as a pair in cases where two nominees were provided by the selected company.

5.7. TYPE OF STUDY

Based on the nature of the research problem and the available literature on the phenomenon of IT governance at the board level, two study types were considered for this research.

5.7.1. 5.7.1 Exploratory Study

An exploratory study is conducted where little is known about the phenomenon of interest to the researcher or when more information and understanding are required. An exploratory study requires the researcher to obtain some background information to understand what is already known and then to formulate a theoretical or conceptual framework to model the initial understanding of the phenomenon. Following from the theoretical or conceptual framework, hypotheses may be drawn where possible and tested. An exploratory study therefore enables the researcher to advance what is already known about the phenomenon.

5.7.2. 5.7.2 Case Study

A case study is most commonly preferred in business studies research where in-depth understanding of a phenomenon is required (Ghuri & Gronhaug, 2002). Case studies are also appropriate when the research seeks to understand a current phenomenon within its existing environment (Yin, 2003). The use of case studies enables the researcher to obtain

an in-depth understanding of the case, as well as its uniqueness and complexity within its context in relation to the phenomenon being studied. In using case studies, the researcher is able to compare similarities or difference of the phenomenon being studied between or among the cases. Case studies are therefore suited for studies that seek to answer the “how” and “why” questions (Yin, 2003; Ghauri & Gronhaug, 2002).

To achieve the aim and objectives of this study, both an exploratory study and a case study were made use of. Baxter and Jack (2008) described this as an exploratory case study. Ghauri and Gronhaug (2002) indicated that case studies are often associated with exploratory study.

The exploratory part of the study was to understand what has been done and what is currently known about board level IT governance. The literature review in Chapters 2 and 3 thus provided existing knowledge on IT governance at the board level. The finding from the literature reviews was that IT governance at the board level is an integral aspect of corporate governance which is an overall responsibility of the board. This enabled the conceptualisation of a board level IT governance research framework from which hypotheses were derived to test the various factors identified in the model and the possible relationships between them.

Buchwald et al. (2014) used the exploratory research methodology in their study to further understand the phenomenon of IT governance organisation. In support of their choice of exploratory approach, they indicated that existing studies on IT governance were fragmented and provided limited and disjointed information on the various aspects of IT governance. In a conceptual IT governance model construct, Buchwald et al. (2014) identified various IT governance success factors and the impact of IT governance on organisations.

Jewer and McKay (2012) also used the exploratory research methodology to identify the antecedents and consequences of board IT governance. They formulated a theoretical model to explain antecedents of board IT governance and the consequences. Their finding was that board characteristics and organisational characteristics influence board IT governance and that board IT governance impacts IT contribution to organisational performance.

Brown (2015) also conducted exploratory research on IT governance effectiveness to identify sources of divergence of IT governance actual outcomes from the desired outcome. Brown developed a conceptual model to explain the sources of divergence in IT governance desired outcome and the effectiveness of IT governance.

The case study part of this study focused on JSE listed companies and how their boards govern IT. It sought to answer “how” JSE listed companies govern IT and to understand “why” they govern IT in a particular way. Ten companies were studied to establish the commonality and or difference in IT governance by JSE listed companies.

Brown (2015) used a multi-case study approach to gather qualitative data to test various propositions derived from his model and its underlining theories. Brown found four sources of divergence and classified them as reputational divergence, transactional divergence, performance divergence and substantial divergence. Others who used exploratory case study in their research on IT governance include Huygh, De Haes, Joshi, Van Grembergen, and Gui (2017) who aimed to understand the contemporary state of IT governance in Belgian and South African companies; Neff, Hamel, Herz, Uebernickel and Brenner (2013) who studied IT governance in multi-business organisations; De Haes and Van Grembergen (2009) who modelled and assessed IT governance implementation and its impact on business-IT alignment; and Ortiz (2003) who modelled and assessed relationships between organisational performance, IT business alignment and IT governance.

5.8. TYPES OF RESEARCH METHODS

The qualitative method was used as the primary research method. This was complemented with the quantitative method, as a secondary method, to achieve a mixed methods study. A mixed methods study was adopted to effect triangulation in the construction of the research framework, the collection of data and testing of the research hypotheses (McNulty, Zattoni & Douglas, 2012). The mixed methods approach also ensured reliability of the results (Sekaran & Bougie, 2010). The combination of methods was also used to triangulate the literature which included past studies, published financial results of JSE listed companies, other publications from related institutions and posted website information.

5.8.1. Qualitative methods

Qualitative methods follow an interpretivist paradigm where the research aims to find more meaning from the data by further interrogating and delving deeper for more interpretation (Welman, Kruger & Mitchell, 2006). Qualitative methods are applicable in areas of study where little is known about the phenomenon being studied (Ghauri & Gronhaug, 2002). Qualitative methods are also applicable where the researcher requires an in-depth comprehension of the phenomenon and also where there is the need to focus and understand

a specific aspect of the phenomenon (Dworkin, 2012). A purposive sampling technique was used to obtain a sample of ten companies. The ten companies then nominated participants who were interviewed and the data was thematically analysed.

5.8.2. Quantitative methods

Quantitative methods follow a positivist paradigm where the researcher observes, obtains, measures and analyses responses from the objects or entities being studied. Quantitative data was obtained using questionnaires. Through the convenience sampling technique, questionnaires were issued both electronically and manually to an identified convenience sample. Issuing the questionnaires electronically and manually ensured that more respondents were reached and also improved the number of successfully completed questionnaires. Questionnaires that were completed electronically were printed and combined with the manually completed questionnaires. This was to ensure that all completed questionnaires were treated the same, i.e that they were checked for completeness and verified the authority/designation of respondents before finally coding the responses on each questionnaire. This ensured data integrity and eliminated incomplete questionnaires and unqualified respondents. A total of 42 completed questionnaires were obtained and analysed using a statistical tool (SPSS).

5.8.3. Triangulation

Triangulation is the use of mixed (or multiple) methods in the study of a phenomenon (Hussien, 2015; Lapan et al., 2011; Sekaran & Bougie, 2010). In combining different methods, triangulation enables the researcher to gain wider and deeper understating of the phenomenon being studied (Hussien, 2015). Triangulation provides validation for the study and also increases the reliability and accuracy of the study (Denzin, 2012; Hussien, 2015).

Sekaran and Bougie (2010) identified four kinds of triangulation and classified them as follows:

- Method triangulation: using multiple methods of data collection.
- Data triangulation: collecting data from several sources and/or at different time periods.
- Researcher triangulation: multiple researchers collect and/or analyse the data.
- Theory triangulation: multiple theories and/or perspectives are used to interpret and explain the data.

Triangulation thus includes the use of multiple data collection and analysis methods. These multiple sources complement each other and deepen the researcher's understanding of the phenomenon being studied (Lapan et al., 2011).

In this study, multiple data sources were used and both quantitative and qualitative data analysis methods were applied. These multiple methods align to Sekaran and Bougie's (2010) triangulation classifications as follows:

1. A comprehensive literature review which involved reviewing governance models, corporate governance principles, practices and codes, IT governance and previous studies done in these related areas. A number of questions were formulated to address the research objectives. A qualitative method involving one-on-one semi-structured interviews which were conducted with elected representatives from each of the JSE listed companies in the sample.
2. A conceptual board level IT governance framework was developed from the literature review. The conceptualised framework included identified factors that influence/impact the governance of IT by the board and the relationship between the factors.
3. Published annual financial reports and Financial Mail publications for 2013 and 2014 were used to obtain financial performance and ranking of the sample units (JSE listed companies based in KwaZulu-Natal province in South Africa).
4. Both qualitative data and quantitative data were collected. Qualitative data was collected through semi-structured interviews whilst quantitative data was collected through survey questionnaires.

The four approaches used constituted a mixed methods approach to data collection and the use of both qualitative and quantitative analysis to effectively validate the findings constituted triangulation, as defined by Lapan et al. (2011), Sekaran and Bougie (2010), and Ghauri and Gronhaug (2002).

5.9. SAMPLING AND DATA COLLECTION TECHNIQUES

Following from the mixed methods research approach, sampling and data collection techniques for the qualitative and quantitative methods are explained in this section. For the qualitative methods, a purposive sampling technique was used to select multiple case studies.

Semi-structured interviews were conducted within the multiple cases to obtain qualitative data. For the quantitative method, a convenience sampling technique and a survey data collection technique was used. According to Miles, Huberman and Saldaña (2010), justification should be given for the selection of particular sampling and data collection techniques.

5.9.1. Purposive sampling

Purposive sampling was used as the sampling technique for the qualitative methodology of the study. In purposive sampling, the researcher relies on pre-existing knowledge to determine the selection of the sample from the population. Such pre-existing knowledge may be information from previous research findings, expert advice, or from documented experience from the field or subject of study. The sample is then selected from entities that can provide the information required by the researcher (Sekaran & Bougie, 2010). Thus, in purposive sampling, there is no set sample size. The sample size is determined by the amount of units that ultimately provide the researcher enough information to answer the research question(s) (Tongco, 2007; Bernard, 2002). In most instances, purposive samples turn out to be small, less than 30 individual units but ultimately yield deeper information that enable the researcher to answer the research question(s) (Tongco, 2007; Teddlie and Yu, 2007).

However, purposive sampling has an inherent bias in instances where the sample units used lack variety (homogeneous). To lessen this bias, the sample should incorporate variety (heterogeneous) in the sample (Tongco, 2007). Interpretation of the finding from a purposive sample is limited to the population under study and not openly generalisable across all populations.

Purposive sampling was used to identify the grouping of organisations that met the required characteristics of the study (Sekaran & Bougie, 2010; Anderson, 2010; Hair et al., 2007). The JSE adopted King III as a legislative code of corporate governance and it is mandatory for all its members to apply its principles. Thus, based on Hair et al. (2007), this group (of companies) that exhibited common characteristics of interest to the research qualified as the target population. JSE listed companies have implemented King III IT governance principles as mandated by the listing rules since 2009 and therefore are in the position to provide the needed information on IT governance implementation. The sample selected exhibited variety in their classification by size based on their annual turnover and average growth in turnover over the period of study. Each of the organisations within the purposive sample was

considered as a case study and as the preferred unit of analysis. The interpretation of the finding was generalised across only JSE listed companies and a recommendation made for similar studies to be conducted across other populations.

5.9.2. Convenience sampling

Convenience sampling was used as the sampling technique for the quantitative research of the study. Convenience sampling refers to a sample of the members of the population who are identified as being readily available to provide the needed information for the research being carried out (Sekaran & Bougie, 2010). The members, who then become respondents, are identified and selected based on their availability, accessibility, and willingness to provide the required data (Miles et al., 2010; Zikmund, Babin, Carr & Griffin, 2013; Sekaran & Bougie, 2010; Hair et al., 2007).

The study required respondents with IT governance or corporate governance-related responsibilities within a company to participate. Directors and executives were identified within the literature as having IT governance or corporate governance-related responsibilities within a company. However, rather than approaching companies for access to their directors and executives, a grouping or association of directors and executives was searched for. Two such groupings of data sources were identified: the institute of directors (IoDSA) and the KZN Business Leaders databases (by the Durban Trade & Industry Department). The two groups were both accessible within the KZN region and constituted members (directors and executives) who fit the profile of expected respondents for the quantitative part of the study. Appropriate permission and ethical clearance were obtained to access these databases.

5.9.3. Interviews

For qualitative data collection for the qualitative method part of the study, in-depth, semi-structured interviews were conducted. Interviewees were the nominated representatives from the organisations that had agreed to participate in the study. The initial questions in the semi-structured interview instrument were formulated to obtain answers for the research questions and were informed from the literature reviewed. The use of semi-structured interviews enabled further interrogation of responses given by the interviewees in order to obtain deeper insight and clarity to their responses.

5.9.3.1. The interview instrument

Face-to-face interviews were conducted with three categories of personnel in the organisation, the CEO, CFO and CIO. Where there was no CIO, the director responsible for IT was interviewed instead. In some instances, further probing was necessary to elicit more information and for clarity. The ten questions in the interviews corresponded to each of the factors in the research framework. These were pre-tested on a sample with similar characteristics; their feedback was used to refine the instrument and determine the process for its administration (Lapan et al. (2011). A copy of the interview instrument is attached as Appendix 5.

5.9.3.2. Interviewees/Respondents

According to Kumar, Vinod and Associates (2014), in qualitative research the researcher must exercise “judgement” in identifying the right respondents with the appropriate knowledge to provide the answers to the research questions. Senior management staff responsible for IT management and those with Board level IT oversight were considered to be the key respondents. Since the CEO, CFO and CIO of companies are mandated by King III and the South Africa Companies Act to be members of the board, these were the persons requested to participate in the study. The interviews were conducted under conditions of confidentiality and anonymity; the details were recorded and transcribed as documentary evidence. Ten companies participated in the survey with a total of 16 respondents.

5.10. QUALITATIVE DATA ANALYSIS TECHNIQUES AND APPROACH

To ensure accuracy and reliability of the interview data, all interviews were recorded with permission from the interviewees. The interview recordings were transcribed and verified to be accurate and to increase the reliability of the data (Marnewick & Labuschagne, 2011; Prasad, Green & Heales, 2012). The first transcription was done by the researcher and verified by an assistant using a Microsoft Word application. A few words not heard properly or misspelt were identified and corrected. Respondents were re-contacted where further clarification of responses was required and where further information was needed. The transcripts constituted the source of qualitative data in documented form for analysis.

The transcribed data were uploaded into NVivo (a computer-assisted qualitative data analysis software – CAQDAS) and coded for analysis. NVivo assists the researcher with the coding process, identification of themes and analysis of the themes and patterns identified.

Identified themes were analysed and provided support to the research framework. Where divergent findings were observed, the data was explored further to explain the difference (Matten & Moon, 2008). Themes and codes were placed in a matrix to reflect the frequency of themes and codes. Direct quotations from the data that supported the ITG variables were also recorded. Further in-depth analysis was carried out within NVivo and validated by triangulation using data from the quantitative analysis results and inference part of the findings.

5.10.1. Using NVivo

Qualitative data collection and analysis may be extensive and intensive and may be overwhelming to the researcher (Bazeley & Jackson, 2013; Bazeley & Richards, 2006). This is however overcome by using tools such as NVivo. The use of CAQDAS tools has become acceptable in qualitative research; it facilitates a rigorous and quicker analysis of qualitative data (Bazeley & Jackson, 2013; Bazeley & Richards, 2006). NVivo is one such tool that the researcher used to analyse the data. NVivo enabled the researcher to query the data in different ways to understand what was going on within the data sets. Graphical models were derived from the data and appropriate reports were generated. This enabled the researcher to achieve a high level of order and rigour in organising, analysing and interpreting the data. The use of NVivo enabled the researcher to link the research framework and the underlying concepts and theories to the data and ensured a much more in-depth analysis for appropriate interpretation.

According to O'Neil (2013), NVivo is an effective tool that enables a higher degree study to be built and conceptualised following systematic and rigorous process stages.

Table 5.2: Approaches to data analysis

Stages	Alfoldi and Sinkovics (2012)	O'Neil (2013)	Researcher's process
1	Choosing a topic, literature review, development of theoretical/conceptual foundations and research questions	Descriptive: – Project details and research design – Inputting sources – Assigning attributes	Preparation and data capture • Project details • Input sources – transcripts • Assign attributes
2	Research design	– Creating values	• Create values
3	Sample, context and negotiating access	– Creating classifications	• Create classifications
4	Data collection and preparation	Topic: – Finding the obvious topics – Creating initial nodes	Coding • Create initial nodes • Code transcripts • Create memos • Create tree nodes • Do more coding
5	Data analysis and constant comparison with theory	Analytic: – Merging nodes into hierarchies – Sets – Models and relationships – Using queries – Running queries – Matrix coding queries – Cross case query analysis	Write-up findings • Establish themes • Generate models and relationships • Run various queries – Word – Tree – Matrix • Align themes, and models • Create more memos
6	Discussion and final write-up (Alfoldi & Sinkovics, 2012, p.21).	Conclusions: – Verification – Developing theories	Analysis of findings • On themes, models and research questions • Generate and run more queries • Analyse findings – write up • Answer research questions

O'Neil outlined a four-stage approach to achieve such a level of rigour and competence. This approach is an improvement on a six-stage approach by Alfoldi and Sinkovics (2012). These two approaches and that of the researcher are listed in Table 5.2.

The two approaches revealed different starting points for using NVivo. The approach by Alfoldi and Sinkovics (2012), which may be referred to as an inductive approach, commenced from the literature review stage and used NVivo throughout the research methodology phase to the end of the analysis and discussion phase. It was a thorough use of NVivo as both a tool and an enabler for the entire research. The O'Neil (2013) approach, referred to as a deductive approach, on the other hand, used NVivo as a tool by importing the research data from outside into NVivo to facilitate the identification of themes, deriving models and using queries to analyse the data.

A combination of the two approaches was used for this study, as described in the last column of Table 5.2. The combined approach was used since the study first reviewed the literature to derive a conceptual framework to guide the study's data collection process. This constituted the induction part of the process. By using the derived conceptual framework as the basis of data collection, a deductive approach was followed. A combined inductive and deductive approach was followed. The details of the process were captured in NVivo as a "Project". The interview transcripts were copied under the research project as "Sources" in a sub-folder labelled "Interviews". Each transcript represented both a "respondent" and the "organisation" of the respondent. Due to the confidentiality request from all companies, the company names were coded as C1, C2 to C10, and where more than one respondent had been nominated by an organisation, additional codes of R1 and R2 were included to identify the two separately. Figure 5.1 shows this in NVivo.

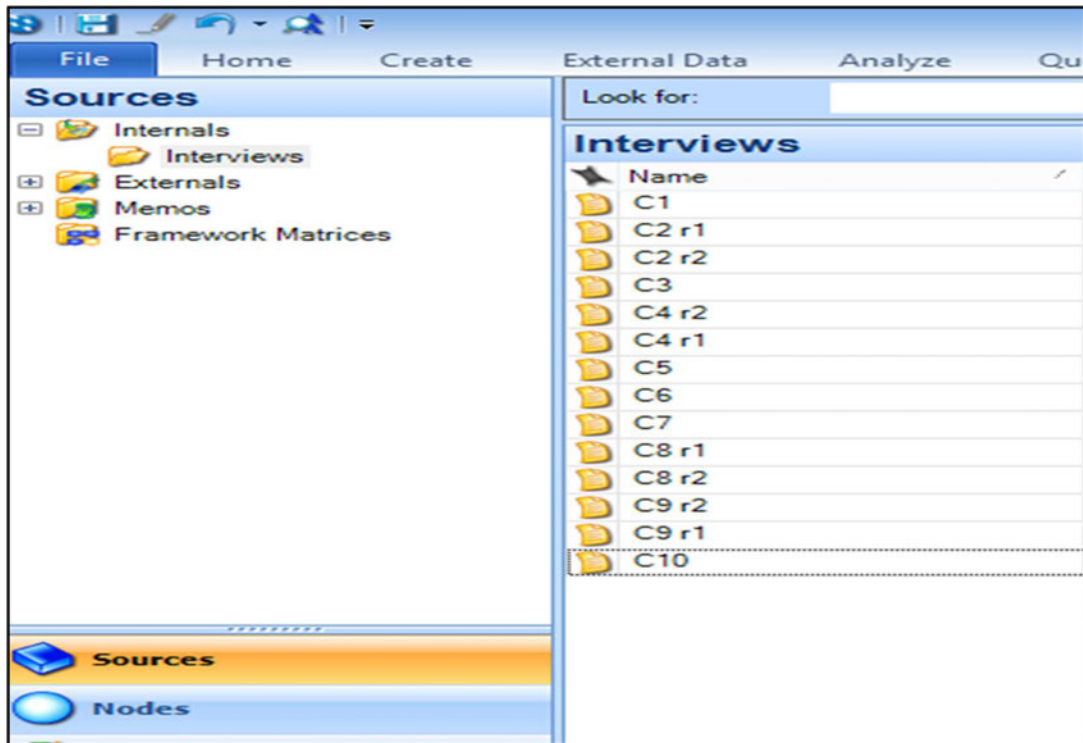


Figure 5.1: Interview transcripts

Each of the captured transcripts was classified as “organisation” to facilitate analysis based on organisations and also as a “person” to facilitate analysis based on the individual respondents in their capacity as the CEO, CFO, CIO or others. These classifications were important because it enabled board level IT governance to be assessed by organisation and also by designation.

The characteristics of the organisations were captured by including values for each of the organisations classified. The organisation’s sector, industry, board composition and board size were captured. The ‘person’ classifications included values like designation, committee membership, and executive status.

5.10.2. Coding, themes, nodes and tree nodes, models

Coding is the process whereby items or segments of data or phrases relating to a specific area of interest to the research are identified within the transcripts of respondents (Lapan et al., 2011). These may also be recurring points or statements being made by various respondents. These identified and coded texts, phrases or segments of data of interest to the researcher are referred to as “themes” (Clarke & Braun, 2013; Joffe, 2012). The coding

process to identify themes was an iterative process carried out severally and until the researcher was satisfied that all possible themes had been identified and appropriately named or classified (Clarke & Braun, 2013; Joffe, 2012). Multiple themes that related to the same area or factor of interest of the research were grouped to form a higher theme and saved as a node in NVivo. A node constitutes a group of related themes that reflect an idea, a concept or common factor of interest to the research (NVivo 10, 2014; Lapan et al., 2011).

Initial nodes are created based on the factors of interest to the research topic (NVivo 10, 2014). For this study, the initial nodes were created based on the elements and factors in the research framework on IT governance. As each transcript was read and coded, new nodes were created as newer themes were derived. Figure 5.2 shows the 16 named nodes which were aligned to the factors of the research framework. Each of these nodes also had sub-nodes, resulting in a complex mix of sub-nodes.

As coding became complicated, it was important to make note of these and record the thoughts and reasoning behind the coding. This was done using memos. Memos are notes made in NVivo to document any relevant information or thought during the research (NVivo 10, 2014). These were a good source of reminders to the researcher.

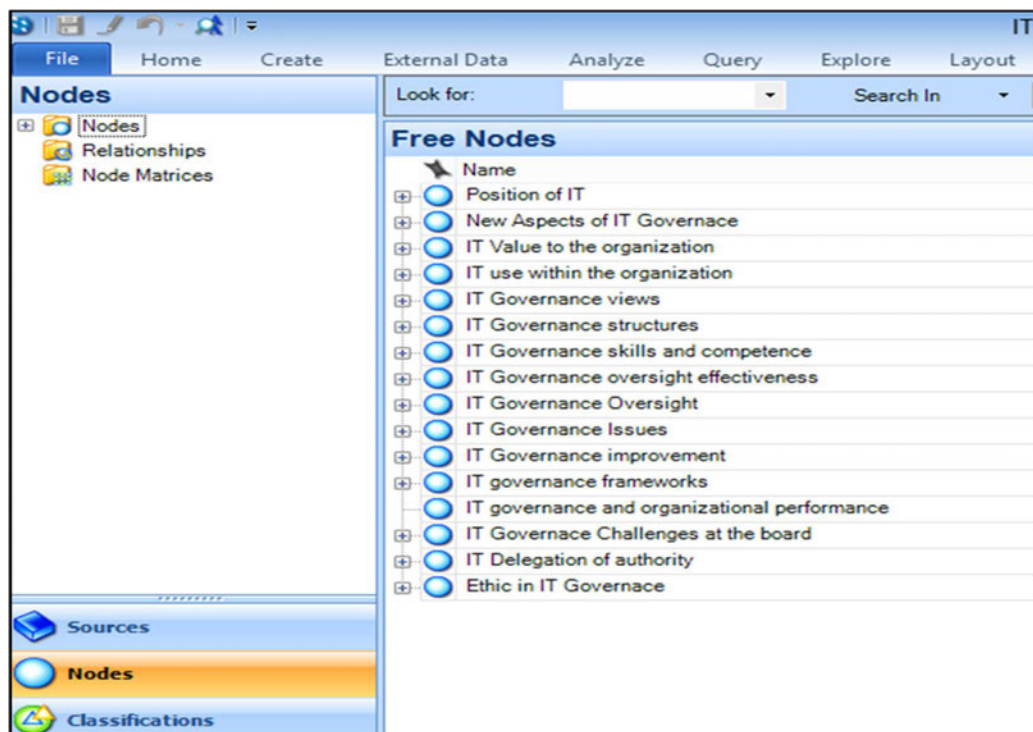


Figure 5.2: Nodes of initial IT governance factors identified

To complete this stage of coding, the various nodes were reviewed and where similarities were identified, the relating nodes were merged or re-classified into a hierarchical form called a tree node. Tree nodes in NVivo help to identify and clarify logical relations that may exist between related categories and concepts being studied (Bazeley & Richards, 2006). The use of tree nodes enabled placing the organisation of the related categories of factors into a hierarchical structure. Figure 5.3 shows the set of tree nodes created and reflects the logical relationship between the lower and higher order nodes.

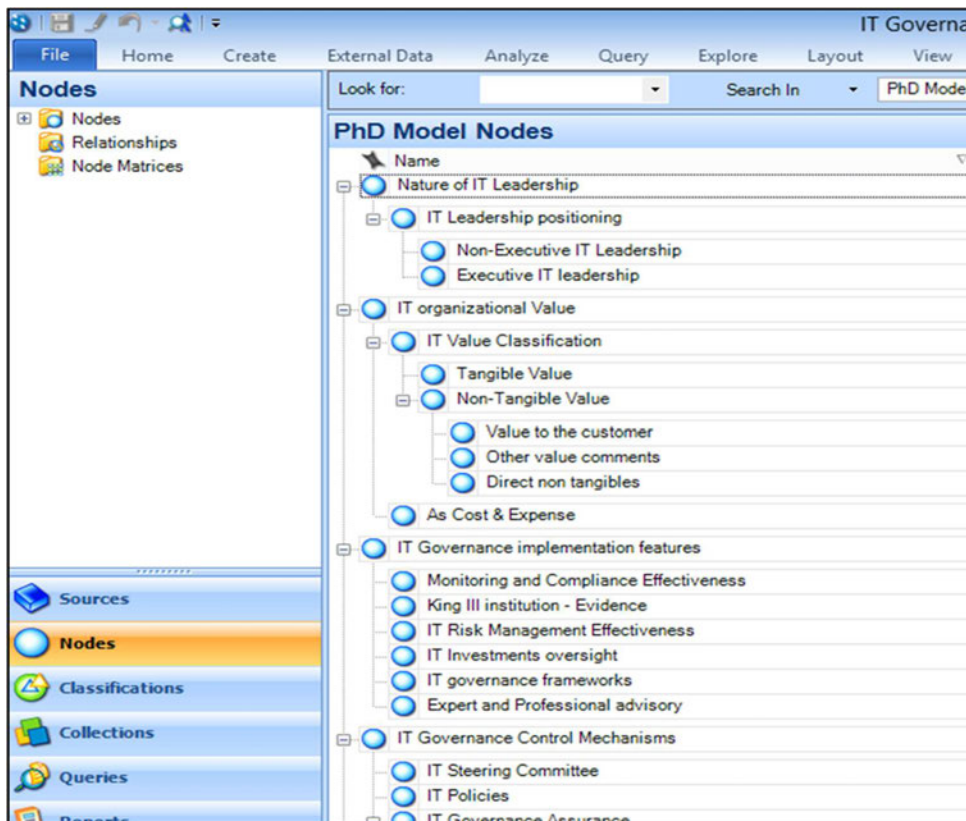


Figure 5.3: Categorised aspects of IT governance

According to Bazeley (2007), well derived tree nodes are a reflection of the researcher's better understanding of the data and focus on the phenomenon being studied. Figure 5.4 shows the top level tree nodes that corresponded to the identified categories of IT governance factors and the relationships within the research framework.

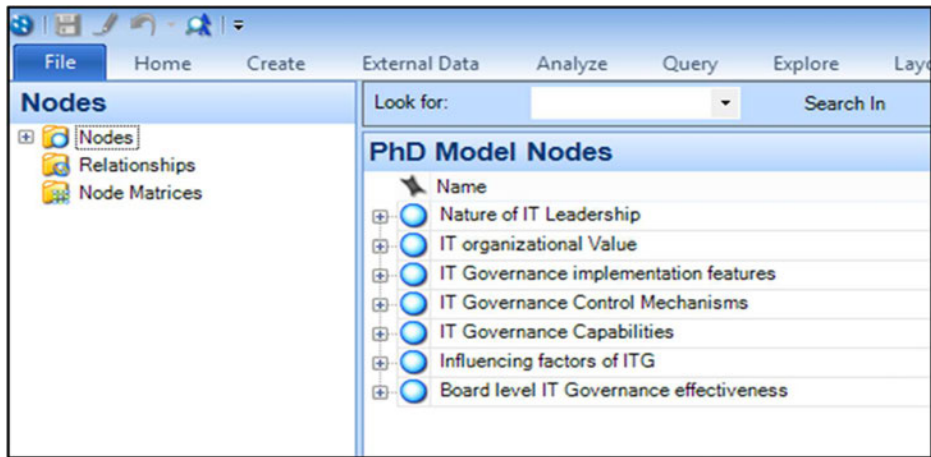


Figure 5.4: Final IT governance aspects that relate to the board

Following this understanding and clarity of the relationships, the researcher was able to derive a series of models that linked the various aspects of IT governance reported by respondents. Derived models in NVivo are a visual representation of the tree nodes and sub-nodes and the possible relationships that exist between them. This provided the researcher with the necessary insight to explore identifiable patterns and relationships within and between the factors (categories and tree nodes) and to further refine the models to reflect identifiable aspects of IT governance as reported by the respondents (NVivo 10, 2014; Bazeley, 2007).

The interpretation and analysis of the models enabled the researcher to identify the recurring themes and to proceed with more in-depth thematic analysis of the data to provide answers to the research questions.

Figure 5.5 shows the model of IT governance and the categories of factors that related to board level IT governance.

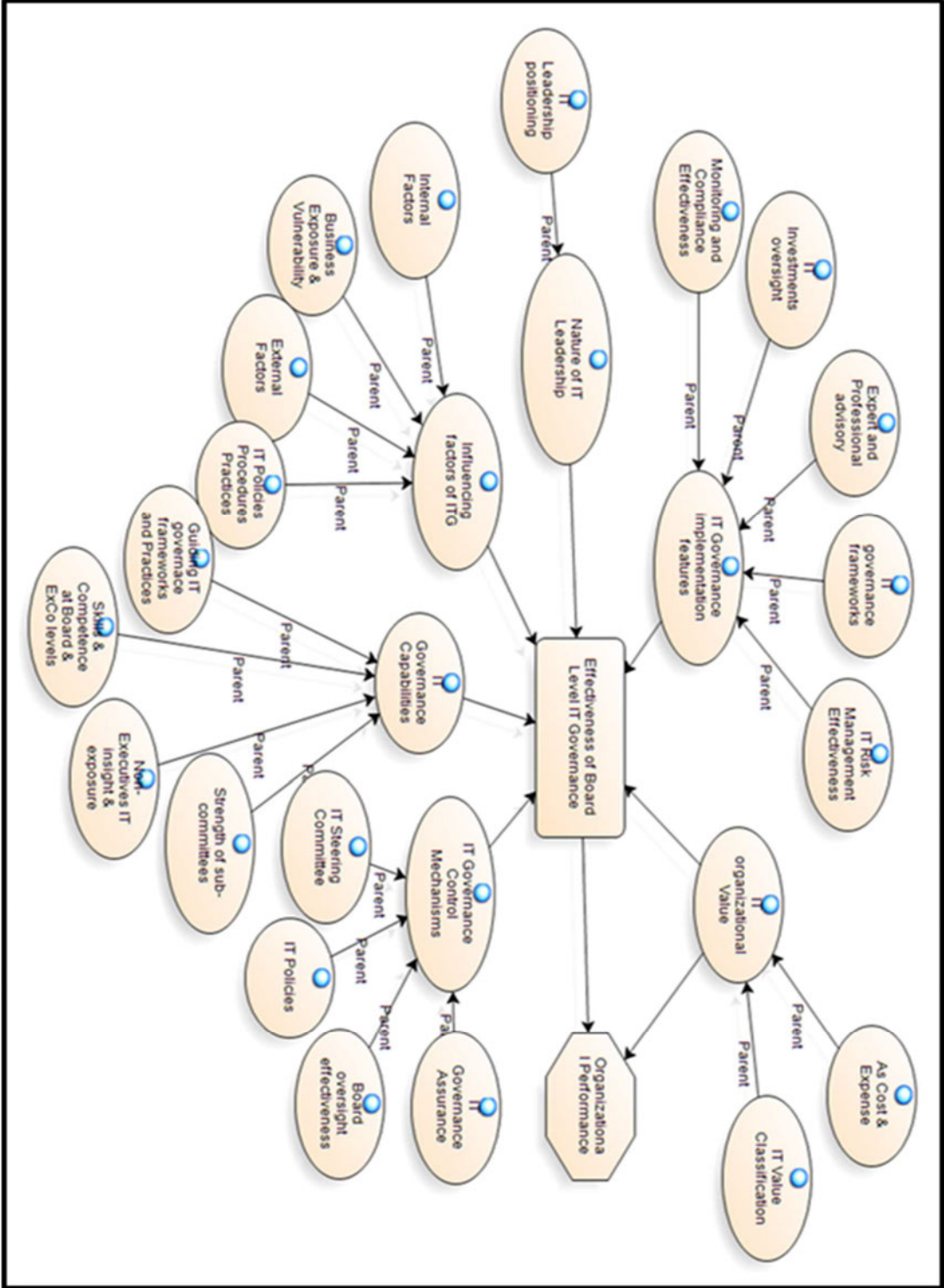


Figure 5.5: Models of IT governance

5.10.3. Thematic analysis

Thematic analysis is the entire process of identifying, analysing and interpreting themes in qualitative analysis (Braun, Clarke & Terry, 2014). The process enables the researcher to identify important themes that effectively describe the phenomenon under study. Critical analysis of the themes provide answers to the research questions (Braun et al., 2014; Joffe, 2012; Ryan & Bernard, 2003). Identification and classification of themes may follow an inductive approach or deductive approach (also called a theoretical approach) (Joffe, 2012).

In the inductive approach, themes are derived independently of the researcher's theoretical bias and preconception of expected outcomes. Themes are derived directly from respondents' data by identifying descriptive patterns and concepts within the data (Braun & Clarke, 2006). Themes are thus data dependent. These themes are referred to as semantic themes.

In the theoretical approach, the researcher's theoretical and analytical interest drive the way themes are derived. Themes are derived beyond the data which includes interpreting the respondents' data and observations (Braun & Clarke, 2006). This approach provides the researcher with a more detailed analysis and better alignment to the theoretical basis of the study to answer the specified research questions. Themes derived from this approach are also referred to as latent themes.

According to Joffe (2012), a combined inductive and deductive approach provides the researcher with the opportunity to explore further and delve deeper into the dataset to discover newer and richer concepts, interpretation and relationships. The combined approach thus produces a high-quality qualitative research. For the purpose of this research, the two approaches were combined to achieve a high quality outcome of themes, analysis and interpretation. The details of the process have been outlined in Table 5.3 under Section 5.10.1. The theoretical basis of the research was IT governance and how it had been implemented at the board level by JSE listed companies.

In multiple case studies an in-depth understanding of the phenomenon being studied is obtained through conducting within-case and across-case thematic analysis. Thematic analysis in multiple case studies presents possibilities of comparing and establishing shared themes among the cases as well as individual differences (Barkhuizen, Benson & Chik, 2013). In addition, thematic analysis in multiple case studies may be conducted and

interpreted at two levels, within-case and across case (Ivankova, Creswell & Stick, 2006). Thematic analysis conducted across and within cases can be tedious, complex and time consuming but provides contextually grounded findings that are either common across cases or groups of cases, or are peculiar to a specific case (Barkhuizen et al., 2013; Yin, 2013; Baxter & Jack, 2008; Ayres, Kavanaugh and Knafl, 2003).

Within the sample of JSE listed companies based in KZN, three grouping of companies were identified: small, medium and large companies based on their average annual turnover within a five-year period, from 2010 to 2014. Thus, whilst IT governance across all the cases was the primary objective, individual case-specific investigation was necessary to establish if differences exist within or between the groups with respect to their individual IT governance oversight implementation. Hence, following from the thematic analysis, a summary of “within-case” analysis for each of the companies was conducted. This was followed with a comparison of the findings across the three groupings to determine any significant differences. The last section then combined the analysis results to provide answers to the research questions.

5.11. QUANTITATIVE DATA ANALYSIS TECHNIQUES AND APPROACH

Quantitative data was obtained using a survey instrument administered by a convenience sample of directors and executives. Data obtained was captured into SPSS and both descriptive and inferential analysis was carried out.

5.11.1. Quantitative data collection – Survey instrument

The research questionnaire was designed and developed to enable the researcher to obtain the relevant information to answer the research questions. According to Zamanzadeh, Rassouli, Abbaszadeh, Alavi-Majd, Nikanfar and Ghahramanian (2014), a questionnaire design and development may be guided by inputs from various sources. These sources include the findings from the literature review, attributes of constructs within the research conceptual framework, from validated instruments used in past research, and from attributes and characteristics of the research constructs.

Questions used for this study were framed and guided by the conceptual framework. Some of the questions were adopted from various sources including the literature review, instruments used in previous research, and from codes of corporate governance. A combination of closed and open-ended questions were used to obtain specific and accurate

answers or rich and insightful responses (Hair et al., 2007). Table 5.3 lists some of the sources of the questions used in the questionnaire.

Table 5.3: Sources of questions

Category	Source
Leadership	ITGI (2005), Codes of governance, Calder (2005)
Influencing factors	IT Governance Checklist (Damianides, 2005), CICA (2004), King III (2009), Turel and Bart (2014), ITGI (2005), Peterson (2004)
Implementation features	Governance codes, Symons (2005), Calder (2005)
Control mechanisms	IT Governance Checklist (Damianides, 2005)
Capabilities	Calder (2005)
Effective IT governance	Codes of governance and of IT governance
IT Value	IT Governance Checklist (Damianides, 2005), ITGI (2005), Turel and Bart (2014), Symons (2005), Calder (2005)
Organisational performance	Teo et al. (2013), Symons (2005), Weil and Ross (2004), Broadbent, Weill and Clair (1998)

The questionnaire was divided into two sections, section A and section B. Section A included questions that captured the characteristics of the respondents, including demographics. Section B included all other questions required to obtain the relevant information to answer the research questions.

According to Ghauri and Gronhaug (2002), there is no set measure for what constitutes a long or short questionnaire. The objective is to ensure that the length of the questionnaire is appropriate and the questions relevant in order to keep the respondent interested until completion.

5.11.2. Measurement scale

To measure the disposition, reaction or reflection of respondents' answers to a question on the questionnaire, the measurement scale must be designed in a way that measures the various levels of responses (Welman, Kruger & Mitchell, 2011). For the purpose of this research, three types of scales were used for measurement: the Likert, the semantic differential, and the category scales.

The Likert scale measured the respondents' level of agreement to a question and enabled the researcher to group respondents according to their responses (Babbie & Mouton, 2006). The Likert scale was used for questions 14, 22 and 34.

The semantic differential scale measured responses on a scale between the two opposite ends of the disposition being measured e.g. a leader may be considered a "good" or "bad" leader. The design scale for this, usually being a seven (7) point scale, means that the extreme ends are Good (7) and Bad (1). In between, the following are then applied: neutral (4), not that good (6), not that bad (2), a little good (5), a little bad (3). The semantic scale was used for questions 9, 21 and 31.

The category scale is an example of a nominal scale where the variable being measured can be grouped into two or more categories (Sekaran & Bougie, 2010). An example is the variable "gender" where the two categories are "male" and "female". The categories may also be defined where the research seeks such categorisation (Hair, Tomas, Hult, Ringle & Sarstedt, 2014). The category scale was used for most of the other questions.

The questionnaire derived for this research combined all three scales described above. This provided the researcher with an effective tool to obtain the needed data from respondents, to measure the data and to analyse the data to obtain answers to the research questions.

5.11.3. Issuing of questionnaire – Survey

An online questionnaire was issued via email to all the members of the KZN business leaders database using Question-Pro, an online questionnaire design and dissemination web-based system. Members of the IoDSA, on the other hand, were approached directly during various IoDSA functions and events in the KZN region. Both approaches were identified as the most convenient, quick and cost-effective ways to obtain data purposively and conveniently.

The questionnaires that were issued included a covering letter of consent that advised respondents of their rights to participate voluntarily or to choose not to. The letter also informed respondents that all information received would be anonymously managed, confidentially handled and kept safely. Respondents willing to voluntarily participate then signed the letter before proceeding to complete the questionnaire. A copy of the covering letter is included as Appendix 1.

5.11.4. Validity and reliability

To ensure that the research findings are reliable, the research methods used and the instruments used in data collection must be validated (Zohrabi, 2013; Fraenkel & Wallen, 2003). In the mixed methods approach of this study, different validity and reliability techniques were used for the quantitative and qualitative methods.

For the quantitative method, where a questionnaire was used, it was important to validate the questionnaire to verify that it indeed accurately measured the concept of study or what the researcher intended (Sekaran & Bougie, 2010). Content validity and internal validity techniques were used to validate the questionnaire.

5.11.4.1. Content validity and internal validity

According to Hair et al. (2014, p. 91), “content validity” is the extent to which the research instrument, which is the questionnaire being used, measures the various parts of the intended domain of interest of the study. The various aspects of the instrument must reflect interrogative questions that seek to obtain relevant data pertaining to both the independent variables and dependent variables.

Content validity for the questionnaire used for this study was achieved by firstly undertaking an extensive literature review process. The literature review was concluded by deriving the conceptual framework “board level IT governance framework” (BLITG) which was used as the research framework for the study. The knowledge area of the study was IT governance with a specific focus on board level IT governance. The aspects of board IT governance identified by the research framework were IT competence, influencing factors, features of IT governance, control mechanisms, capabilities, IT value and resulting organisation performance. Eight variables were derived and defined to represent each of these aspects of interest. The variables were identified as either independent or dependent variables. The independent variables were Board IT Leadership, IT Governance Influencing Factors, IT Governance Control Mechanisms and Board IT Governance Capabilities. The dependent variables were Board Level IT Governance, IT Value Add and Organisational Performance. Questions were then formulated to interrogate each of the variables.

The completed questionnaire was piloted and field tested with ten respondents with similar characteristics to the actual respondents in the chosen study sample. Comments and recommendations from the pilot test were analysed and the questions reviewed to produce

the final survey questionnaire. According to Lapan et al. (2011), this is an acceptable approach that identifies corrections required in the questionnaire to ensure appropriate adjustments and improvement of alignment between the questions and variables being tested.

5.11.4.2. Consistency and credibility

For the qualitative method, consistency and credibility were used as a measure of reliability and validity. Reliability in qualitative research refers to the degree of consistency in the gathering and interpretation of qualitative data for the research (Hair, Celsi, Money, Samouel & Page, 2011). In qualitative analysis where themes are used, the degree of consistency of the process used or followed by different researchers in deriving themes and the thematic analysis that follows is a measure of reliability of the study (Hair et al., 2011). In this study, the process followed in deriving and analysing the themes is consistent with the process followed by Alfoldi and Sinkovics (2012) and O'Neil (2013). This provided systematic rigour to the process to effect reliability as required. This is presented in Table 5.2.

Validity in qualitative research determines the credibility or trustworthiness of the research process in the collection and analysis of the data. Credibility is achieved when a systematic and consistent approach is followed in the data collection and analysis process. According to Hair, Celsi, Money, Samouel and Page (2011), triangulation is an important concept to use to establish credibility in qualitative research. Hair et al. (2011) indicated that both data triangulation and theory triangulation are concepts in establishing credibility in qualitative research. Data collected from several sources or at different times to study the phenomenon of interest enhance credibility of the research. Also, the use of multiple theories to interpret and explain the phenomenon from different perspectives gives credibility to the study. This study used interviews to obtain qualitative data; the interviews were well planned and followed a consistent process by first seeking permission for the interviews to be held and to be recorded. This was then followed by transcribing and proof reading the transcripts to correct errors recorded. NVivo was then used as an IT tool to assist the thematic process. Further to this, both data triangulation and theory triangulation were used to enhance credibility of the study.

5.11.5. Formulated hypotheses

Hypotheses are formulated to describe what the possible outcome might be in relation to answers to research questions. Hypotheses are “logical suppositions, a reasonable guess, [and] an educated guess” that provide a cautious explanation for the theories applied to the study (Leedy & Ormrod, 2001). This study hypothesised that a number of governance factors contribute to board level IT governance effectiveness. The study aimed to determine the impact of the independent factors on the effectiveness of board level IT governance. It was expected that the degree of ITG effectiveness would depend on the variation within the dependent variables. The formulated hypotheses for this research are depicted in Figure 4.2.

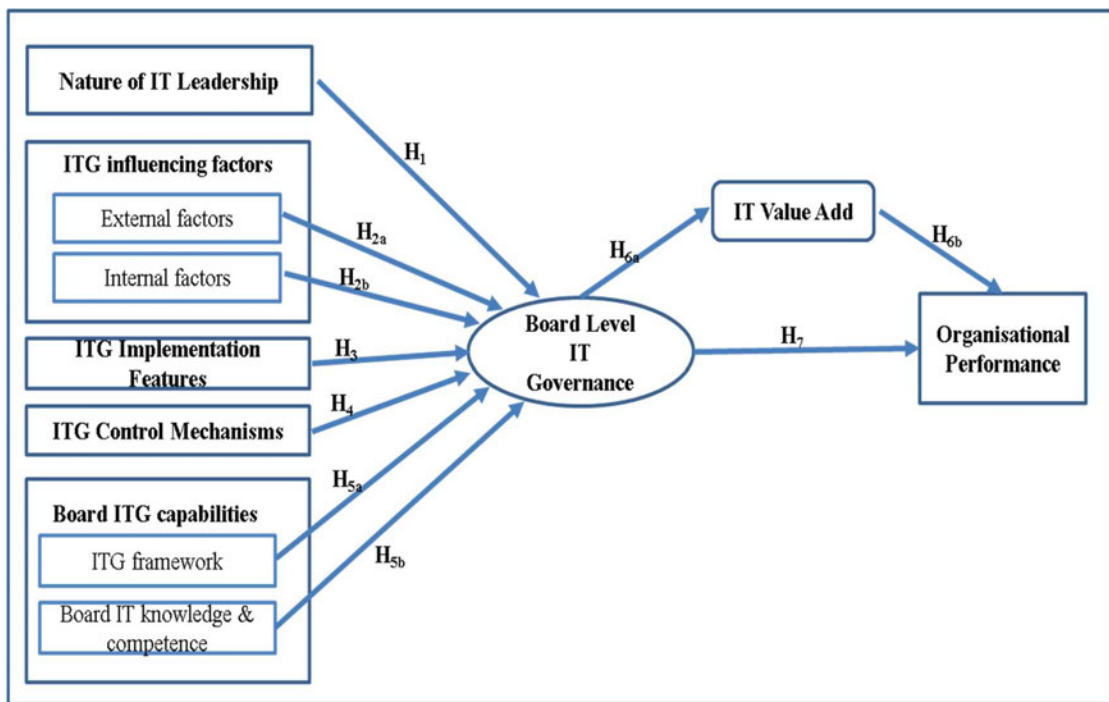


Figure 5.6: Hypotheses formulated for the study

Figure 5.6 depicts the hypothetical relationships between the dependent and independent variables of the ITGF. The ten (10) formulated hypotheses and how they are tested is discussed next.

The hypotheses are as follows (where the subscript “0” denotes the null hypothesis and “1” the alternative hypothesis):

H1₀: Board level IT leadership does not improve the effectiveness of IT governance.

H1₁: Board level IT leadership improves the effectiveness of IT governance.

H2a0: Internal organisational factors do not improve the effectiveness of board level IT governance.

H2a1: Internal organisational factors improve the effectiveness of board level IT governance.

H2b0: External organisational factors do not improve the effectiveness of board level IT governance.

H2b1: External organisational factors improve the effectiveness of board level IT governance.

H30: Implementing identified IT governance features does not improve effectiveness of board level IT governance.

H31: Implementing identified IT governance features improves effectiveness of board level IT governance.

H40: IT governance control mechanisms do not improve the effectiveness of board level IT governance.

H41: IT governance control mechanisms improve the effectiveness of board level IT governance.

H5a0: Effectiveness of board level IT governance is not enhanced if underpinned by a framework.

H5a1: Effectiveness of board level IT governance is enhanced if underpinned by a framework.

H5b0: Effectiveness of board level IT governance is not enhanced if members have knowledge that enables them to make decisions relating to IT governance.

H5b1: Effectiveness of board level IT governance is enhanced if members have knowledge that enables them to make decisions relating to IT governance.

H6a0: Effective board level IT governance does not add value to the organisation.

H6a1: Effective board level IT governance adds value to the organisation.

H6b0: IT value does not add increase organisational performance.

H6b1: IT value add increases organisational performance.

H70: Effective board level IT governance does not improve organisational performance.

H7₁: Effective board level IT governance improves organisational performance.

These hypotheses were tested using both descriptive and inferential statistical analysis on the data collected from the survey. Each of the hypothesis include several factors that represented the variables in the research framework. Hence, each factor per hypothesis was tested and analysed independently. Inferences were drawn independently per factor and collectively under a given hypothesis. Inference drawn per hypothesis followed the condition explained in section 5.11.6.4.

5.11.6. Data analysis

The quantitative data obtained from the questionnaires was analysed statistically to provide both descriptive and inferential interpretation. From the research framework, the various variables and their related factors were assessed using the associated questions from the survey questionnaire. The relative effect of the independent variables on the dependent variable was then assessed using various statistical analyses.

5.11.6.1. Frequency tables and summaries

According to Hair et al. (2014), frequency tables and summaries describe the responses given by respondents in a simple, clear and comprehensible way to the reader. For this study, frequency tables and summaries simplified the process of identifying respondents' views or choices and highlighted areas that required further analysis. The frequency tables and summaries were graphically designed as charts – pie charts, histograms, and bar charts – to simplify comparing the responses received for the variables.

5.11.6.2. Inferential analysis

Inferential analysis was used to help the researcher to make inferences relating to the hypotheses by interpretation of the statistical results computed (Ghauri & Gronhaug, 2002). Table 5.4 lists the ten hypotheses derived in alignment with each aspect of the ITGF and the questionnaire questions.

Table 5.4: Hypotheses and questions

Hypotheses	Factor in research framework	Questions used
H1	IT leadership	Q9, Q13, Q16, Q19, Q24
H2a	Internal influencing factors	Q11, Q15, Q39

H2b	External influencing factors	Q21, Q29, Q39
H3	Implementation features	Q10, Q18, Q22, Q25
H4	Control mechanisms	Q4, Q26, Q30
H5a	Board IT governance capabilities	Q21, Q22, Q29
H5b	Board IT governance capabilities	Q34, Q35
H6a	IT value-add	Q31, Q32, Q37
H6b	Organisational performance	Q31, Q32, Q33
H7	Board level IT governance effectiveness	Q37, Q33

The hypotheses (H1 to H7) were tested using the Fisher exact chi-square test of independence due to the small sample size and the low expected value obtained per cross tab of variables (Bower, 2003).

5.11.6.3. Fisher-Freeman-Halton exact test

The Fisher-Freeman-Halton exact test is the current version of the Fisher exact test. To perform a statistical test to determine the possible existence of a relationship between two variables (nominal or category variables), two tests could be performed, namely the chi-square test of independence or the Fisher exact test. However, the chi-square test is appropriate where the sample size is large. In cases where the sample size is small, the Fisher exact test is used. Where the sample sizes are small and the resulting expected value for a crosstab cell value is less than 5, the Fisher exact test is applicable and computes the exact value rather than an approximation as in the case of the Chi-square test computed in large samples (Bower, 2003). The Chi-square test requires the expected value per cell to be equal to or greater than 5 (Newcombe, 1998).

The sample size in this study was 42 and thus Fisher's exact test was the most appropriate to use for the inferential statistical analysis to test the relationships between the dependent variables and independent variables. From the results of the Fisher exact test, a p-value meaning the "probability value", where the p-value < 0.05, the association between the two variables was considered as significant. A significant p-value indicated an association between the variables tested. This indicated that the dependent variable is somewhat influenced by the independent variable. Otherwise, the p-value is not significant and indicates the lack of association between the variables tested.

5.11.6.4. Hypothesis testing

According to Dahiru (2008), inference drawn from p-values should not only focus on just “rejecting” or “accepting” the null hypothesis but also discuss the implication of the outcome. The rejecting of a null hypothesis should not always lead to the acceptance of the alternative hypothesis. The null hypothesis could be accepted, rejected, “not accepted” or “not rejected” (Martz, 2015; Dahiru, 2008; Bower & Colton, n.d.). The decision taken regarding the null hypothesis should be supported by existing evidence. Further investigation, statistical analysis or contrary evidence should be provided (Dahiru, 2008; Poole, 2001). Where multiple p-values (sub-hypotheses) are used for a hypothesis, all the p-values should meet the p-value threshold for the main hypothesis to be accepted or rejected. Where one or more of the p-values deviate from the p-value threshold, this provides enough evidence in support of the decisions to accept / “not accept” or reject / “not reject” the null hypothesis (Martz, 2015; Bower & Colton, n.d.).

The hypothesis testing in this study followed the forgoing discussion. The decisions on the null hypotheses were made in accordance to the discussions. Each test followed detailed discussion of the p-values, the nature of associations observed and each of the variables tested.

5.12. CONCLUSION OF THE CHAPTER

This chapter has presented the details of the processes followed in carrying out the research. The aspects of mixed methods and the various triangulation techniques used were explained and justified. The in-depth and meticulous thematic analysis done using NVivo provided clarity on how the themes were derived and how they were aligned with the research framework. Using NVivo to compare the process with that of previous studies, validated the process. The use of the Fisher exact chi-square test for the inferential statistics was consistent with other studies and supported the size and types of data analysed. The results of the process and methods are provided and detailed in the following chapters.

CHAPTER 6

FINDINGS: NATURE OF BOARD LEVEL IT GOVERNANCE

6.1. INTRODUCTION

The chapter presents the analysis and findings of the qualitative research. The process followed has been explained in detail under the qualitative methods section in Chapter 5. The data was obtained by means of semi-structured interviews conducted with nominees from participating companies. The data was then captured and thematically analysed with the use of NVivo to accomplish two of the research objectives: To assess IT governance implementation by JSE listed companies, as recommended by King III; To identify aspects of IT governance implemented by JSE listed companies.

This chapter is presented in the format depicted in Figure 6.1.

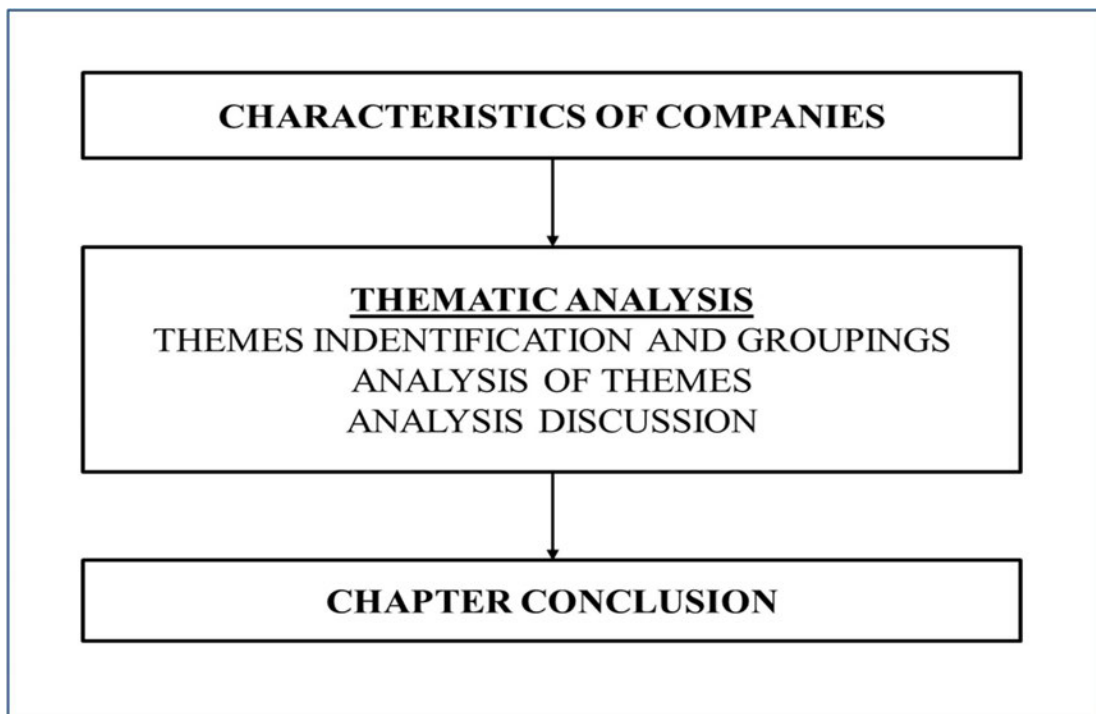


Figure 6.1: Chapter presentation structure

The presentation of the analysis and findings commences with a description of the characteristics of the ten companies that participated in the study. These descriptions are supported by the use of various tables and graphs for easy understanding and interpretation.

Following the description of companies, is a thematic analysis of the data obtained from the semi-structured interviews. The thematic analysis results are presented according to the format detailed in the Methodology chapter (Chapter 5). The thematic analysis results include identified themes and a critical review of the results. The chapter concludes with a summary report on the nature of IT governance oversight implemented within participating organisations.

6.2. CHARACTERISTICS OF COMPANIES

Overall, ten listed companies took part in the research. Each of the ten companies nominated one or more representatives. The nominated representatives were personnel with executive level responsibilities for IT governance and overall corporate governance, i.e. the CEO, the CFO, and the CIO. Where these positions did not exist in an organisation, the nominated personnel had the responsibility equivalent to any one of the executive level positions. Six of the ten companies provided two nominees each. A total of 16 nominees participated in the interviews and a total of 14 interviews were conducted. The position and the executive level responsibilities represented by the nominees (interviewees) in their organisations is presented in Table 6.1.

Table 6.1: Designation of interviewees

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	Total
CEO		√									1
CFO/FD	√	√	√	√		√		√	√		7
CIO				√			√		√		3
Other (IT)					√					√	2
Other (Executive)										√	1
Others							√	√			2
Total	1	2	1	2	1	1	2	2	2	2	16

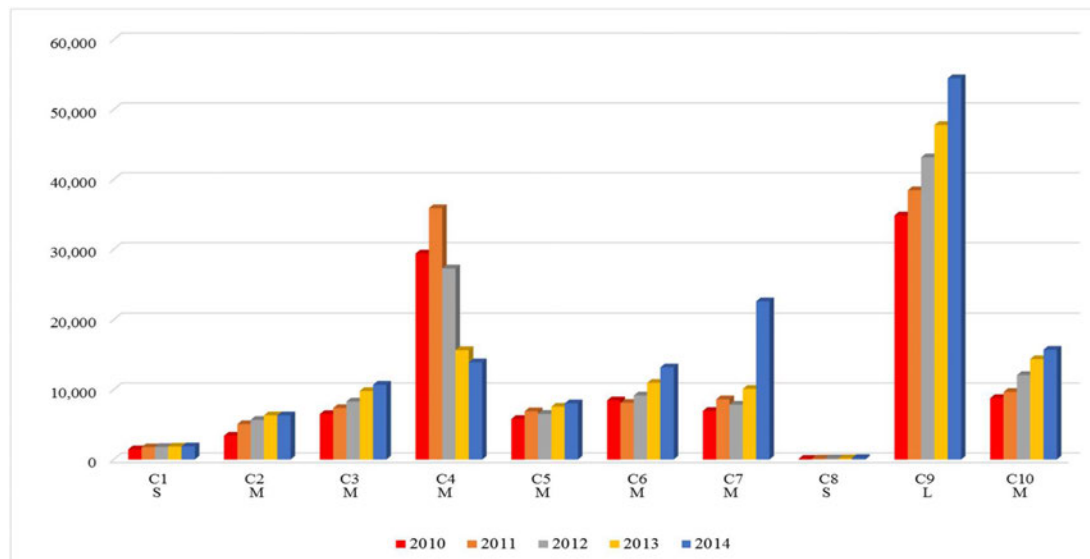
The notation C1 to C10 refers to companies 1 to 10 respectively, since most of the companies requested to be anonymous and did not want their company's name mentioned in the study. Where a company nominated two representatives, a notation R1 and R2 is used to represent two nominees. Throughout the thesis, nominees from the companies are referred to as "interviewee(s)".

6.2.1. Financial performance of the companies

The annual turnover of the participating companies between 2010 and 2014 was used as a proxy indicator of the size of the companies. The annual turnover also indicated the financial performance of the companies over the same period (2010 to 2014).

The choice of the period 2010 to 2014 is supported by the following four reasons: Firstly, King III was launched in 2009, replacing its predecessor King II (2002). Having already adopted King II, the JSE listing rules were updated to effect King III. As a rule, listed companies had to immediately comply. Secondly, the JSE rules require all companies to report any non-compliance and publish a disclosure to that effect in their annual reports or on any other platform. A review of the annual reports post 2009 indicated that all companies had effected compliance with the new King III code. Thirdly, a five-year period was found as an accepted time frame for organisations to review newly implemented strategies and changes within their organisation. Fourthly, the study had a limited time period to be completed from initial registration in 2010 to final completion in 2016/2017. The time frame of 2010 to 2014 was thus selected as an acceptable time frame for the researcher to accomplish the research.

The financial performance over the period indicates the growth of the companies over the five-year period of 2010 to 2014. Figure 6.2 is a graph illustrating a comparison of the financial performance and growth of the ten companies over the period 2010 to 2014.



Key: S=Small, M=Medium, L=Large

Figure 6.2: Turnover of participating companies from 2010 to 2014

The data and information used to compile the graph in Figure 6.2 was obtained from three official sources: the financial statements of the companies published on their websites, the JSE Stock Exchange News Services (SENS), and Sharedata. The SENS is the JSE official information dissemination system which is accessible online and Sharedata is a website that focuses on JSE listed companies and provides direct information on their financial and market performance, and other facts and figures. Sharedata is a certified source of information for investors (www.Sharedata.com).

It is evident from Figure 6.2 that companies C4 and C9 had high turnovers. This study therefore considered these two companies as relatively large companies compared to the others. Companies C1 and C8 had the smallest turnover and were considered as small companies. The other companies were considered as medium size companies.

With the exception of C4, all the companies showed positive growth over the five years under review. Company C4 experienced a decline in the last three years. Company C4's turnover in 2014 was lower than that of company C7 which is the study rated a medium size company. Company C9 had the largest turnover year-on-year over the five year period. However, during this period, each of the companies experienced varying growth year-on-year. To compare the overall growth of the companies, their average percentage turnover over the period was computed and used to compare the overall growth per company over the period 2010 to 2014. Figure 6.4 shows the average percentage growth in annual turnover per company over the five-year period.

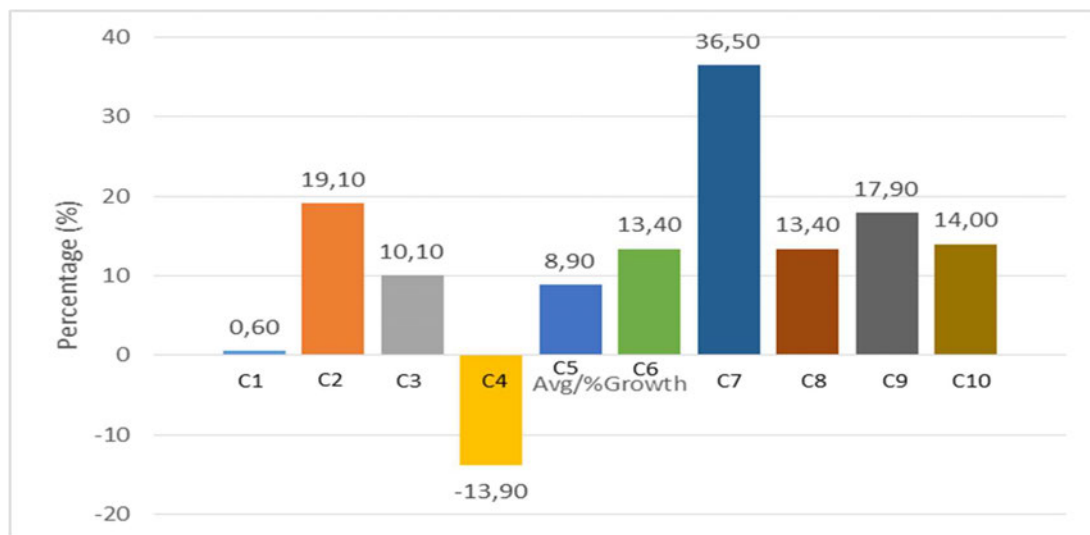


Figure 6.3: Companies' average percentage growth from 2010 to 2014

Figure 6.3 shows that all the companies, except C4, experienced positive percentage growth in turnover over the period 2010 to 2014. Good corporate governance improves organisational performance whilst organisations with effective IT governance outperform their peers. It is thus important to understand the performance patterns of these organisations over the reviewed period. Over the period, C4 reported pursuit of a new strategy into Africa with a focus on re-strategising and expansion of its operations. The company hence experienced a decline in turnover within that period. On the other hand, company C7 reported several acquisitions under a diversification strategy within the period and thus experienced the largest growth over the period. Diversification and expansion are both growth strategies that signify improved organisational performance. Thus, whilst this signifies good corporate governance, the effectiveness of their IT governance is assessed later in this chapter.

6.2.2. Classification of participating companies

Based on their annual turnover year-on-year (Figure 6.2) and their average percentage growth in turnover (Figure 6.3) over the five-year period. The ten companies were classified into four groups of companies: large, medium, small and least/challenged companies. The three companies, C2, C7 and C9, were considered as the companies with the highest average percentage growth over the period under review, followed by C6, C8 and C10 as the medium growth companies, then C3, and C5 as the small growth companies. Company C1 and C4 were the companies with the lowest growth and were challenged companies considering their negative and low average turnover respectively over the period. Table 6.2 captures the summary of these classifications.

Table 6.2: Total turnover growth classification

2010 - 2014	High	Medium	Low	Least/Challenged
Total turnover	C4, C9	C2, C3, C5, C6, C7, C10	C1, C8	
Average percentage growth turnover	C2, C7, C9	C6, C8, C10	C3, C5	C1, C4

The two comparisons presented in Table 6.2 indicate that not all the companies classified as large companies are necessarily also high growth companies. However, C9 is large and was

one of the ten companies with the highest growth. Company C4, on the other hand, although it had a high turnover, it also had a declining growth over the period under review. Companies C2 and C7, both with medium turnover, experienced high growth in turnover during the period. Similarly, C8 had low turnover but experience high growth in turnover during the period. C3 and C5 had medium total turnover but with low turnover growth. C10 may be considered as consistent with medium turnover and medium average turnover growth. C1 may also be considered as consistent with a medium total turnover and least (small) turnover growth.

Whilst the intention was to further classify the ten participating companies by industry and number of employees, the nature of the listing of these companies made this impossible or complex. Some of the complexities include: international listing of some of the companies with multiple international subsidiaries; use of holding companies with few employees but with high revenues; operations and interest in multiple industries; and cross shareholdings. Also, due to the agreed confidentiality clause, the details of these companies cannot be divulged. Thus, classification based on annual turnover rather than just turnover was considered to be a better and more informative way to classify the ten companies.

How these financial reports relate to IT governance oversight within these organisations is reviewed and discussed in Chapter 8. Also, assessment of board level IT governance across the classified groups can provide insight of any differences in the way such boards govern IT.

6.2.3. IT position and reporting lines

Positions held by interviewees included both executive and non-executive positions but with IT governance and overall corporate governance responsibility. Forty-four percent of the interviewees were CFOs with executive level responsibility for IT within their company. This is an indication that most IT functions report to the CFO. This was backed by interviewees' responses indicating that their IT functional leadership reports to the CFO who then reports to the CEO. The IT functional leadership reporting lines of interviewees is provided in Table 6.3.

Table 6.3: IT function reporting line

IT direct report	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
CEO		✓					✓		✓	
CFO			✓	✓	✓	✓				
Other	✓							✓		✓

As shown in Table 6.3, only 30% of the interviewees indicated that their IT leadership reported directly to the CEO. Forty percent of interviewees' IT leadership reported to the CFO and the remainder reported to other executives. The line of reporting of IT leadership in these organisations indicated the position of the IT function within the organisation. IT leadership that reports directly to the CEO has an executive level IT leadership and an IT function that is independent of the CFO. De Haes and Van Grembergen (2009) found that executive IT leadership that reports to the CEO is positioned among the top eight minimum baseline requirements for effective IT governance implementation in an organisation. IT leadership that is closer to the CEO is able to influence and communicate the importance and impact of IT better to the CEO and subsequently to the board (Ferguson, Green, Vaswani & Wu, 2013; Sohal & Fitzpatrick, 2002). A 30% executive level positioning of IT leadership does not meet the literature findings and recommendations of corporate governance codes. However, the tradition of the IT function being part of the Accounting and/or Finance department seems to still have an influence on current organisational structures and thus IT and CIOs still report to the CFO as head of the Accounting and Finance department.

6.2.4. Board structure of participating companies

Organisations are directed and controlled by boards as mandated by law, which in South Africa is the Companies Act (2008). As listed companies, the JSE rules mandate the adoption of King III. Both the Companies Act and King III require various board structures to assist the board in performing its oversight duties.

The size (members) of a board of an organisation is determined by discretion of the board enshrined in the organisation's MOI. According to the literature, what constitutes an ideal board size has been contradictory (Ogechie 2012; De Andres & Vallelado, 2008; Brown & Caylor, 2006). Large boards have been credited with higher diversity of skills and competencies but have been found to be difficult to control, take longer in making decisions

and lack participation from all members. Smaller boards on the other hand have been credited with quicker decision making and participation by all members but found to be weak as they lack adequate skills and competence (Alagathurai, 2014; Ogechie 2012; De Andres & Vallelado, 2008; Brown and Caylor, 2006). The right size of a board is thus a compromise to be made by the board in terms of having a balance of skills and competencies within a reasonable board size (Ogechie 2012; De Andres & Vallelado, 2008). According to the literature, an average board size should be between 12 and 17 members (De Andres & Vallelado, 2008; Brown & Caylor, 2006). Based on these findings and a review of the board sizes of the participating companies, the following classification was adopted as appropriate and befitting the study: a board size of equal to or greater than 12 (≥ 12) members was classified as large, a board size between nine and 11 members was classified as medium, and a board size of less than or equal to eight (≤ 8) members was classified as small.

Table 6.4 presents the board size and structure of the participating companies. The information presented here was obtained at the end of the five-year period; companies' 2014 annual financial report. A review of the 2014 annual financial reports of the participating organisations provided their board structure and composition. However, two companies did not provide information on their board members and hence the two companies were exempted from any analysis relating to board member characteristics.

Table 6.4: Board structure of participating companies

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
Board size	8	11	10	15	13	14	11	7	11	12
Majority independent non-executives	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Chartered accountants	?	Y	Y	Y	N	Y	Y	Y	Y	Y
Risk committee	C	Y	C	Y	Y	Y	Y	C	Y	Y
Audit committee		Y		Y	Y	Y	Y		Y	
IT governance oversight delegation	C	R	E	A	R&A	A	A	C	R	R
Board diversity	?	Y	Y	Y	Y	Y	Y	Y	Y	Y

Key: Y=Yes, A=Audit committee, B= Board, C=Combined audit & risk Committee, E=CEO, R=Risk committee, N=No, ?=unknown.

The findings in Table 6.4 yielded the organisations' board size classifications as follows: 40% large board size organisations (C4, C5, C6, C10), 40% medium size (C2, C3, C7, C9)

and 20% small board size organisation (C1, C8). Regarding mandated and recommended board committees, all the companies complied with the following: the presence of an audit committee and/or risk committee, a majority of independent non-executive directors, and delegation of IT governance oversight to the audit committee and/or risk committee.

Company C5 has one committee functioning as a risk and audit committee and delegated with IT governance oversight. Company C3 delegated IT governance oversight to the CEO. The setup of a single board subcommittee to function as both a risk and audit committee is consistent with King III. According to King III (2009), having separate risk and audit committees requires resources and board level capacity and thus small organisations may opt to have a combined committee. Also, the delegation of IT governance oversight to a structure other than a board subcommittee is consistent with the literature and existing practice.

Based on the recommendation of having a majority of independent non-executive directors on the board, with the exception of two companies, all the other companies had $\geq 50\%$ majority independent non-executive directors on the board. This is in compliance with recommendations made by King III (2009) and most of the corporate governance codes covered in the literature. The reason given by the various codes for having a majority of non-executive directors is to have divergent views on issues and to facilitate rigorous deliberation on matters for effective decision making. Two companies had 45% of their boards made up of independent non-executives; this may be considered marginal to the recommended majority of $\geq 50\%$. Reasons were requested from these two organisations to give clarity. One interviewee of the two organisations reported that the organisation was going through a transition phase due to acquisition and restructuring and would subsequently review its board composition. The other organisation, however, justified the composition. The organisation is an engineering company that is driven by innovation for new product design, research and development. The board thus required directors with engineering and related expertise on the board.

6.2.5. Board composition and diversity

The annual financial reports of the ten participating companies provide information of their directors' qualifications, past work experience and the competence each director brings to the board. The assessment of the qualification of board members and classification of their field of expertise are presented in Figure 6.4.

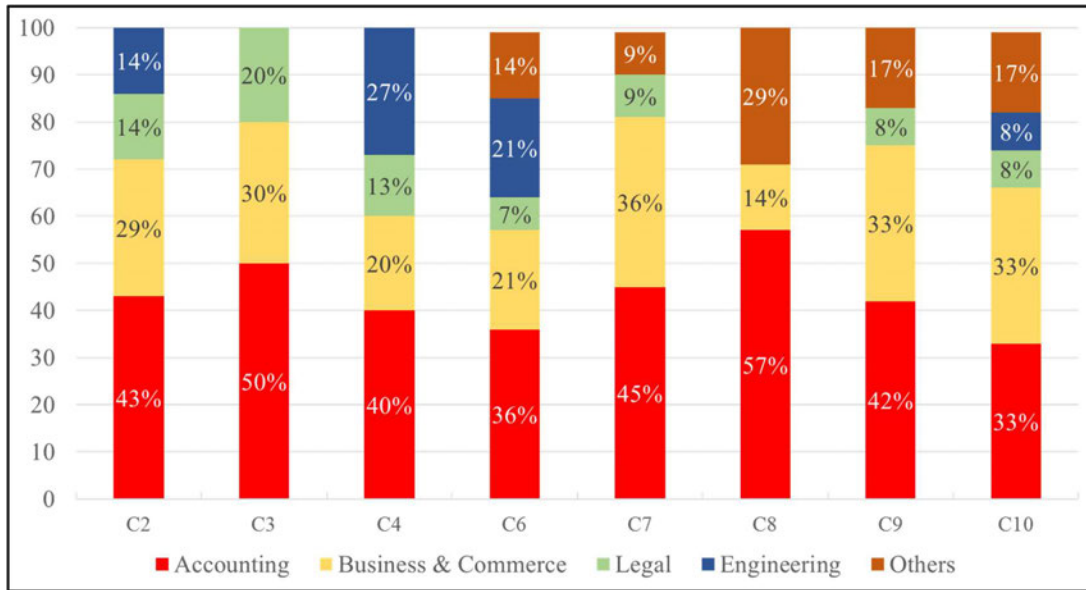


Figure 6.4: Board composition of participating companies

The findings confirm the diversity of professionals on the boards. Within the diversity, chartered accountants dominated the boards with up to about 57%. Their dominance on the boards may be attributed to the still dominant shareholder focused model of corporate governance in South Africa. Although the Companies Act of 2008 (RSA, 2008) and King III (2009) both emphasise the enlightened shareholder model of corporate governance, the primary interest being pursued is still that of the shareholder. The focus of organisations is to achieve returns, mainly financial, on the shareholders' investment. Having the appropriate professionals with accounting and financial skills on organisation's board therefore seems befitting.

The other qualifications and related skills across all the boards (excluding the two without such information) are business and commerce, followed by legal and engineering. This composition of business, commerce and legal qualifications is indicative of business management and compliance skills which are befitting to the basic requirement for organisation oversight. Engineering and other were specialist skills required due to the industry and nature of the organisation's operations.

6.2.6. IT skills on the board

To determine the IT skills on the boards of the participating companies, the qualifications and a brief biography of the board members posted on their websites and published in their annual financial report were reviewed. Some of the major qualifications of members are presented in Table 6.5. The brief biography of board members did not reveal information about prior IT work or related positions.

Table 6.5: Top ten academic qualifications of board members of participating companies

Qualification	No.	Percentage (%)
Bachelor of Commence	36	24%
Chartered Accountant (South Africa)	36	24%
Bachelor of Arts	32	21%
Bachelor of Science / Masters of Science	21	14%
Bachelor of Accounting Sciences in Financial Accounting	9	6%
Bachelor of Law	8	5%
Bachelor of Accounting	4	3%
Bachelor of Science in Engineering	2	1%
Diploma in Mechanical Engineering	2	1%
Baccalaureus Procurationis (South Africa).	1	1%

The dominant qualification on the boards are BCom degrees and CA(SA) professional certifications. According to the literature, professional skills required on a board are determined by the board itself. Most of the codes of corporate governance also state that the board needs to determine what skills they require (King III, 2009; UK Code, 2012). However, it appears that boards have not heeded the recommendation to determine and include the relevant IT skills and competence.

As shown in Table 6.5, the closest qualifications to IT are the BSc/MSc qualifications which are technical science degrees that may have some IT components depending on the elective taken for the degree. IT-related qualifications, past experience and skills are thus missing on the boards of these companies.

6.3. THEMATIC ANALYSIS

The detailed thematic analysis carried out and the various themes and subthemes derived have been described in Section 5.7 of the methodology chapter. A model of how the themes and subthemes relate to each other and to the central phenomenon of IT governance was presented in Figure 5.5. The themes and subthemes were then aligned to the factors within the research framework and are presented in Table 6.6 below.

From the alignment established and presented in Table 6.6, the themes are directly considered as the research framework factors whilst the subthemes are considered as the variables of the factors. This alignment was used as the basis to assess the nature of a possible association between the variables representing each research framework factor and the central phenomenon of IT governance effectiveness. Each of the subthemes as variables of the research framework factors are analysed in the following sections.

Table 6.6: Research themes and subthemes

Research framework factors	Themes and Subthemes
IT leadership types	<ul style="list-style-type: none"> • IT Leadership: Executive & Non-executive IT Leadership; Board access
Influencing factors	<p><u>Internal Factors</u></p> <ul style="list-style-type: none"> • IT Risk exposure level • Organisational culture • IT Role & use characteristics • IT Strategic alignment • IT Capital expenditure & budget • Board leadership in IT governance <p><u>External Factors</u></p> <ul style="list-style-type: none"> • Respond to external environmental trends • Legislative requirements and compliance • IT-driven brand equity • Business exposure and vulnerability
IT governance implementation features	<ul style="list-style-type: none"> • Evidence of instituted King III ITG principles • IT governance frameworks existence • IT investment choices and returns
Control mechanisms	<ul style="list-style-type: none"> • IT steering committee • Board IT oversight effectiveness • IT policies, procedures and practices • IT governance assurance – internal and external assurance
Capabilities	<ul style="list-style-type: none"> • Board subcommittees • Non-executive IT insight and exposure • Need for IT governance guiding frameworks • Board executive and non-executive IT skills and competence • Governance awareness at executive level
IT value attained	<ul style="list-style-type: none"> • Non-tangible aspects of IT value • Tangible IT value • IT as cost and expense

6.3.1. IT leadership

The IT leadership theme had subthemes which emerged as sub-components of IT leadership within the organisations. These three subthemes are presented in Table 6.7. The subthemes describe the nature of IT leadership within the organisations. The nature of IT leadership specifies the position of IT leadership, its direct report and access to the board. From the subthemes, IT leadership may either be an executive position or a non-executive position and may have access to the board. As specified in Table 6.7, the majority (70%) of IT leadership comprised non-executives (i.e. seven out of the ten companies), and of those, one (i.e. 14%) had access to the board. However, all three executive level IT leadership had access to the board – thus constituting 40%.

Table 6.7: IT leadership subthemes

IT leadership types	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	Total
Non-executive IT leadership	✓		✓	✓	✓	✓		✓		✓	7
Access to the board		✓			✓		✓		✓		4
Executive IT leadership		✓					✓		✓		3

Key: ✓ = presence of IT leadership type in that organisation

Based on the analysis of responses from participants, executive IT leadership mostly had the designation CIO and they reported directly to the head of the organisation, the CEO. Non-executive IT leadership had designations such as IT manager and they reported to the CFO.

On IT governance-related matters, the executive IT leadership reported directly to a board level subcommittee established by the board and delegated with IT governance oversight responsibilities. Board level established subcommittees delegated with IT governance oversight responsibilities were mainly audit committees and risk committees. Other similar committees mentioned by interviewees were risk and sustainability committees, and risk and safety, health and environment committees.

In companies with non-executive IT leadership, the CFO, being the direct report of the IT manager, reported on IT governance-related matters to the prescribed board level subcommittee that is delegated with IT governance oversight responsibilities. The majority of the interviewees indicated having non-executive IT leadership and hence the CFO emerged as the executive level reporting structure responsible for IT leadership in most organisations.

“I am the person IT reports to, I am the Financial Director of the group, I am on the executive board, I am the one that make the decisions...”. (Interviewee C1)

“We have a CIO, who reports to me, the CFO”. (Interviewee C4 r1)

“... the CFO is the executive that represents IT at the board level. (Interviewee C5)

In response to why their companies positioned the IT leadership as an executive level responsibility, interviewees indicated that their companies considered IT as a strategic enabler of the organisation’s operations. IT therefore facilitates attainment of their organisation’s strategic goals. A similar response was received from an interviewee from a company with a non-executive IT position. However, interviewees in both situations indicated that because IT is a strategic enabler, both executive and non-executive leadership had access to the board when called upon to present to the board on various IT matters. Interviewees indicated that when their board had requested clarity on matters like justification for IT investment, social media, cybercrime, hacking and other contemporary IT developments, the IT leader had to be invited to present to the board.

From analysis of the subthemes on IT leadership, the finding was that, where organisations consider IT as a strategic enabler, the board was responsive in seeking IT-related input directly from the IT leadership irrespective of it being an executive or non-executive level position.

6.3.2. Internal influencing factors

The subthemes that emerged in alignment with internal influencing factors of IT are presented in Table 6.8.

Table 6.8: Subthemes of internal influencing factors

Internal influencing factors	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	Total
IT role and characteristics of usage	O	S	O	E	O	I	S	D	E		
IT capital expenditure and budget	X	✓	X	✓	✓	✓	✓	✓	✓	✓	8
Board leadership in IT governance	X	✓	X	✓	✓	✓	✓	✓	✓		7
IT strategic alignment	X	✓	X	✓		✓	✓	✓	✓		6
IT risk exposure level		✓			✓	✓		✓	✓	✓	6
Organisational culture		✓				✓	✓		✓		4

Key: ✓=significant, X=not significant, D=differentiator, E=enabler, I=integrator, O=operational, S=strategic

As indicated in Table 6.8, six subthemes emerged in alignment to internal influencing factors of board level IT governance.

6.3.2.1. Role of IT and its characteristic usage

The role of IT in an organisation is determined by the purpose of its use within the organisation. Interviewees indicated four main uses of IT within their organisations, classified as follows:

- Operational tool for financial and performance reporting.
- Operational efficiency.
- Competitive differentiator and strategic driver.
- Customer value added and services.

An interviewee indicated that “IT is an operational tool that runs in the background which is purely used to record and report our financial information”. According to interviewees, the operational use of IT is to streamline their organisation’s processes to achieve high level operational efficiency. In achieving high levels of operational efficiency, they are able to improve on the quality of their products and services and also reduce operational cost. With the use of IT in their operations, interviewees indicated that they are able to generate more accurate information for reporting which is needed by their executive management for decision making.

Some interviewees noted that without IT, it would be impossible to run the operations of their companies. According to these interviewees, IT is required due to the complexity of their organisational operations and the high level of automation.

An interviewee indicated that IT had been used to create differentiating services that had enabled their organisation to provide unique services and products to clients. This was captured verbatim as "... we have transitioned ourselves such that we do use IT over and above that as a differentiating factor in securing clients" (*interviewee C8 r1*). Another interviewee also indicated that their organisation had used IT as a strategic driver in providing strategic solutions that had enabled them to improve customer dependency, loyalty and satisfaction.

Interviewees indicated that their boards recognised the role of IT in the organisation and their boards seek assurance from management that IT is being appropriately used and enabling the achievement of expected returns. This is in response to King III (2009) Principle 5.4, that the board must ensure that management IT acquisition, deployment and delivery directly impact the organisational objectives or goals.

6.3.2.2. IT capital expenditure and budget

Interviewees indicated that their boards' oversight of IT investments went beyond just ensuring ROI. According to interviewees, their boards acknowledge the expensive nature of IT investments and require assurance from management that the IT investments are in line with a business strategic objective or have strategic intent. An interviewee reported that "... as far as being an investment, I think the board acknowledge that any investment in IT is obviously an expensive investment and they would want to understand what the company's strategy is around making that investment" (*interviewee C9 r1*).

Some interviewees indicated that their boards' IT investment oversight had saved their organisations from potential financial distress. Interviewees referred to occasions when the board had put a temporary suspension on an IT investment due to financial constraint faced by the organisation. An interviewee indicated that the board's decision to suspend further IT expenditure enabled their organisation to maintain a sustainable financial situation during the challenging economic times.

According to interviewees, whilst IT investment may have to be justified against strategic goals and returns on investment, such a rigid approach may deprive the organisation of some significant opportunities. The interviewees reported that a board needs a different mindset when making decisions relating to IT investments with no direct financial measure such as ROI and the like. An interviewee referred to investments with no direct ROI as “emotive investments”. The interviewee indicated that

“... it is not just a board mind-set but it is an executive mind-set as well, ...that there is a lot of capital expenditure that you cannot motivate on a pure ROI or pure cost outlay basis...., very often those investments are accepted on those basis that they might not have a measurable ROI...” (Interviewee C9 r1).

According to the literature, IT investment decisions have been driven and motivated by financial indicators such as ROI, profitability, ROA and other such indicators (Parfitt & Tryfonas, 2009; ITGI, 2006; Weill & Ross, 2004).

6.3.2.3. Board leadership in IT governance

Many interviewees indicated that whilst their boards have taken leadership in IT governance, there have been some challenges. An interviewee indicated the need for IT leadership that is able to present to the board an “IT master plan” detailing how the IT strategy aligns or enables the business strategy. According to the interviewee, this is needed so that the board can understand how IT strategically enables the business.

Interviewees stated that their boards required adequate skills to better comprehend IT-related matters to enable them to make well-informed decisions in effecting IT governance oversight. According to one interviewee, having the right skills on their board would enable the board to deal more effectively with IT strategic opportunities and be able to make the right oversight decisions (*Interviewee C2 r1*).

According to some interviewees, deliberation on IT-related matters has been rather brief and their boards have depended on executive committees to provide decisions on IT matters for the board’s endorsement.

However, on the positive side, one interviewee (C4 r1) indicated that their board exhibited leadership and has been supportive of the executives in pursuing the organisation’s strategic goals. The interviewee indicated that “They (the board) have always been very supportive”

mainly because the board has requisite IT skills and has thus participated constructively in deliberations on IT-related matters before making decisions.

It is evident that whilst boards have taken leadership responsibility for IT governance oversight, they have been challenged; there is low IT skill and comprehension of IT-related matters and they have been dependent on the executive committee to provide decisions on the IT-related matters.

6.3.2.4. IT strategic alignment

According to an interviewee, it is important for the board and directors to have a better understanding of the importance of IT and how it can be used in driving the organisation's strategy:

“The board needs to be proactive, need to be providing strategic guidance, as well as [the] Executive Committee (ExCO) ...” on how IT should be utilised [and] managed within the organisation. Accordingly, “... it is important to have the alignment of the IT strategy to the business strategy” that “allow(s) a “clear and consistent alignment between planned and initiated IT” projects. (Interviewee C10)

Interviewees indicated that it is important for the board to take time to understand the organisation's strategy and how IT should be utilised in enabling the strategy. Interviewees indicated that in most cases, their organisation's IT strategies have enabled the organisation's strategy. Their IT strategy follows the business strategy and thus ensures that the IT strategy formulation process is not taken for granted. Hence, according to interviewees, their organisations' strategic IT investments are scrutinised by their boards to ensure that IT strategies do enable business strategies. The interviewees also indicated that their boards' effective IT governance oversight of IT investments has ensured that IT capacity exists within the organisation in support of the business strategy and its attainment. Interviewee (C9 r1) agreed as follows:

“So to the point that our IT systems and our IT executives fully appreciate that if the company was going to embark on a strategy which they could not support, they are very quick to point out, we have got limitations”. (Interviewee C9 r1)

Furthermore, interviewees indicated that their boards are able to monitor implementation of the approved IT investments either directly or through other appropriate board structures:

“We don’t talk about all the projects, we probably at any time have 30 or 40 projects running. Just the major ones that are high value high capital...”
(Interviewee C6)

Overall, interviewees captured the importance their boards attach to their oversight assurance of IT strategic alignment with the business as:

“It [IT] should be high up on the agenda to look at how we are going to use this [IT] more effectively to gain market share”. (Interviewee C2 r1)

“We start off with a business strategy of which IT is a part of”. (Interviewee C9 r2)

IT strategic alignment as reported by interviewees involves the board’s understanding of IT and how it is used to drive the organisation’s business strategy. It also involves assessment of their organisations’ existing IT capacity, evaluated and approved IT strategic projects and monitored implementation to ensure successful attainment of intended goals. According to Chan and Reich (2007), business and IT strategic alignment leads to increased business performance.

[Quantitative analysis in Chapter 7 and the discussions of the findings provide some measure of the impact of IT strategic alignment on organisational performance].

6.3.2.5. IT risk exposure level

Interviewees acknowledged the significantly high level of IT risk. According to one interviewee “... IT had a real risk profile that required a specific attention...” (interviewee C9 r1). The interviewee indicated that specific action was taken by their board to form a separate committee, the risk committee, which is a board subcommittee separated from the audit-committee, which is also a board subcommittee. Other interviewees indicated that their boards depend on their audit committees to effect IT risk assurance.

Another interviewee remarked on the high level of IT risk exposure to the organisation and its impact on the quality of information from the IT systems:

“... the risk inherent around IT perhaps a lot greater than a lot of us envisage initially and the risks are escalating and also ... risk around hacking, system stability, system quality as far as information output and the use of the system in its entirety”. (Interviewee C9 r1)

“IT risk might be among the top 20 risks in our risk register”. (Interviewee C7)

The use of internet and web-based tools in business operations and management presents further risk exposure to organisations. The level of the organisations' exposure to risk is further exacerbated as organisations adapt these new and advanced technologies. This was captured by one interviewee;

“... general concerns around IT risk and I suppose like a lot of IT risk they are very often new arising risk as opposed to old risk because as the IT platform keeps evolving so risk keep becoming identified...”. (Interviewee C9 r1)

Interviewees noted new IT risk exposure due to the rise in internet usage and identified cybercrime such as hacking and the need for information security.

The overall indication from interviewees was that there is high awareness at the board level about IT risk exposure to the organisation. The boards of companies have responded by delegating IT risk oversight to risk committees and audit committees, and trusted them with IT risk assurance.

6.3.2.6. Organisational culture

According to an interviewee, the governance of IT should be an integral part of the organisation's culture of doing things. The interviewee stated that “It [IT governance] must come naturally when you think about a new project, when you think about the returns, when you think of the risk, you think of the legal compliance...” and that “It is in the culture of the company whether documented or not...”.

According to most interviewees, their organisations' IT structures, policies and practices have been implemented in compliance with corporate governance requirements and practices within their organisation. Interviewees indicated the importance of instituting good governance within an organisation:

“We do it [governance] because it is good for business and is good for stakeholder relationships and ultimately we gonna get some value out of it ...”.
(Interviewee C7)

“ ... [governance] must be part of your practices that you develop as you grow your business...”. (Interviewee C9 r2)

6.3.3. External influencing factors

The interviewees indicated which factors outside the control of their organisations had been responded to. Subthemes were derived from this input and grouped under external influencing factors of IT governance by the board. This is presented in Table 6.9.

Table 6.9: Subthemes of external influencing factors

External influencing factors	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	Total
Legislative requirements	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
Trends in the external environment	✓				✓	✓	✓	✓	✓		6
Business exposure and vulnerability		✓					✓	✓	✓	✓	5
Brand equity		✓				✓					2

Key: ✓=significant, X=not significant

As indicated in Table 6.9, four subthemes were derived and each of these subthemes are analysed and discussed in the following sections.

6.3.3.1. Legislative requirements

Interviewees indicated that their boards have used internal and external audit processes to effect compliance with any IT-related legislation and regulations. For legislative requirements the boards have been proactive and requested management (executive committee) to provide evidence of measures instituted to ensure compliance. An interviewee reported that a board directive on the new Protection of Personal Information (POPI) Act of 2013 led to management response with an internal policy of POPI. The Act requires organisations to seek permission before collecting any data or information from any

individual or entity, seek permission to disseminate, store and protect that information, and be responsible for holding that information.

All interviewees indicated that their boards were effective in ensuring that management complied with all legislative requirements for both IT governance and corporate governance.

6.3.3.2. Trends in the external environment

Most interviewees indicated that their boards were aware of the potentially negative impact of IT risk on their organisations. They stated that organisations' increasing use and reliance on IT exposed them to a potentially negative impact on their organisation due to IT misuse either fraudulently or otherwise within or outside the organisation. Interviewees indicated that their boards are aware of new trends in technology such as the internet, cloud computing, cyber security and social networks and that they discussed them at board meetings. Most interviewees highlighted their boards' level of concern about the issue of social media and the long reaching effect on the organisation should things go wrong.

“So social media came up through the board, the whole use of the cloud came through the board, now its cyber security that is come through... So these things do get tabled from time to time as and when they are relevant or being applicable...” (Interviewee C6)

“So the modern evolution of IT technologies have created some interesting questions to be managed [by the board]...” (Interviewee C9 r1)

Interviewees stated that their boards demanded surety and evidence of policies that govern the use of social media. According to Interviewee C9 r1, “the board have definitely challenged management to be satisfied that those platforms have been addressed ...” and he said that users are aware that they will be held accountable for anything they post on social media. The company has therefore instituted measures for the board level to deal with social media issues that may negatively impact the organisation or its brand.

There is thus board awareness and effective oversight of the possible risk exposure and IT vulnerability to social media, the internet and the web, as presented in the literature (Spremic & Popovic, 2008; Loane, 2005).

6.3.3.3. *Business exposure and vulnerability*

Interviewees referred to their boards' concern about the organisations' state of readiness in response to business failure due to uncontrollable or unforeseeable external threats. According to interviewees, their boards focus on the availability of their organisations' disaster recovery plans and business continuity plans to sustain operations in the event of a disaster.

“We have a business continuity plan. We definitely are proactive about managing that risk....we had to look at our business continuity plan that has been an on-going thing”. (Interviewee C8 r1)

“The audit committee will worry about whether we're exposing ourselves to risks, they would worry about disaster recovery and all that stuff that and they will check that when the auditors check everything is right”. (Interviewee C10)

It was evident from interviewees that their boards are aware of the organisation's exposure to potential threat beyond their control and they thus ensure that management has disaster recovery plans in place for business continuity.

6.3.3.4. *Brand equity*

Regarding brand equity, interviewees indicated that their boards approved IT investment projects that aim to strengthen the value of the organisation's brand. They stated that the focus was on “brand” sustainability and building a positive brand image.

These boards' oversight of IT investment and development in support of their brand is an interesting finding and is thus discussed in more detail in Chapter 8.

6.3.4. IT governance implementation features

Themes that emerged as evident indication of implemented features of board level IT governance oversight are present in Table 6.10.

Table 6.10: Subthemes of implemented ITG features

Implemented ITG features	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	Total
Evidence of instituted King III ITG principles	X	✓	X	✓	✓	✓	✓	✓	✓	X	7
IT investment choices and returns	✓*	✓	✓*	✓	✓+	✓	✓	✓	✓	✓	7
IT governance frameworks existence	X	✓	X	P	✓	P	✓	P	✓	P	4

Key: ✓=significant, X=not significant, P=partly developed, *= executive level, += IT steering committee level

As indicated in Table 6.10, three subthemes emerged and each is analysed and discussed in the following sections.

6.3.4.1. Evidence of implemented King III ITG principles

Most interviewees indicated that IT governance is synonymous with King III which forms the basis of all IT governance implementation references. Interviewee C8r2 regarded King III is the leading governance code recognised by the board. Interviewee C3 said that King III is adopted as the accepted code of good corporate governance.

“Obviously the board recognises King III as one of the leading guidance standard on corporate governance and all those that relates”. (Interviewee C8 r2)

“It is just an accepted principle... we adopt the principles of King III ...”. (Interviewee C3)

Whilst King III is mandated by JSE listed companies, some interviewees indicated that it has just been adopted.

6.3.4.2. IT investment choices and returns

According to interviewees, IT investment can be very expensive and the associated risk of not realising the intended returns may be significantly high. Interviewees noted that IT capital investment or expenditure undergoes various levels of approval based on delegation of authority given to the executives and IT leadership. Interviewees reported that various levels of delegation and authorisation limits exist and are approved by the board. The three main levels of delegation reported are that of the IT leadership, the executives and finally the board.

“...the whole budget is approved by the board including the IT budget”.
(Interviewee C2 r2)

“...certain levels of expenditure is delegated to the financial director and group CEO...” (Interviewee C8 r1)

“Over a certain amount (x), that particular project will be expected to get to the board. If it falls below that amount it gets delegated to the executive committee and below that level the divisional execs and cascades down to the lowest level, so you have different tiers based on the value and the appropriate board is expected to approve that”. (Interviewee C7)

However, the majority of the interviewees indicated that their boards approved IT investments and that policies and guidelines are in place for the delegated authority to follow. Interviewees reported the use of best practices and recommended IT governance principles for IT investment decisions.

6.3.4.3. IT governance framework existence

Interviewees reported the use of some existing IT governance frameworks like King III, Cobit and ITIL as guidelines in effecting IT governance and management. They indicated that these frameworks are not implemented in their entirety but that aspects of them are adopted to provide input to their own in-house developed frameworks. The following quotes indicate the nature of the existing IT governance frameworks:

“One cannot just blindly apply Cobit to the tee or even King III to the tee, just because it is written there...” (Interviewee C9 r2)

“It is based on King III and Cobit...” (Interviewee C10)

“I think we have enough now and we will end up with pieces of Cobit, pieces of ITIL, pieces that are mapping to all that...” (Interviewee C4 r2)

According to interviewees, their in-house developed frameworks have been adopted and approved by their boards (interviewees C9r1). Clearly, organisations have developed best fit IT governance frameworks in-house driven by King III and with their boards' approval.

6.3.5. IT governance control mechanisms

The subthemes that emerged in alignment with the control mechanisms implemented to effect board level IT governance oversight are presented in Table 6.11.

Table 6.11: Control mechanism subthemes

Control mechanism	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	Total
IT governance assurance -Internal and external assurance	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
Board IT oversight effectiveness	X	✓	X	L	✓	✓	✓	✓	✓	L	6
IT policies, procedures and practices	P	✓	P	P	✓	✓	✓	✓	✓	p	6
IT steering committee	X	✓	X	✓	✓	✓	X	✓	X	X	5

Key: ✓=significant, X=not significant, P=partially completed, L=low

As indicated in Table 6.11, control is effected through structures, policies, procedures, practices and competences at the board level. These guide the board in their IT governance oversight responsibilities.

6.3.5.1. IT governance assurance - Internal and external assurance

Interviewees indicated that their organisations' internal controls are effected through their internal audit processes. These internal controls seek to ensure compliance with policies and frameworks; compliance to King III is regarded as a measure of compliance to IT governance oversight practice. Interviewees also indicated the use of other external tools to assess compliance to IT governance principles.

“We sit down and go through the King III requirements and we utilize tools developed by the Institute of Directors, [a] corporate governance assessment instrument...”. (Interviewee C8 r1)

External assurance processes are undertaken by external entities to the organisation. Interviewees mentioned the use of external consulting companies and professionals such as Deloitte, Ernst & Young, KPMG, and PWC. These entities provide an independent and objective view regarding the assessment of IT governance within the organisation.

“... all our internal general controls are audited by PWC our auditors and IT is covered extensively in those audits”. (Interviewee C7)

This, according to interviewee C2r2, provides confidence in the IT governance assurance to the board.

Interviewees indicated the effective use of board subcommittees and external assurance services has enabled their boards to achieve IT governance oversight. They stated that the boards ensure that these committees comprise people with the requisite skills.

“... it [the board] delegates the responsibilities to these sub-committees and it puts people with the requisite skills to sit on these committees”. (Interviewee C6)

“And they (the board) put their trust in the sub committees ...”. (Interviewee C4r1)

The finding indicates that the board subcommittees and structures should be skilled and adequately resourced to deliver to the expectation of the board. However, it is the board’s responsibility to ensure that.

6.3.5.2. Effectiveness of board IT oversight

According to the interviewees, IT governance is mainly delegated to the risk committee and the audit committee (including combined committees like the risk and sustainability committee and the risk and audit committee). Interviewees noted that whilst the risk committee focuses more on IT risk-related matters, the audit committee deals with all aspects of IT governance processes and structures that exist within the auditing process. Interviewees reported that risk committees report to the audit committees and board.

“...it [the board] looks more to the audit committee and indirectly to the risk committee...” “The audit committees to report more holistically on IT governance. “The audit committee is specifically look at IT risk from IT governance and control perspective ...” (Interviewee C6).

Evidently, boards have delegated IT governance oversight responsibilities to their subcommittees, mainly the risk and audit committees. Whilst interviewees did not report on the effectiveness or otherwise of this arrangement, one interviewee said that the board should be directly responsible rather than delegate:

“... fundamentally IT governance oversight needs be more of the conversation around the strategy of the company, ... And generally IT governance should be

discussed more with the board than just limited to one of the sub committees of the board”. (Interviewee C9r1)

Whilst codes of corporate governance recommend and advocate for board committees to assist the board in various areas of its duties, the final decision and accountability still resides with the entire board and not the committees (RSA, 2008; King III, 2009; UK Code, 2012).

6.3.5.3. IT policies, procedures and practices

Most of the interviewees stated their boards obtain assurance from management for the existence of IT policies that ensure IT risk is managed effectively. The role of the executives and management is to have procedures in place to implement these policies.

The following responses indicate how the board directs the development and implementation of IT policies:

“Our policy is not to be on the cutting edge in terms of all the technologies available, we will follow rather than lead...”. (Interviewee C6)

“... we eventually said let’s just get a snapshot of what we have got, the system that we’ve got... We then did an exercise which recommended that we standardize the [our] Enterprise Resource Planning system(s) [ERP]...”. (Interviewee C10)

The board therefore ensures that new policies are developed, approved and implemented to protect the organisation against any adverse consequences.

“We look at legislative requirement around IT, for example the company secretary raised an issue about POPI Act... Out of that (review) we came out with a POPI Act policy, then we also got IT governance and information security policy as well ...”. (Interviewee C6)

To ensure that the policies are complied with and not flouted, system controls are implemented within the IT networks and applications to detect and report any issues. To deter users from misuse, the policies inform them of the consequences of misuse of IT systems, as noted by the following;

“... we have got the detecting controls and there are consequences for those who flout the policy...”. (Interviewee C2 r2)

“...they have also got internal control matrices which they complete which is a similar assessment of the risk inherent in the system and how those risks are being addressed by way of compliance procedures...”. (Interviewee C9 r1)

Policies are communicated across the organisation and where necessary users sign to affirm their understanding and commitment to conform to the policies. So each user is liable for any misuse or breach of user policy.

“...the ethical aspect around social media, IT platforms, communications and responsibility that every employee inherently accepts when they elect to engage with the IT platform be it a simple email or just by whatever they post, there are policies in place to govern it”. (Interviewee C9 r1)

“...we have made it quite clear that your email is our property and their emails, so if we want to go in at any point in time and go through your inbox we can do that, we have certain people who can do that, basically from a security perspective if we doing an investigation..” (Interviewee C6)

Evidently, interviewees' boards direct policy development and their executives oversee its implementation. This is consistent with recommended best practices and principles (King III, 2009; ISO/IEC 38500, 2008; SOX, 2002).

6.3.5.4. *IT steering committee*

Responses from participants revealed the presence of IT steering committees and their level of authority:

“And then we have an IT steering committee which consists of senior members of management, the CEO, CFO, COO and the CIO ... The IT steering committee looks at (IT) strategy, strategy execution with regards to IT issues, risks associated with IT, ... And then together with the CIO, reports to the Risk and Sustainability committee which then provides feedback to the board”. (Interviewee C2 r2)

“The ITSC consist of business CEOs or their delegate their IT people, the auto carrier CEO comes, the bank IT comes, bank IT guy comes... It is at the ITSC that we make IT decisions. Effectively that is how we implement”. (Interviewee C4 r1)

“We have established an ITSC which is the recommendation of King III.. The ITSC has a TOR. It is not a subcommittee of the board but rather a management committee... It has a specific terms of reference (TOR) which is reviewed by the audit committee”. (Interviewee C6)

According to interviewees, their IT steering committees (ITSC) are mostly at management level comprising executives and business representatives. In one organisation it is called the “IT management committee”. These committees deliberate and discuss IT-related matters at operational and strategic level. Interviewees indicated that much more detailed deliberations take place at this committee than at the board. The IT steering committee has its terms of reference (TOR) reviewed and approved by the audit committee.

“The ITSC consist of business CEOs or they delegate their IT people... It is at the ITSC that we make IT decisions”. (Interviewee C4 r1)

IT steering committees are therefore significant structures that implement substantial aspects of IT governance on behalf of the board and its subcommittees.

6.3.6. IT governance capabilities

Responses on existing IT governance capability within interviewees’ organisations and at the board level were grouped into the subthemes presented in Table 6.12.

Table 6.12: IT governance capability subthemes

Capabilities	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	Total
Governance awareness at executive level	✓	✓	✓	✓	✓	✓	✓	✓	✓		9
Board subcommittees (strength & competence)		✓		✓		✓	✓		✓	✓	6
Need for IT governance guiding frameworks		✓		✓	✓	✓	✓		✓		5
Non-executive IT insight and exposure		✓				✓	✓				3
Board executive and non-executive IT skills and competence					✓	✓	✓				3

Key: ✓=significant, X=not significant, L=low

It was evident from the responses that there is significant governance awareness among executives of the participating organisations. Other capacities at the board level include subcommittees, assurance of the existence of an IT governance framework and the board's competence and skills in IT.

6.3.6.1. Governance awareness at executive level

Interviewees indicated that both executives and the board are fully aware of governance codes like the King III (2009). Executives understand the role of the board and what the board requires of them. One of the interviewees indicated that working with an executive team that is IT savvy enables the board to understand the risk exposure of IT and thus to make effective oversight decisions.

“We do keep them apprised of new, for example legislative changes and maybe yes when there is new technology we try and make them understand what this new technology is ...”. (Interviewee C8 r1)

However, some interviewees indicated instances where executives have been difficult to engage with on IT matters and have been more interested in short-term rather than long-term goals (Interviewee C9 r2).

“... But on the ground, at Exco meeting, the focus turns to be on the short term pay and gain not so much on the bigger picture ...”. (Interviewee C9 r2)

6.3.6.2. Board subcommittees

Interviewees reported that boards delegate IT governance oversight to the audit and risk committees. In most interviewees' organisations, IT governance has been delegated to the risk committee which then reports to the audit committee. The risk and audit committees report back to the entire board during scheduled board meetings. However, interviewees noted with concern, the lack of interrogation of these reports by the board. They said that, whilst the board has confidence in these committees and has ensured that the members are skilled, the board remains accountable and should interrogate the committee on reports submitted to the board. Some interviewees noted that boards have probably over delegated their IT governance oversight responsibility.

Interviewees indicated that the risk and audit committees are very well resourced and skilled in carrying out their IT governance oversight responsibilities.

6.3.6.3. *Need for IT governance guiding frameworks and practices*

According to interviewees, having some guiding frameworks and best practices to assist the board, executives and IT leadership on how IT can be acquired, implemented and maintained is very important. Interviewees stated that such guiding frameworks and best practices ensure sustainable IT implementation that adds value to the organisation. Whilst some interviewees indicated the use of existing best practice frameworks and codes, others have developed such frameworks in-house. Interviewees noted that existing IT governance frameworks had to be customised and aligned to their organisation's practices.

Where these frameworks have been developed in-house, interviewees indicated that it had been guided by existing best practices and frameworks.

“I think we have enough now and we will end up with pieces of Cobit, pieces of ITIL, pieces that are mapping to all that”. (Interviewee C4 r2)

“Basically it covers five or six elements and this is how we deal with those in the business and we then describe it ... So that is probably the closest you get to an IT governance framework in the business...”. (Interviewee C9 r2)

Interviewees said that, where in-house IT governance frameworks have been developed, existing frameworks have been used as guidelines to do so. This prompts the quote that “one IT governance framework does not fit all” (Sethibe et al., 2007). However, some of these in-house developed IT governance frameworks have received queries from external auditors regarding their completeness. Other in-house developed IT governance frameworks have been elusive about what the actual content should be and ended up with a mixture of several aspects from various existing guiding codes.

“The comment from the KPMG audit report is that although there is a high level IT governance IT framework and IT Strategic planning cases, these documents are not comprehensive in nature, they do not allow a clear and consistent alignment between planned and IT initiatives...”. (Interviewee C10)

“It is this elusive thing an IT governance framework ... And every time I ask anybody to give me an example I get an answer (that means nothing)” (Interviewee C9 r2)

So while IT governance frameworks are mostly being developed in-house, the indication is that their content and expected quality are still not well understood.

6.3.6.4. IT insight and exposure of non-executives

Many of the interviewees stated their non-executive board members are expected to have IT insight and experience of IT-related issues. Reasons given by interviewees include the following:

“So I think the board has quite a good cross section but on the balance, a good few of them have a much better appreciation of IT because of their past experience...So you have to appreciate that quite a number of our board members sit on other boards and are exposed to contemporary IT issues”.
(Interviewee C7)

“Well, I think we have a situation where the non-executive directors on the [C2] board have other boards. They sit on other boards, so it’s not something they doing for the first time. They have been exposed to it elsewhere... and they also bring the benefit, I think, of what is being done elsewhere ... based on other companies are doing”. *(Interviewee C2 r2).*

However, most interviewees indicated that their non-executive board members’ contribution to IT-related deliberation at board meeting is rather limited. Interviewees also indicated that IT-related matters are mostly discussed at board subcommittee meetings.

“So I think the board has quite a good cross section but on the balance, a few of them have a much better appreciation of IT because of their past experience”.
(Interviewee C7)

“... and it [the board] delegates the responsibilities to these sub-committees [being mainly non-executive directors] and it puts people with the requisite skills to seat on these committees”. *(Interviewee C6)*

Although all the boards of the participating companies have a majority of non-executive directors, most of these non-executive directors contribute very little to IT-related deliberations.

“There are one or two non-executives that add value... [but]... the non-executives do not bring to us how the land scape it going to change in the next 5years in terms of IT (Interviewee C4 r1)

6.3.6.5. IT skills and competence of executives and non-executives

Under the subtheme on IT-related skills and competence at the board and executive level, most interviewees indicated that these skills and competence among both executive and non-executive directors. Executives who do have IT skills and competence exist have contributed positively to the board deliberation on IT matters.

“... but none of the board members have ever been active in a primary IT role ...” and “... we try and make them understand what this new technology is...”. (Interviewee C8 r2)

Interviewees indicated that due to the limited IT skills and competences among executives and non-executives on their boards, the reports on IT matters tabled by the risk and audit committees are not adequately interrogated.

“... not enough expertise [IT] on the board to comment ...”. (Interviewee C3)

“... Exco does not have a huge appetite to get involved in IT ...”. (Interviewee C9 r2)

6.3.7. IT organisational value

Three subthemes were derived from interviewees relating to value obtained from IT investments and deployment. These subthemes are presented in Table 6.13.

Table 6.13: IT value add subthemes

Value add	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	Total
Tangible IT value		✓				✓	✓	✓	✓		5
Non-tangible aspects of IT value		✓		✓	✓	✓					3
IT as cost and expense	✓		✓	✓						✓	3

Key: ✓=significant

According to interviewees, IT value is either tangible or non-tangible. Some interviewees regarded IT as a cost or an expense and thus not having direct value to the organisation.

6.3.7.1. Tangible value

Interviewees cited measurable value to the organisation in instances where the employment of IT had yielded cost savings. An interviewee cited an instance where the use of new IT system highlighted the under-utilisation of their organisation's existing fleet of operating trucks, which led to the reduction in number of trucks to meet the required fleet capacity. This is a good example of the use of IT to achieve operational efficiency and cost savings. According to interviewees, their organisations' use of IT as an enterprise resource planning (ERP) system to standardise and simplify operations from sourcing through manufacturing and to distribution, led to significant cost savings.

However, interviewees noted that investments in IT systems such as the ERP system are expensive and have long-term payment implications. The board should critically review such investments before they are approved.

"We have seen in the last 4 or 5 years we have seen our cost of distribution has reduced each year ..." (Interviewee C2 r1)

"... streamlining your process is simplifying, standardizing would reduce your cost significantly over a number of years..." (Interviewee C10)

"There is some longer term direction which is been set in terms of what we want to do, and then each year the board will look at from implementation point of view what we are proposing for the period ahead ..." (Interviewee C2 r1)

Interviewees also cited various cases of innovative use of IT within their organisations that has led to the acquisition of new customers, retaining existing ones and providing added value services to customers. According to interviewees, the outcome of these innovations has translated to guaranteed revenue streams and growth which comprise tangible value to the organisation as a result of the use of IT.

The tangible value obtained from cost savings and new client acquisition and retention underscores the effective IT governance oversight. According to Weill and Ross (2004), organisations with effective IT governance oversight achieve higher return on IT investments and returns.

6.3.7.2. *Non-tangible aspects of IT value*

Interviewees' highlighted the significance of non-tangible value of IT to their organisations. They pointed out that their boards considered and approved IT investment projects that had no direct financial return on investment. This IT governance oversight by the board differs from the "old school" business models driven by tangible returns on investment.

"There has been a lot of IT spend where there is been motivated on what is the value add to the business, pure value, forget about Rands and cents, forget about ROIs or ROEs or any form of return matrices". (Interviewee C9 r1)

"The value comes from the information being delivered to support the decision making...". (Interviewee C7)

"The big value is therefore having timeous information, not necessarily data but information". (Interviewee C5)

"Another important area in the visibility of information is the business intelligence in the information IT facilitates and provides to the end user to make decisions". (Interviewee C7)

Furthermore, interviewees noted the value of information obtained from efficient IT systems that make it possible for the organisation to analyse and make informed decisions.

"Visibility of information to enable decision making... The value comes from the information being delivered to support the decision making ...". (Interviewee C7)

Interviewees stated that when the use of IT prevents or mitigates business risk, it indicates the value of IT to their organisations.

Other interviewees indicated that their organisations use IT to explore new business opportunities and to develop value-added solutions for the customers.

"We view IT and us being in the fore front as a differentiator from our clients we feel we have developed a system that our clients can use for the things that are new in our industry that's ahead of everyone else". (Interviewee C8)

“And again the IT enabler, the back office and all the evolution that is taken place in developing that software ... perhaps not so much cutting edge innovation, ...to some extent maybe just coping and tweaking what is already happening in other [competitor] environment but when you start seeing your own [organisation] being able to offer exactly the same solutions, I think you got to accept the fact that IT adds value”. (Interviewee C9 r1)

Some interviewees indicated that their organisation had no prescribed way of measuring non-tangible IT value. Whilst financial values like ROI and ROE have been used to justify financial value from IT projects, interviewees indicated that most projects are actually business projects with an IT component.

*“We do not have any structured system in place to measure the value of IT ... ”.
(Interviewee C10)*

“There is been a lot of IT spend where there is been motivated on what is the value add to the business, pure value, forget about rands and cent, forget about ROIs or ROEs or any form of return matrices... there is a lot of Capex that you cannot motivate on a pure ROI or pure cost outlay basis... that are not quantifiable in rands and cents”. (Interviewee C9 r1)

Interviewees indicated that IT is an essential resource to the organisation and a fundamental requirement to the existence and continuous operations of the organisation. Interviewees indicated that their organisations would not function efficiently or properly without IT.

*“We cannot operate one day without IT... we are completely dependent on the IT systems being operations and effective and the controls being in place ... ”.
(Interviewee C2 r2)*

“In today’s world, it is something you can’t do without.” (Interviewee C3)

“What would the value of the business be without IT? The difference [between having IT and not having IT] is the value of IT to the business”. (Interviewee C9 r2)

“Without our IT systems and without them being sustainable, reliable and the risk being managed, we wouldn’t function”. (Interviewee C2 r2)

According to an interviewee, IT has enabled the sustainability of their organisation. The interviewee highlighted the potential consequences to the organisation should IT systems fail. The leadership of organisations need to realise the importance of IT controls that effect IT governance in order to avoid business failure when IT fails.

IT value consideration by the board goes beyond tangible and financial return on the organisation’s IT investments. Boards also recognise and consider non tangible and non-financial returns on IT investments when effecting IT governance oversight with regard to IT investment. This finding indicates a shift in the board’s consideration of tangible and financial returns on IT investments as the sole basis of evaluating proposed IT investments (Shleifer & Vishny, 1997, Weill, 2004; Ho et al., 2011).

6.3.7.3. Cost and expense

Interviewees reported that IT is an operational expense, and considered as a fixed cost. According to an interviewee, IT is just an information tool to store, process and produce financial reports. This indicates that the interviewee does not see IT beyond the hardware and software.

The reason for considering IT as a cost and expense is discussed further in Chapter 8.

6.4. ABSENCE OF BOARD LEVEL IT GOVERNANCE STRUCTURE(S)

Although the literature recommends a board level subcommittee solely for IT governance oversight, the interviewees did not report the existence of any such board in their organisations. What they did report was that the audit committees and risk committees were the board level structures entrusted with IT governance oversight.

“In terms of the reporting through to the board so that the board can monitor IT and the risk associated with IT, we have the CIO reporting to the Risk and Sustainability committee which is a subcommittee of the main board”. (Interviewee C2 r2)

“The board delegates ITG responsibility to the Audit committee”. (Interviewee C4 r2)

It is clear that the recommendation by codes of corporate governance practices for a board level subcommittee solely for IT governance oversight has not been implemented by these organisations. This is in contrast to the findings of Weill and Ross (2004) and Pearlson et al. (2009) that IT governance structures such as IT councils and IT advisory boards exist at board level and form an integral part of corporate governance within such organisations.

6.5. OUTSOURCE CONCERN AND MANAGEMET

Some interviewees indicated that their organisations make use of IT outsourced services, that they have no internal IT leadership position and that the service providers assist with internal IT matters and provide advice where necessary. The CFOs in these organisations also fill the role of IT leadership.

The interviewees from organisations with significant IT outsourced services stated that IT-related decision making sits with the CFO who obtains advice from the service providers, whilst IT governance oversight is located at the executive level. An example of this is an interviewee's response that "...it's not an ongoing debate, it's a fact that we have very strong IT committee.... I do all and sign off all contracts, acquisitions, requisitions and not the board" (interviewee C1).

According to Peterson (2004), companies with significant IT outsourcing should develop IT governance capability to underpin their IT governance decision-making structures. Peterson, however, did not specify where such capability should be. The finding indicates that such capability does not exist at the board level but rather at executive level and extends outside the organisation to the service provider, as confirmed by the following interviewee:

"No, not interested at all.... I do all and sign off all contracts, acquisitions, requisitions and not the board.... The board doesn't get involved ...".
(Interviewee C3)

6.6. STAKEHOLDERS IT DEVELOPMENT CONCERNS

Interviewees reported that stakeholders involved in IT-related decision making comprised heads of business units, representatives from the IT function other than the CIO, executives, and project managers. IT steering committees were identified as the existing committee where stakeholders participated in deliberations on IT matters and since these committees

are mostly management level committees, stakeholder participation thus occurs at management level.

According to the literature, stakeholders participate in the selection and prioritisation of IT investment projects, risk and resource optimisation, and other IT governance-related matters (Peterson, 2004; Weill & Ross, 2004; King III, 2009; ISACA, 2012).

6.7. ENFORCEMENT – INSTITUTIONALISED KING III ADOPTION

All interviewees' companies are listed on the JSE and are thus expected to abide by all enlistment rules and any accompanying regulations, standards and practices that are mandatory. Generally, organisations are established by law and thus their activities, being economic (for profit) or otherwise, are bounded by legal instruments, rules, regulations and self-imposed standards or practices (Mäntysaari, 2012).

The enforcement of the enlisting rules, including application of King III, follows a responsive enforcement strategy similar to the findings of Choi, Chen, Wright and Wu (2016) where a defaulting company is informed of non-compliance and given a grace period to respond or comply. Failure to comply/respond leads to suspension and further action which might result in termination of the listing (JSE, 2011).

“Obviously the board recognises King III as one of the leading guidance standard on cooperate governance and all those that relates”. (Interviewee C8 r2)

“We adopt the principles of King III...” (Interviewee C6)

Almost all respondents indicated compliance with King III since their organisations are listed on the JSE and therefore need to comply with the JSE listing rules. The board oversight of IT governance should beware of enforcing rules and any such binding rubrics which might lead to box ticking rather than actual application and implementation of principles and recommendations that add value to the organisation (Ogbu, 2015; de Castro, 2009).

6.8. ITG EFFECTIVENESS IN PARTICIPATED ORGANISATIONS

Miles et al. (2010) proposed two techniques to present the results of analysis in a multi-case study. These techniques eliminate a lengthy, tedious and often confusing presentation by the researcher to the reader. The first technique is to present the analysed themes in a conceptual

matrix that enables multi-case comparison to be made. The second technique is magnitude coding of the themes which enables weighted values to be assigned to the themes in order to compare and evaluate the cases. These two techniques were applied to the findings of the qualitative analysis and are presented in Table 6.14. The results in the table show the overall state of ITG effectiveness across the ten organisations studied.

Table 6.14: Overall ITG effectiveness in participated organisations

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	Total
IT leadership types	X	✓	X	X	✓	X	✓	X	✓	X	X
Internal influencing factors	X	✓	X	✓	✓	✓	✓	✓	✓	X	✓
External influencing factors	-	✓	X	X	-	✓	✓	✓	✓	-	✓
Implemented ITG features	X	✓	X	✓	✓	✓	✓	✓	✓	-	✓
Control mechanism	X	✓	X	-	✓	✓	✓	✓	✓	-	✓
Capabilities		✓		✓	✓	✓	✓		✓		✓
Value add		✓		-	✓	✓	✓	✓	✓		✓
Effectiveness of ITG	X	✓	X	-	✓	✓	✓	✓	✓	X	✓

Key: ✓=significant, X=not significant, - = neutral

Table 6.14 shows the magnitude of the codes and level of significance per organisation for each of the ITG factors. The last row shows the resultant magnitude and level of significance for each of the organisations. According to the results, six organisations had significantly effective board level IT governance oversight, three organisations had board level IT governance oversight that was not significantly effective and one organisation indicated neutral board level IT governance oversight.

6.9. CONCLUSION

From the findings, it is evident that existing board structures such as risk and audit committees are delegated with IT governance oversight responsibility. Some organisations have established IT steering committees as management level committees which have contributed significantly to IT governance oversight-related matters. However, organisations have not heeded the corporate governance codes which recommend the establishment of a board level subcommittee responsible for IT governance oversight.

Although the majority of boards have taken responsibility for IT governance oversight, delegating their responsibility to subcommittees has weakened their ability to effectively interrogate IT oversight matters directly. Boards have been more effective with IT

investments and budgets than the alignment of IT and business strategy. The implementation of IT governance frameworks is still at an early stage, with most organisations developing their IT governance frameworks in-house. The quality and content of these frameworks have been questioned by external assurance.

Regarding issues of IT compliance and IT risks, more audit committees than risk committees are charged with IT compliance. Risk subcommittees consider IT risks as an integral part of the organisation's overall risk profile rather than in isolation. Audit committees, however, report directly on IT compliance both within IT processes and in relation to legislation and regulations.

Organisations obtain value from their IT deployment. Whilst tangible value has been a norm, certain decisions by boards in favour of non-tangible value attainment reflect effective IT governance oversight that is responsive to long term returns. Non-tangible value aligns to the long-term sustainability of organisations. These include quality of information for decision making, IT systems and information security, and organisational brand equity.

IT governance oversight challenges faced by organisations include low board IT skills and competence including non-executives, weak IT governance oversight in outsourced engagements, compliance in response to enforcement resulting in ticking of boxes rather than evidence of governance competence, challenged quality or IT governance framework developed, and extensive delegation of IT governance oversight responsibilities to subcommittees.

IT governance oversight in organisations goes beyond King III IT governance principles which provide guidance for achieving effective IT governance oversight. King III IT governance principles do not substitute an IT governance framework but form a set of guiding principles for implementing IT governance. King III therefore recommends the development and implementation of an IT governance framework in accordance with the King IT governance Principle 5.3.

The overall ITG across the multiple cases indicated that JSE listed companies have significantly effective IT governance oversight.

The next chapter deals with the analysis of the quantitative data to effect triangulation and validate the qualitative findings in this chapter.

CHAPTER 7

ANALYSIS AND FINDINGS OF QUANTITATIVE DATA

7.1. INTRODUCTION

This chapter presents the analysis and findings from the quantitative component of the study. Quantitative data was obtained via questionnaires issued to members of a convenient sample from a purposively identified population group. Members of the sample included directors, executives and senior managers with some level of IT governance and corporate governance experience. Questionnaires were issued to the members of the sample through an online channel and also directly. As explained in detail in Chapter 5, the sample was conveniently obtained from two separate database sources. The Durban Trade and Industry Department (DTID) granted access to members of its business leaders database and provided their email address in addition to other contact information, whilst the IoDSA only granted permission to access its members directly during its various directors' training programmes, events and workshops. Question-Pro, a web-based system was thus used to disseminate the online copy of the questionnaire to DTID members whilst members of the IoDSA were issued questionnaires directly during IoDSA gathering programmes, events and workshops, which were completed and returned to the researcher. Nineteen completed questionnaires were obtained from online respondents and 25 from direct issuing and collection. A total of 44 completed questionnaires were obtained.

Of the 44 questionnaires received, two were discarded due to partial completion of the questionnaire. According to Hair et al. (2014), a completed questionnaire with more than 15% of the questions not answered should be discarded. For this reason, two were discarded and 42 fully completed questionnaires were analysed.

The chapter is structured as follows: general statistics on respondents, analysis and findings of factors of the research, hypothesis testing and conclusion.

The analysis and findings of the quantitative data enabled the achievement of the following research objectives:

To construct a conceptualised board level IT governance oversight framework for organisations.

To establish the link between board level IT governance oversight and organisational value obtained from IT.

To establish the link between board level IT governance implemented by boards and overall performance of their organisations.

7.2. GENERAL STATISTICS OF RESPONDENTS

The sampled population met the requirement of being an employee at executive or director level within the organisation or having such level of ascribed responsibility. Figure 7.1 shows the composition of respondents. Non-executives constituted a majority of 38%, other designations 48%, and CIO 14%. The role of the CIO may or may not be an executive position. From the data, 50% of the CIOs were executives and the other 50% non-executives. Although IT governance frameworks and corporate governance codes recommend that the CIO position should be an executive role, this has not been put into practice. Most CIO roles are still non-executive positions in the organisations sampled.

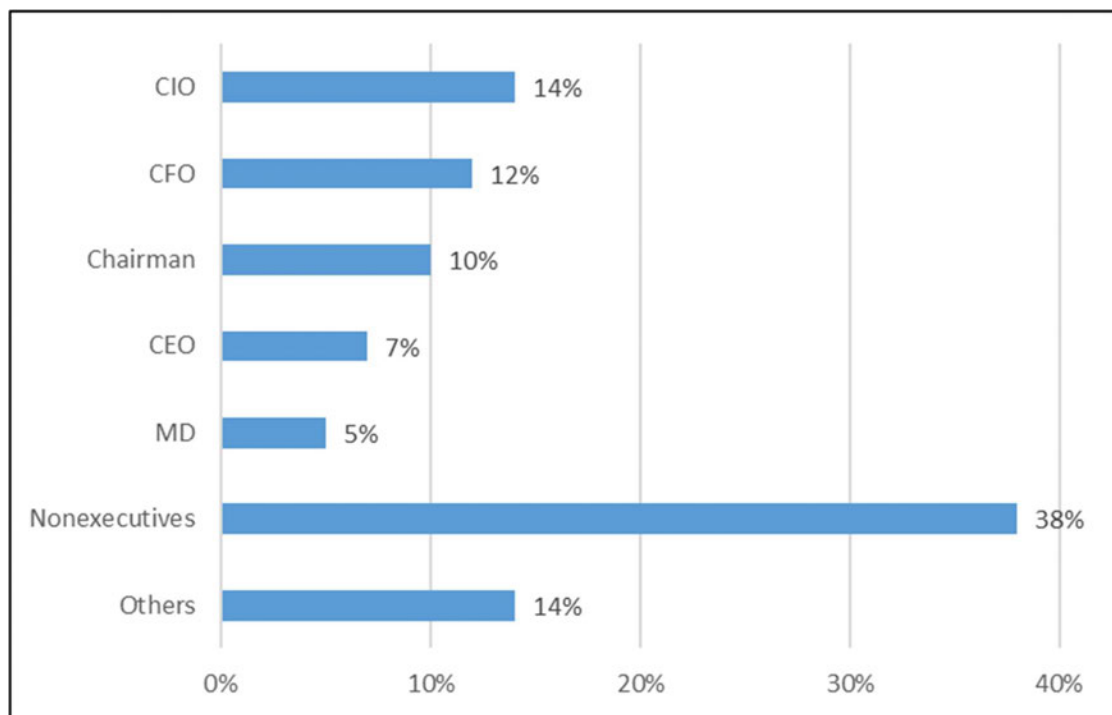


Figure 7.1: Status of respondents

The composition of “other” board roles presented interesting findings. The roles or designations indicated include company secretary (4), board participant (1), head of finance

(1), and non-board member (4). All four non-board members were identified as having IT roles; three with the designation of CIO and one as group IT manager. The group IT manager was considered a CIO but that could not be verified.

Respondents served on a number of board committees. Figure 7.2 shows the composition of committees that respondents served on. With the exception of the IT committee, all the others are board level subcommittees mandated by law or by codes of corporate governance.

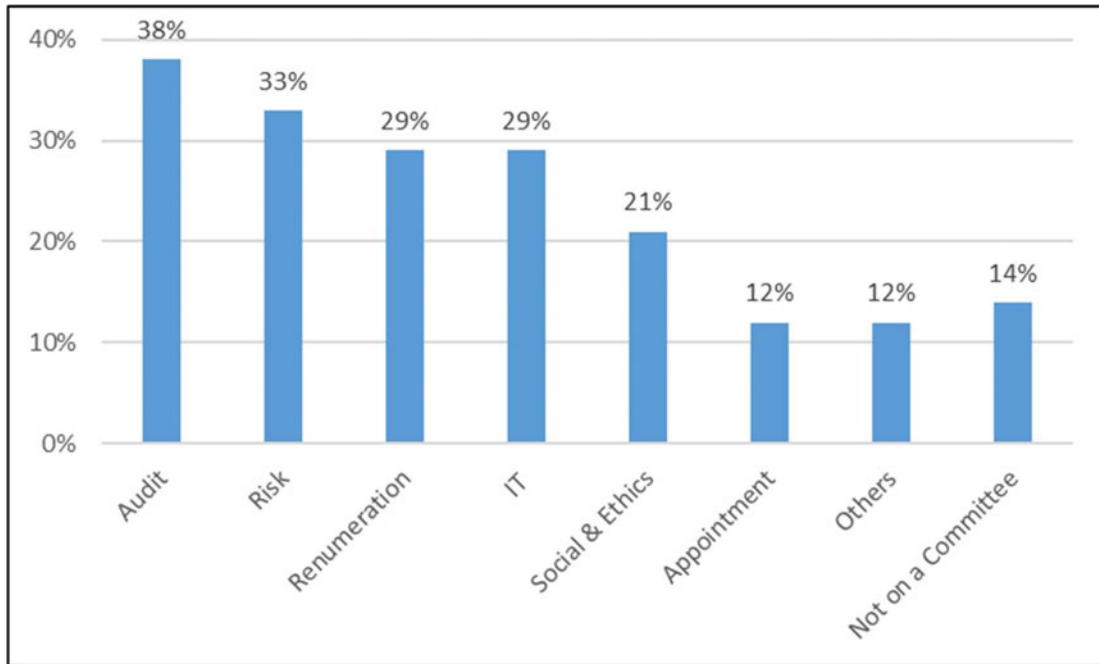


Figure 7.2: Board subcommittees of respondents

IT committees were identified as management level committees rather than board subcommittees. Whilst this is consistent with findings in the literature, the details of the function of IT committees need to be investigated. The existence of IT committees at management level may be an indication that such committees deal with management-related IT issues rather than strategic IT decision-related issues.

The majority of respondents served mainly on the audit committee, risk committee, remunerations committee and the IT committee. The audit committee and the risk committee have significantly higher participation compared with the others. This an indication that organisations are in compliance with the Companies Act (2008) and also with King III (2009). Audit committees are mandatory by law (RSA, 2008) and also recommended by

King III (2009) to assist the board to carry out its IT governance responsibilities. The roles of the audit and risk committees specified by the Companies Act and King III are to assist or provide oversight for organisations in matters of organisational risk and adherence to policies and processes. Organisations' high capital investments in IT presents associated risks which need to be managed to ensure the attainment of expected returns on the investments. Boards are therefore charged with the responsibility to effect risk oversight to ensure attainment of IT returns, among others. The Companies Act (2009) therefore provides the board the legal ground to set up audit and risk committees to assist the board in effecting this oversight.

King III recommends that the two committees (audit and risk committees) assist the board to effect its IT governance oversight. The higher number of directors serving on the audit committees and risk committees is thus expected as their responsibilities extensively cover most areas of the board's oversight responsibilities. This is also consistent with recommendations of best practices and the literature.

Figure 7.3 presents the academic qualifications of respondents. The highest qualification is a PhD or a doctorate.

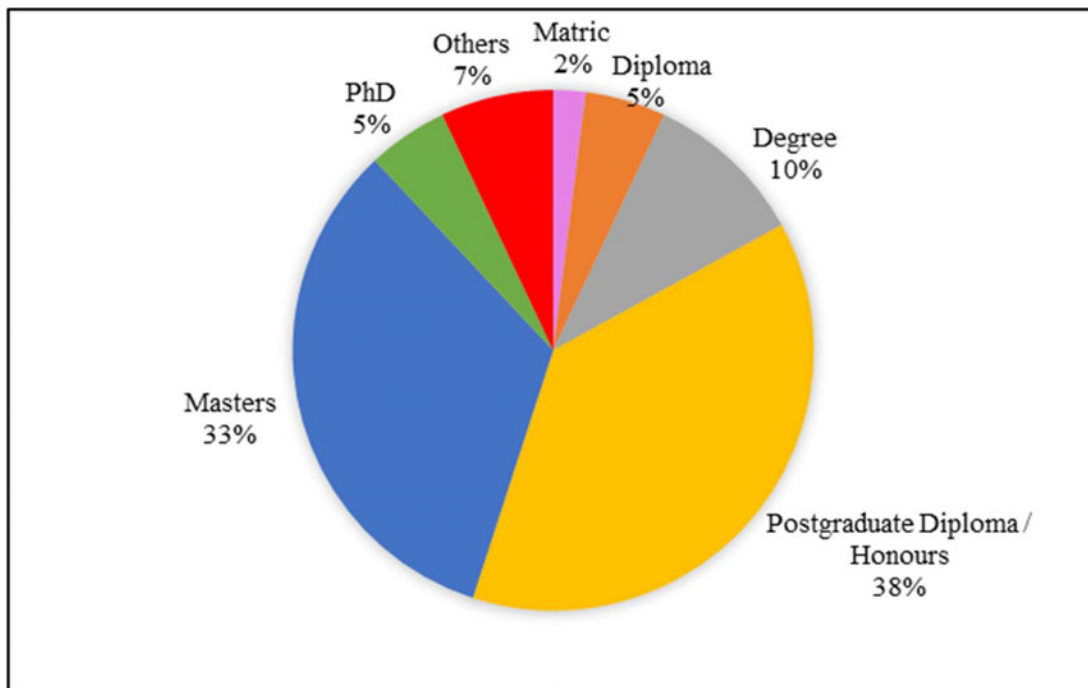


Figure 7.3: Academic qualifications of respondents

Although this constitutes only 5% of respondents, it is significant – especially in the South African context and its implication will be discussed further in Chapter 8. Thirty-eight percent of respondents had a post graduate diploma or honours level degree and 33% had master's degrees. Overall, 86% of participants had at least a university degree. Although not presented here, 14% of respondents indicated having a Chartered Accountant South Africa professional certification in addition to the academic qualification. Professional qualification as a prerequisite, especially for audit committee members, is explicitly spelt out by various forms of legislation and codes of corporate governance (RSA, 2008; King III, 2009; UK Code 2012; SOX, 2002).

The South Africa Companies Act (RSA, 2008) states that about one-third of the audit committee should have academic qualifications in a number of listed fields including accounting, economics and law (RSA, 2008, *Section 94 ss5*). It also specifies that the required minimum qualifications to be met by directors should be specified in the company's memorandum of incorporation (MOI) (RSA, 2008, *Section 69 ss6*). The high percentage (over eighty percent) of respondents having academic qualifications above diploma level is an indication that boards recognise the need for skills and expertise required to effect good corporate governance. Directors need to be knowledgeable, skilled and experienced to carry out their responsibility on a board (King III, 2009).

Thirty-three percent of board members were female. The South African affirmative action and Black Economic Empowerment (BEE) initiatives are some of the legislative frameworks that have influenced the increased female participation at higher levels of management. Although female representation on boards globally is low, the South African average of females on boards is higher considering the apartheid past of the country. The Institute of Directors South Africa (IoDSA, 2009) indicated that females constituted 17.9% of board seats compared to 11% elsewhere globally (Gladman & Lamb, 2013). The 33% is therefore higher and positive for affirmative action in South Africa.

Table 7.1 illustrates the distribution of respondents by age groupings and a cross tabulation between age and years of board experience

Table 7.1: Directors' years of board experience vs directors' age

		Respondents' Age (Years)				Total
		30 - 39	40 - 49	50 - 59	60 and over	
Years of board experience	< 1	2	0	0	0	2
	1 – 5	3	8	5	2	18
	6 – 10	0	5	2	1	8
	11 – 15	1	0	7	2	10
	16 – 20	0	0	1	1	2
	> 20	0	0	0	2	2
Total		6	13	15	8	42

Fifty-five percent of the respondents who were directors with board level responsibilities were 50 years and above, and 45% were below 50 years. Whilst this difference is small, it indicates that boards have a higher percentage of older directors. There were no directors below the age of 29 years. The age group of 50 to 59 years comprised 36% of the respondents, and 60 years and above comprised 19%. A majority (52%) of the respondents had over five years of board experience and 48% had board experience of five years and below.

A positive indication from the cross tabulation is that there is great opportunity for younger directors to grow in the near future. This opportunity would be created when older directors (above 50 years) with more than ten years of experience (31%) (Burge shaded area) retire whilst the younger directors (below 50 years) with less than ten years of board experience move to replace them (area shaded yellow).

This is supported by recommendations made by corporate governance codes that limits the number of years a director may serve on a board. According to these recommendations, a

director's independence may be compromised if the number of terms serve on the board is too long (Government Commission, 2012; King III, 2009).

Manufacturing and Transport & Logistics were the industries most represented by respondents (19% each). According to Statistics South Africa (StatsSA, 2015), KwaZulu-Natal is the second largest contributor to the national GDP. Considering per industry contribution, manufacturing is the second largest contributor to the national GDP (15.2%) and the KZN province GDP (15.8%). Sohal and Fitzpatrick (2002) referred to the Manufacturing and Transport & Logistics industries as "low tier" industries that mainly utilise IT for operational efficiency and to increase productivity. Fifty-seven percent (57.1%) of respondents indicated that their organisations used IT to effect operational efficiency. This finding is consistent with the work of Sohal and Fitzpatrick (2002). It can thus be inferred that IT plays a significant role in these industries and within the KZN region in driving organisations' operational efficiency.

7.3. RESERACH MODEL RELATED ANALYSIS AND FINDINGS

The findings on each of the factors within the research framework are analysed in the following sections. This will enable testing each of the hypotheses that relate to each of the factors.

7.3.1. IT leadership

IT leadership is generally represented by the CIO and the other similar designations such as group IT manager. Fourteen percent of the respondents were in IT leadership. Fifty percent (50%) of the CIOs were executives who participated in executive level deliberations and decision making. Forty-five percent of the respondents indicated that their boards obtained advice from their CIOs when making IT governance-related decisions. In terms of formulation and approval of IT policies, the executive committee formulates strategies (business strategy, IT strategy, and others) and the board approves these strategies. Thirty-eight percent (38%) of the respondents indicated that their boards approved their IT strategy and 33% indicated that the executive committee approved the IT strategy. Only 9.5% of the respondents indicated that their IT strategy was approved by an IT steering committee whilst 2.4% indicated that their IT strategy is approved by the CIO.

The low percentage (38%) of board approval of IT strategy is of concern. The role of the board is to give directives and oversee the implementation of the given directives by

management. The role of executives (being management) is to formulate strategies and plan to effect the implementation of the board's given directives. The board reviews and approves the executives' strategies and ensures that their implementation sustains the continuous existence of the organisation. The finding indicates that the majority of IT strategies are approved by executives and not the board. To determine why most IT strategies are not being approved by the board, the data was further analysed by computing a cross tabulation between IT strategy approval and the role of IT in the organisations. This is presented in the next section.

7.3.2. IT role

IT is deployed within the organisation to effect operational efficiency and decision making for strategic purposes (ITGI, 2003; Nolan & McFarlan, 2005; Bart & Turel, 2010). The participants' responses to the question on the role of IT in their organisations are presented in Figure 7.4.

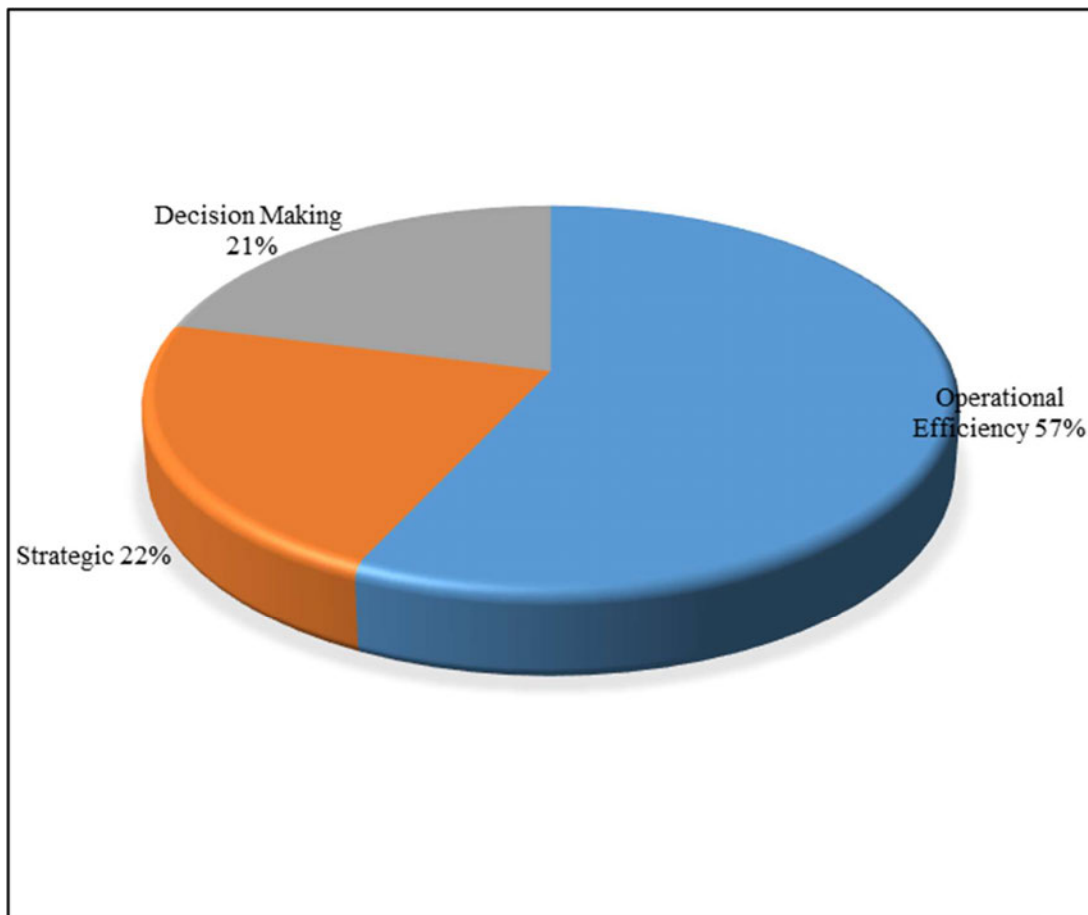


Figure 7.4: Role of IT

A majority of 57.1% of respondents reported that IT is deployed to achieve operational efficiency, whilst 21.4% deploy IT for strategic and decision-making purposes. According to the literature, industries like manufacturing, transportation, building and construction use IT for operational efficiency (Sohal & Fitzpatrick, 2002), which enables the organisation to improve and respond quicker to its customers and market demands (Nolan & McFarlan, 2005). The finding is therefore consistent with the literature since the majority of the respondents' organisations are in the manufacturing, transportation and logistics industries.

To assess the board's oversight role of IT governance, a cross tabulation of the board's role in IT decision making is presented in Table 7.2.

Table 7.2: Responsibilities for decision making

		Role of IT			Total
		Strategic	Decision making	Operational efficiency	
Who approves IT strategy	Board	16.8%	4.8%	16.7%	38.1%
	CIO	-	-	2.4%	2.4%
	Executive committee	2.4%	9.5%	21.4%	33.3%
	IT committee	2.4%	2.4%	4.8%	9.5%
	Others	-	4.8%	11.9%	16.7%
Total		21.4%	21.4%	57.1%	100.0%

The results presented in Table 7.2 confirm the finding that in most cases where IT is deployed for operational efficiency, it is the executive committee (21.4%), rather than the board, that approves the IT strategy. This finding supports the earlier explanation that the

role of IT within an organisation dictates how it is governed. In cases where IT has been deployed for strategic purposes, a majority of 16.7% indicated the board’s approval of their IT strategy. However, an anomaly exists in that the board in 16.7% of the organisations also approved the strategy for operational efficiency.

7.3.3. IT risk exposure levels

IT risk management is the responsibility of both the board and management; 31% of the respondents indicated that the board accepts responsibility for IT risk management, and another 31% indicated that management accepts that responsibility. Thirty-eight percent (38%) indicated that the responsibility is assigned to the risk and audit committees. On the nature and level of the boards’ involvement, 52.4% of respondents indicated that the board’s involvement with IT risk mitigation has been that of providing oversight. Only 11% of respondents indicated that their boards actually get directly involved.

7.3.4. IT investment decisions

As per Figure 7.5, various structures within an organisation are assigned to review and approve IT investment of significant capital value. A total of 57% of the respondents indicated that IT investments of significant value are reviewed and approved by the board, while 19% indicated that such authority is delegated to the executive committee.

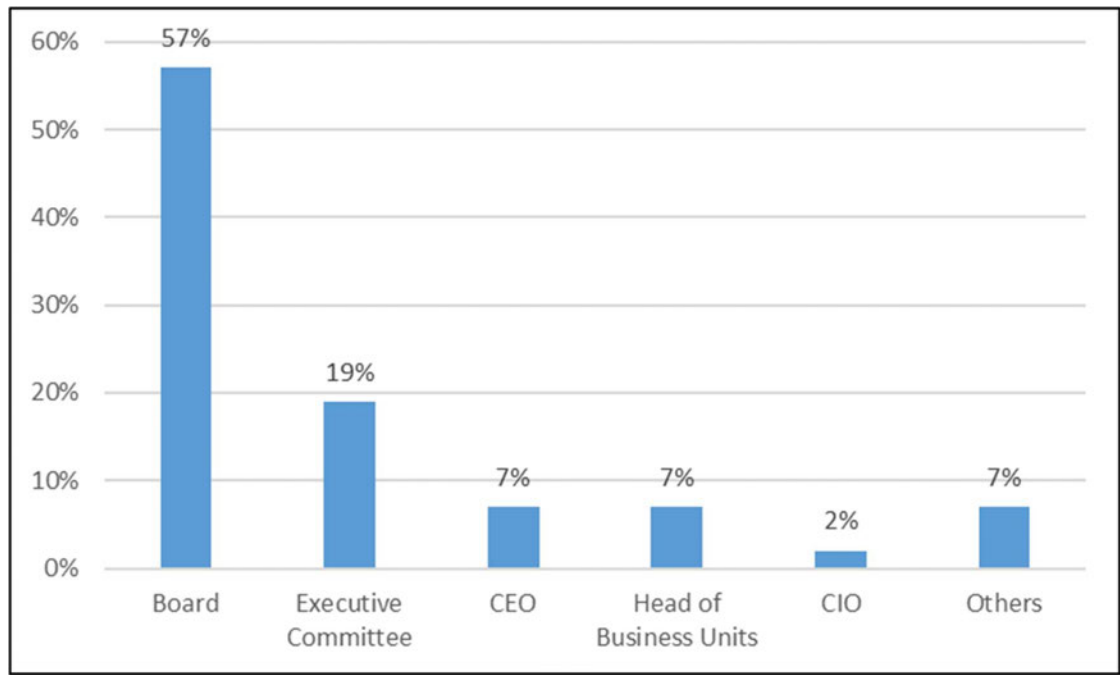


Figure 7.5: IT investment decision-making responsibility

IT investments are intended to enable an organisation's strategic intent or objectives. According to Kaplan and Norton (1992), an organisation's strategic intent or objective is driven by five factors: attain financial returns, improve customer satisfaction (or service), improve operational efficiency, employee development, and knowledge management. In response to which of these factors drive and are most frequently considered when reviewing and approving IT investment of significant capital value, 67% indicated that operational efficiency is the most frequently considered factor. Forty-one percent indicated financial returns, whilst 24% indicated knowledge management.

7.3.5. External factors

External factors relate to compliance with laws and regulations (including rules and best practices), stakeholders' influence or involvement, external advisory and other external environmental factors that are outside the control of the organisation. Questions on compliance focused on the King III IT governance principles. Although King III is not legislated, it is a recommended and recognised code of good corporate governance in South Africa. Other questions covered type of stakeholders and their involvement and the impact of IT and its governance on these types of stakeholders.

Two questions were asked to assess the level of significance and relevance of the King III IT governance principles in implementing board level IT governance oversight. The results showed that the principles are significant. A total of 77% of the respondents indicated that the King III IT governance principles are significant (60%) and highly significant (17%). Forty-three percent of the respondents rated all the King III IT principles as being relevant and 36% indicated that most of the principles are relevant, with 21% of respondents indicating that only some of the principles are relevant. A follow-up question investigated which principles are most relevant and applicable by boards of the respondents' organisations in their implementation of IT governance oversight. The results are illustrated in Figure 7.6.

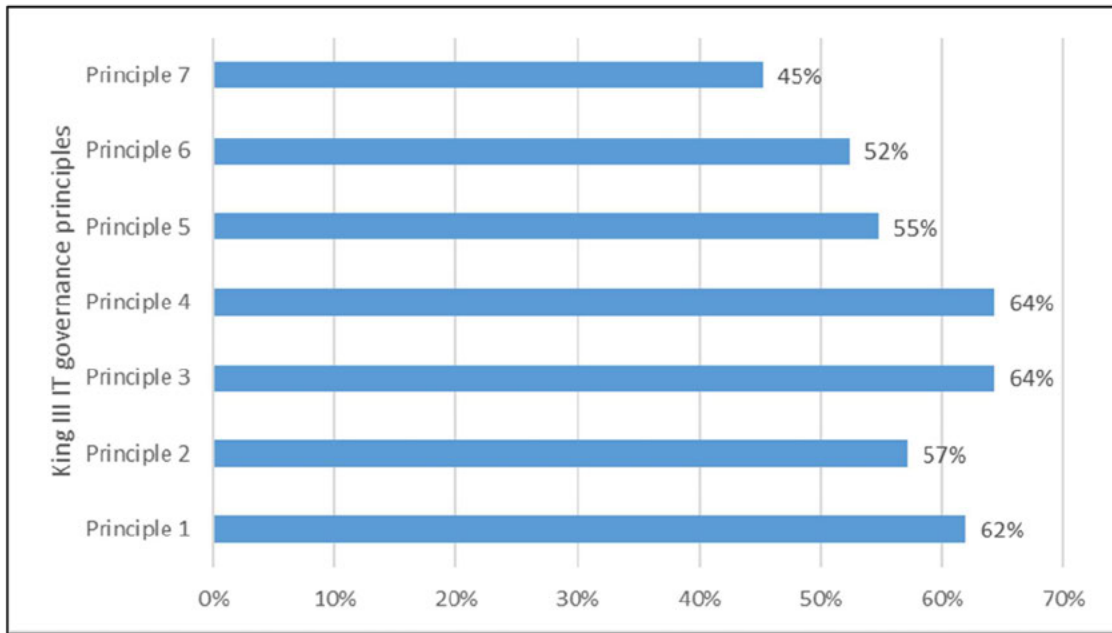


Figure 7.6: Relevance of IT governance principles

With the exception of principle 7, all the principles received over 50% of responses as being relevant and applicable to their boards in effecting IT governance oversight. Principle 7 specifies that “risk and audit committees should assist the board in carrying out its IT responsibilities”. IT risk must therefore be properly governed and the risk committee must include IT risk as an integral part of the organisation’s overall risk profile. The audit committee has to provide assurance over IT use within the organisation, its compliance and controls, especially within the finance functions. Whilst these committees can take oversight responsibility for IT risk and compliance, strategic IT matters must still reside with the board. The low rating of principle 7 might be due to the current setting where boards have delegated IT governance to the audit and risk committees.

Principles 3 and 4 were selected as most relevant. Principle 3 is the only one of the seven that explicitly states that the board should “delegate”.

The King III (2009) principle 4 specifies that the board should monitor and evaluate IT investments and expenditure of significant value. Through this, it is expected that the board would ensure that such investments yield the expected ROI. Responses on IT investment controls indicate that the board approves IT investments (57% of responses), and that there is a 47.7% achievement of ROI. Whilst this indicates an improvement, the responses

regarding principle 4 imply there is a need for more effective board monitoring and evaluation of IT investments and expenditure of significant value. Table 7.3 show the ranked principles as per respondents' responses.

Table 7.3: Ranked King III IT governance principles

Ranked	Principle	Description
1	Principle 3	The board should delegate to management the responsibility for the implementation of an IT governance framework.
2	Principle 4	The board should monitor and evaluate significant IT investments and expenditure.
3	Principle 1	The board should be responsible for information technology (IT) governance.
4	Principle 2	IT should be aligned with the performance and sustainability objectives of the company.
5	Principle 5	IT should form an integral part of the company's risk management.
6	Principle 6	The board should ensure that information assets are managed effectively.
7	Principle 7	A risk committee and audit committee should assist the board in carrying out its IT responsibilities.

The ranking underscore the significance of the principles as indicated by respondents. As presented in Table 7.3, respondents ranked as most relevant, the delegation of the implementation of an IT governance framework to management. Following with the monitoring and evaluating of IT investments and expenditure of significant value by the board. The least (lowest) ranked principle is the risk and audit committees assistance of the board with its It governance responsibilities.

Responses to the question on how organisations' IT deployment impacts on stakeholders are presented in Figure 7.7.

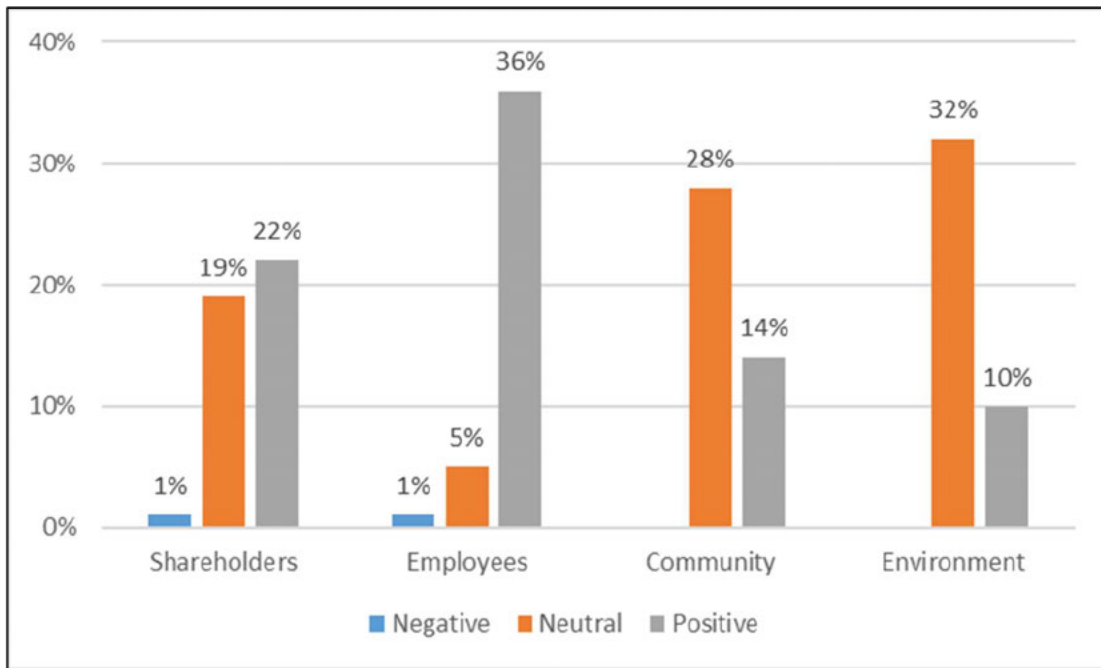


Figure 7.7: Impact of IT deployment on stakeholders

It is evident from the results that IT deployment has the highest impact on employees. Most of the respondents (85.7%) were of the view that IT deployment has the most positive effect on employees, compared to 11.9% and 2.4% that indicated a neutral and negative effect respectively. IT deployments presents the opportunity for new skills development to effectively use and manage the new technology being deployed. Employees are thus able to improve their overall efficiency and output.

7.3.6. Implementation features

Implementation features of IT governance oversight at the board level included the following: risk management, IT investment oversight (approval), compliance and access to expert advice. Risk management oversight includes overseeing IT investment risk, risk of non-compliance and risk of limited skill to effect risk oversight. Implementing IT risk oversight is guided by the existence of risk policies and regularly updating them. About 74% of responses indicated that risk policies are monitored, reviewed and/or updated annually. IT investment risk is mitigated by ensuring effective monitoring of IT investment projects. A total of 64.3% of respondents indicated that their boards use project progress reports to

monitor progress on significant IT projects; 36% indicated that their boards use risk reports, 24% indicated the use of audit reports and 19% the use of issue reports. Eighty-three percent of the respondents indicated that through these reports, boards are able to make decisions about projects or investments in order to ensure their success or to rectify any challenges that may arise.

IT governance codes, frameworks and best practices have provided guidelines to ensure oversight of compliance. Within the context of the study, King III (2009) IT governance principles have been the primary governance code and provided seven IT governance principles to guide the board on IT governance oversight. In response to questions on which factors have affected the improvement of IT governance oversight, 52% of respondents indicated the adoption and implementation of IT governance frameworks and 38% indicated application of the King III IT governance principles, compared to other factors with lower percentages. The respondents also referred to other frameworks like Cobit, ITIL, and ISO.

Regarding the use of external expertise or consultants for IT-related governance purposes, 36% of the respondents indicated using them in IT decision making and 21% indicated using them in assessing IT governance oversight performance of the board. The majority of respondents, however, indicated that internal sources of expertise are used for advice and assessment. These internal sources include the IT steering committees, the CIO, subcommittees, frameworks and best practices. This is an indication that the boards have access to various sources of expert advice and guidance to effect their IT governance oversight. The board's access to and use of external expertise is recommended and supported by King III (2009). However, this finding indicates that organisations have internal IT expertise available in the organisation to consult on IT matters and thus make less use of external IT consultants.

7.3.6.1. IT governance frameworks

The existence and use of an IT governance framework is a key feature of effectively implementing IT governance oversight. In response to the question on the use of a list of existing IT governance frameworks, 76% of responses indicated that King III IT governance principles are significantly or highly significant in the application of IT governance oversight by the board. In addition to that, about 57% indicated that their boards use at least one of the existing IT governance frameworks in making decisions regarding risk mitigation. These include Cobit 5, ITIL, Risk IT and ISO/IEC 31000, 27005, 11770 and others. Cobit 5 was

reported as the most widely used. However about 40% of respondents indicated that they did not know what frameworks are used by their boards in this regard.

7.3.7. IT governance control mechanisms

At the board level, three main committees were identified within the literature as board subcommittees delegated with IT governance responsibilities. Among the three, the audit committees and risk committees were the most used by boards. As illustrated in Figure 7.8, the majority of respondents served on audit committee (38%), followed by the risk committee (33%) and then the IT committee (29%). (Various other names have been used for the IT committee within the literature).

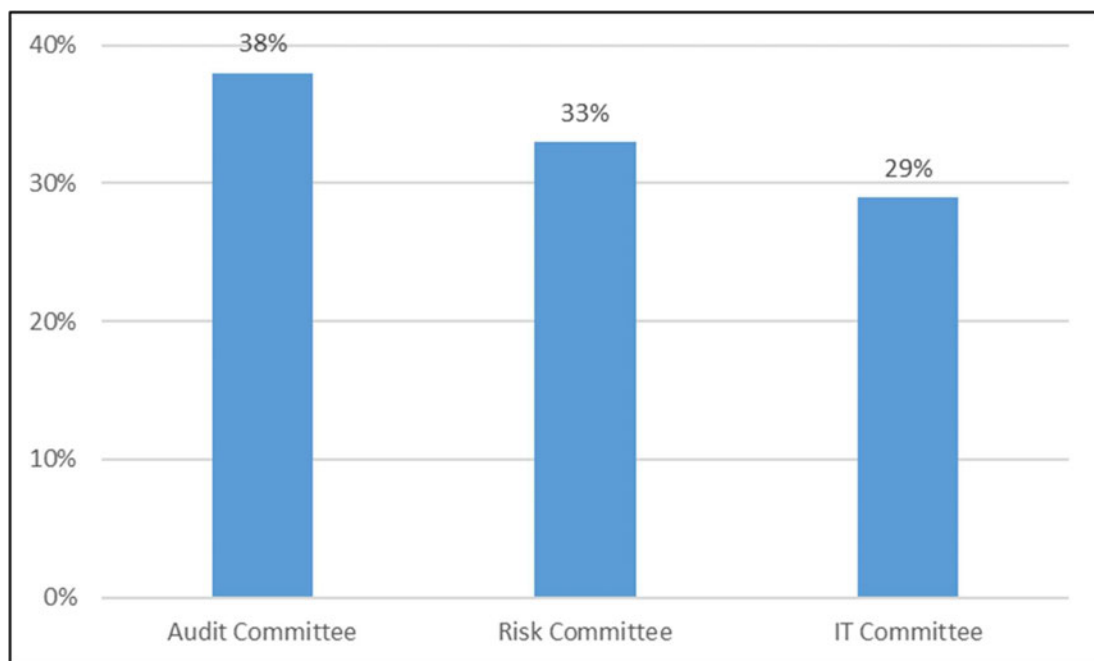


Figure 7.8: Composition of board subcommittee

The responsibility of the IT committee as recommended by King III is quite specific; it has to ensure that IT investments are aligned to the organisation's strategic goals, that IT investments yield returns and that the risk of IT employment within the organisation is managed. IT committees are therefore significantly important for organisations that continue to employ IT use within the organisation.

However, due to the risk involved with IT investments, deployment and operations, King III further recommends that the audit and risk committees assume additional responsibility to

assist the board with IT risk oversight and assurance of IT to implement controls (policies, processes and procedures) and to comply with laws and legislation. The roles of the risk and audit committees in IT governance oversight are therefore complementary.

7.3.8. IT governance capabilities

This relates to the board’s knowledge of IT governance-related structures, guiding frameworks and competencies. The indication from 57% of respondents is that their board knows and utilises at least one of the existing IT governance frameworks. Responses also indicated that the King III IT governance principles are relevant (78.6% of respondents) and significant (76.2%) to the board IT governance oversight.

Table 7.4: Confidence in IT decision making

		Comfortable /confident in making IT governance decisions				
		Avoid making such decisions	Lack knowledge to make such decisions	Low confidence	Moderate confidence	Highly confident
Director status on the board	Executive	-	-	2.4%	23.8%	14.3%
	Nonexecutive	-	1.4%	7.1%	9.5%	-
	Independent nonexecutive	2.4%	-	4.8%	9.5%	2.4%
	Other	-	-	-	9.5%	11.9%

The two questions asked regarding capabilities were cross tabulated to establish the relation between respondents’ IT literacy and confidence level in making IT-related decisions (Table 7.4).

As indicated in Table 7.4, executives are moderately and highly confident in making IT governance-related decisions compared to non-executive directors who have low to moderate confidence levels when making IT-related decisions. This is a contradiction of what is expected from non-executive directors. Non-executive directors are expected to bring their experience and competencies gained from their service on other boards and they are expected to be more confident in making IT governance-related decisions (Johnson, Boone, Breach & Friedman, 2000; Reich & Benbasat, 2000).

In a further cross tabulation of IT literacy of respondents against respondents' director status revealed that executives have average and above average IT literacy levels whilst non-executives have weak to average IT literacy levels. These findings indicate that executives are confident to make IT governance-related decisions because they possess higher IT literacy than non-executives. To affirm this, a Fisher exact test was conducted to test the relationship between IT literacy and confidence in making IT governance decisions.

The p-value of 0.001 from the Fisher exact test (Fisher exact chi-square value = 25.314, p-value = 0.001) indicates a significant association between IT literacy and confidence level in making IT governance-related decisions. The Fisher exact test thus confirms the cross tabulation that the higher the IT literacy, the more confident the person is to make decisions.

7.3.9. Overall IT governance effectiveness

The overall effectiveness of a board's IT governance oversight can be determined by its ability to effect the needed change in performance. To assess any degree of change in organisational performance, organisations need to first determine the expected change and then identify an efficient way to measure the degree of change. Three questions were asked to assess improvement in IT governance oversight in respondents' organisations. In response to the first question, 71% of respondents indicated that they assessed their boards' IT governance oversight performance and 39% indicated that they did not. Those that assessed their boards' IT governance oversight performance indicated ways and tools used in conducting the assessment, as presented in Figure 7.9.

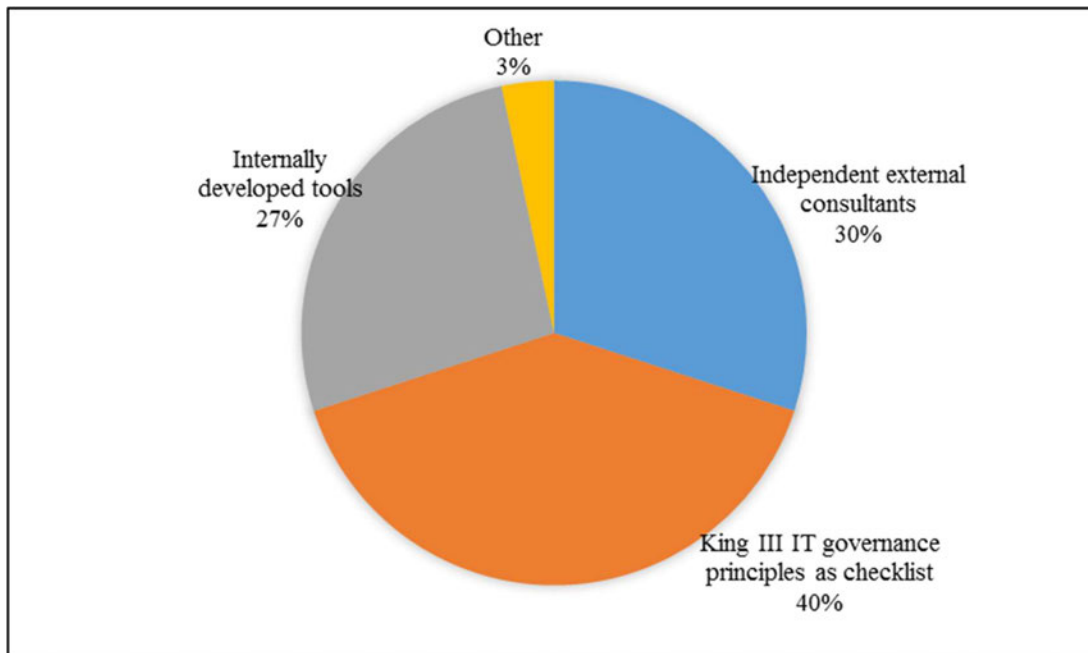


Figure 7.9: Board IT governance oversight performance assessment ways and tools

The majority (40%) of these respondents use King III IT governance principles as a checklist to assess their board IT governance oversight performance. Whilst this may be effective in achieving compliance, the risk of just ticking boxes rather than to assess actual outcomes may arise. Other respondents (30%) indicated using external consultants. It is expected that these external consultants may be from consulting firms recognised with skills to undertake such assessments. Of the other percentage of respondents, 27% indicated using internally developed board assessment tools whilst 3% indicated using internally developed board review processes. Whilst these are not specifically IT governance focused, they are expected to cover all areas of the board’s oversight responsibilities which include IT governance.

For the second question to assess improvement in IT governance, 52.4% of respondents indicated that their boards had a high and very high ability (combined) to make IT governance-related decisions. This is presented in Figure 7.10. The board is expected to have the requisite skills and competence to make board level decisions which include IT governance-related decisions.

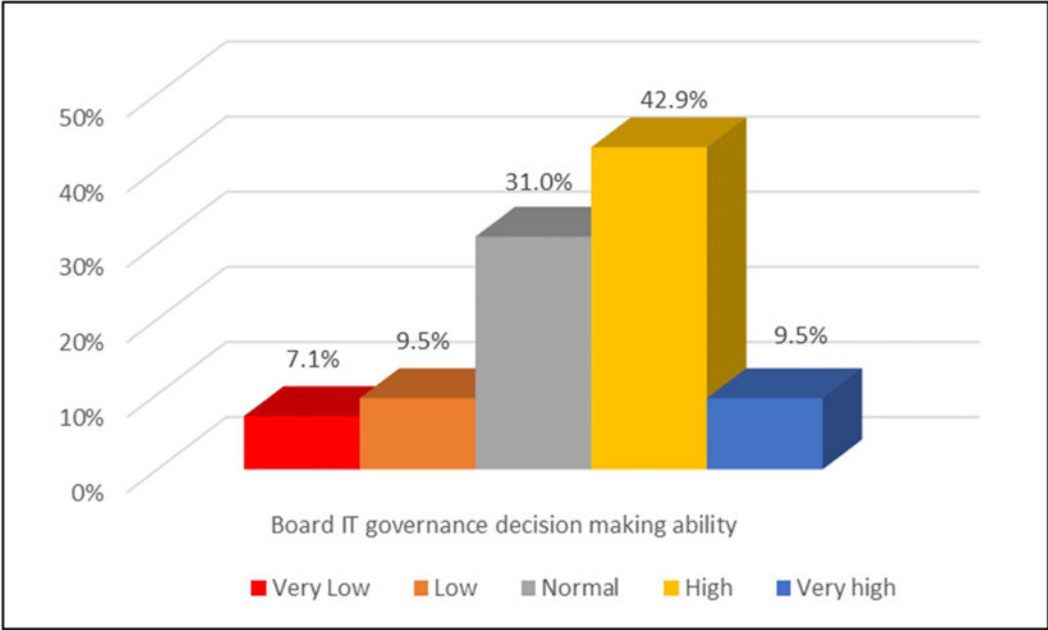


Figure 7.10: Decision-making ability

According to the literature, boards have been assessed as lacking IT-related skills and competence to effectively consider and make decisions about IT-related matters. To overcome the lack of skills and competence, respondents indicated that the board seeks advice from various sources when making IT governance-related decisions. These sources include the CIO, IT committee, IT vendors, and IT consultants, among others (Figure 7.11).

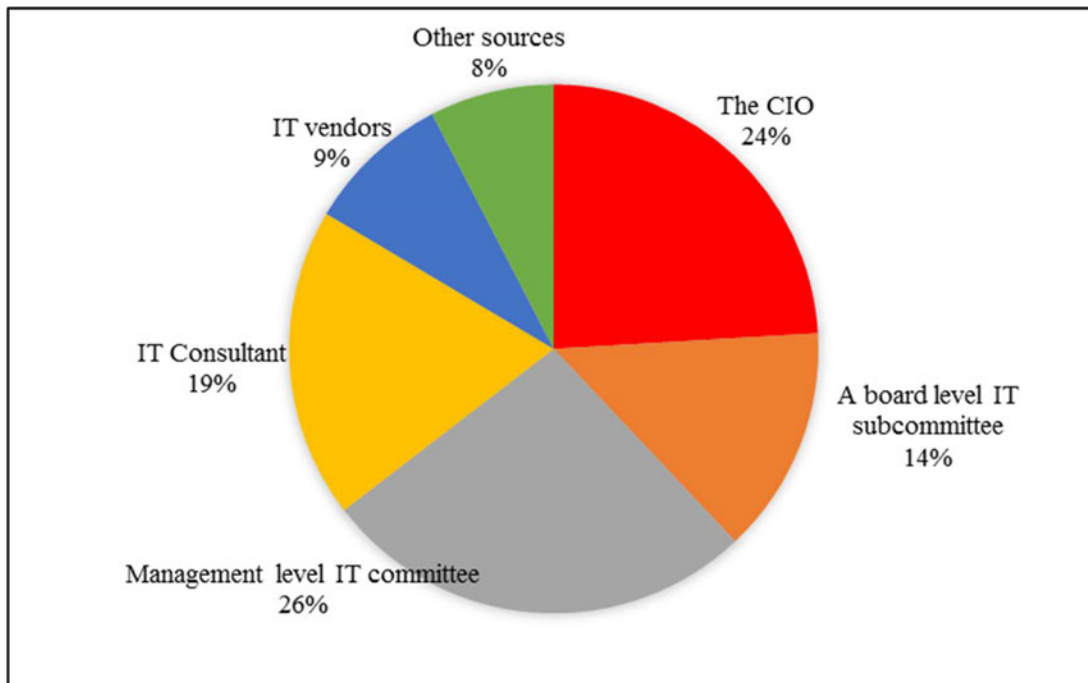


Figure 7.11: Sources of IT governance-related advice

The majority of respondents' boards obtain advice from management level IT committees. This may underscore the existence of IT committees mainly at management level rather than at board level. The CIO is also a significant source of advice (24%) to the board on IT governance oversight-related matters. The role of the CIO identified in the literature is to assist the board to understand and translate IT in business terms and conversely, how IT can enable business.

Another significant source of advice is IT consultants. Corporate governance best practices recommend that the board should seek advice from external experts on matters where such expert advice is required.

For the third question to assess improvement in IT governance, 83% of respondents indicated that their boards had improved significantly over the past five years. However, based on the previous question, only 71% indicated assessing their board's IT governance oversight performance. Whilst this is an inconsistency, reasons provided by respondents included adoption and implementation of frameworks, best practices and standards, application of

King III IT governance principles, effective IT leadership and the board's involvement and taking ownership of IT governance.

7.3.10. IT value

IT value was measured by two questions. The first was based on the respondents' own experience with the value their organisation gains from IT deployment and the second was on the organisational performance areas that IT mostly impacts on. Figure 7.12 shows the distribution of how IT adds value, as per responses obtained.

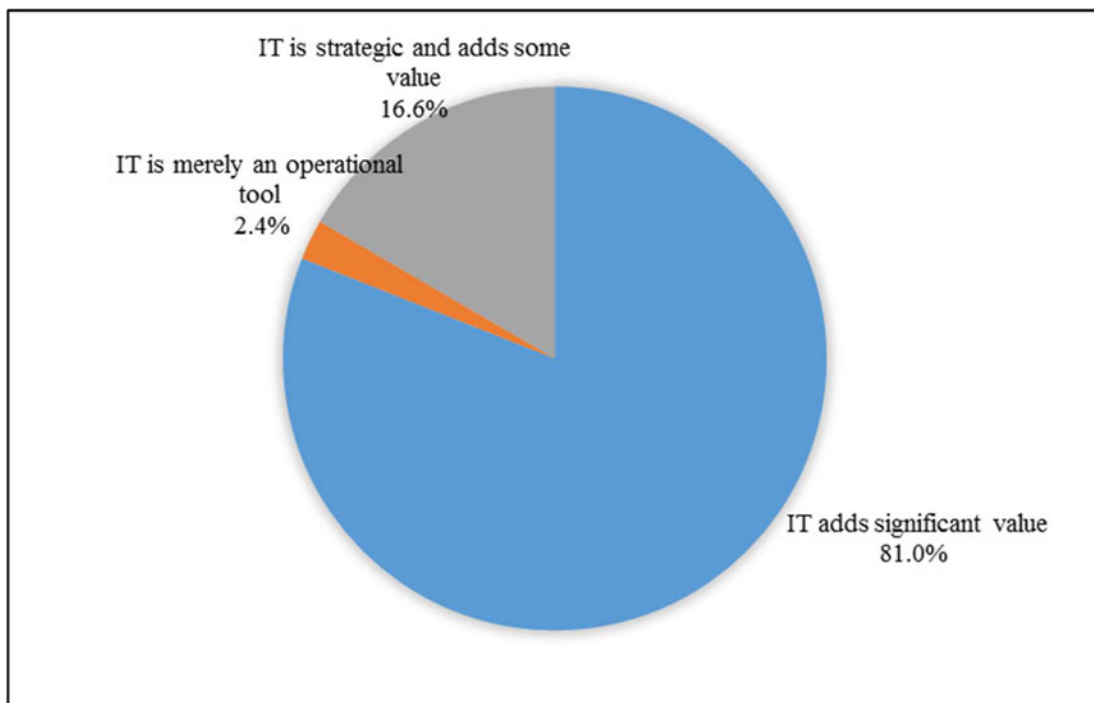


Figure 7.12: IT value addition

Eighty-one percent of respondents indicated that IT is strategic and adds value to the organisation. IT value to the organisation may be assessed based on the role and purpose of IT deployment. Ultimately, the deployment of IT must enable the attainment of the organisation's strategic goals and objectives. An organisation's strategy objectives may be classified in alignment to Kaplan's five perspectives of organisational strategic objectives. These perspectives are the focus of the organisation's performance measures based on its defined performance measures. These include direct attainment on return on investment, revenue growth, customer satisfaction, operational efficiency, employee development. Each of these were assessed in alignment to IT value add to the organisation.

In response to a question on the extent to which IT has contributed to the five strategic areas of organisational performance, operational efficiency again obtained the highest score. The results are depicted in Figures 7.13 and 7.14.

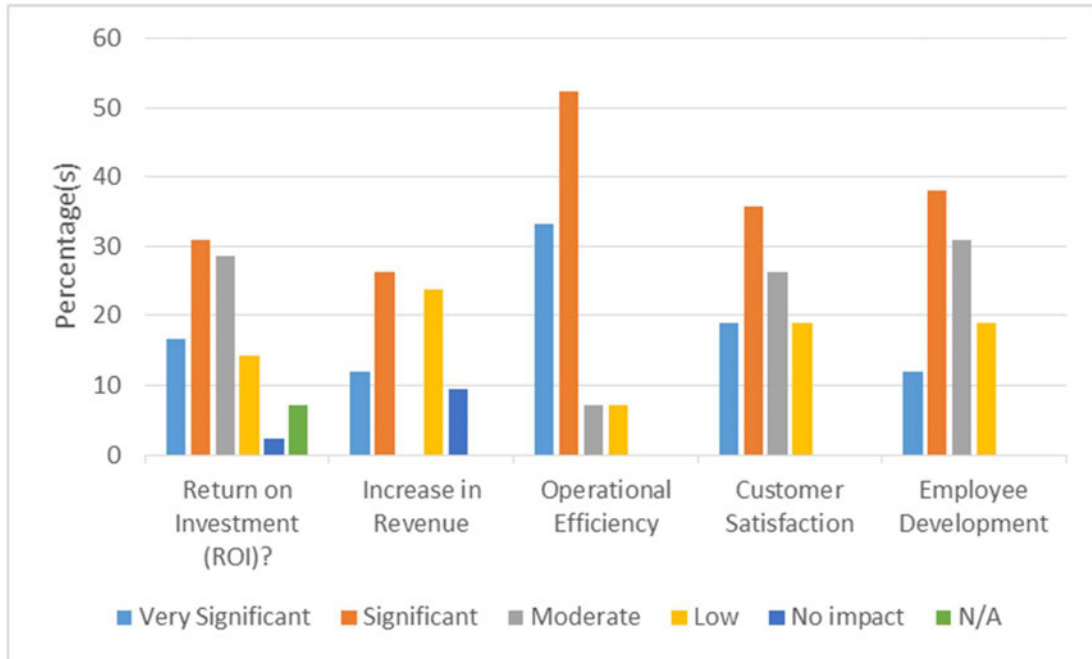


Figure 7.13: IT governance contributions to organisational performance

According to the respondents, IT contribution to each of the organisation performance areas is significant. Figure 7.13 shows that the contribution of IT governance to organisational performance is significant and highest via operational efficiency, followed by employee development and then customer satisfaction. Figure 7.14 follows with the direct significance of IT governance contribution to the five organisational performance areas.

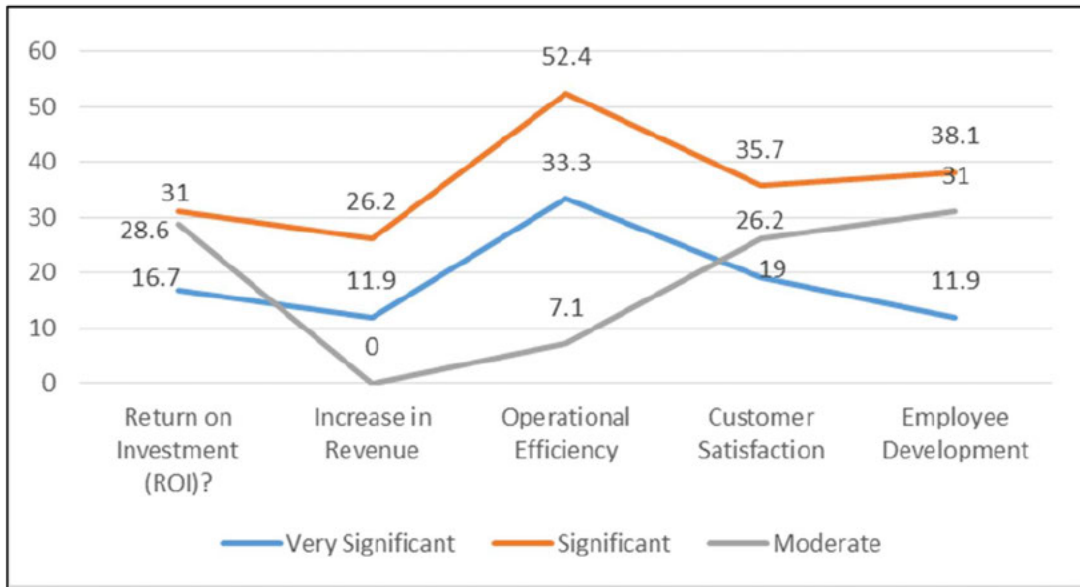


Figure 7.14: IT governance significance

According to the respondents, the contribution of IT governance for each of the organisation performance areas is significant. The area of organisational performance with the highest IT governance contribution measure is operational efficiency. IT has been employed mainly to achieve operational efficiency, customer satisfaction and service improvement. The other areas that follow are direct ROI and increase in revenue, in that order.

7.3.11. Boards IT governance assessment

Corporate governance codes and best practices have recommended that boards should assess their performance on an ongoing basis (King III, 2009; UK Code 2012; German Code 2014) This is to enable the board to identify areas of effectiveness and weakness and to take remedial action to improve its overall effectiveness. In response to a question on how the board assesses its IT governance oversight, 71% of respondents indicated using one form or the other of the listed assessment techniques whilst 29% indicated having no such assessment (Figure 7.15).

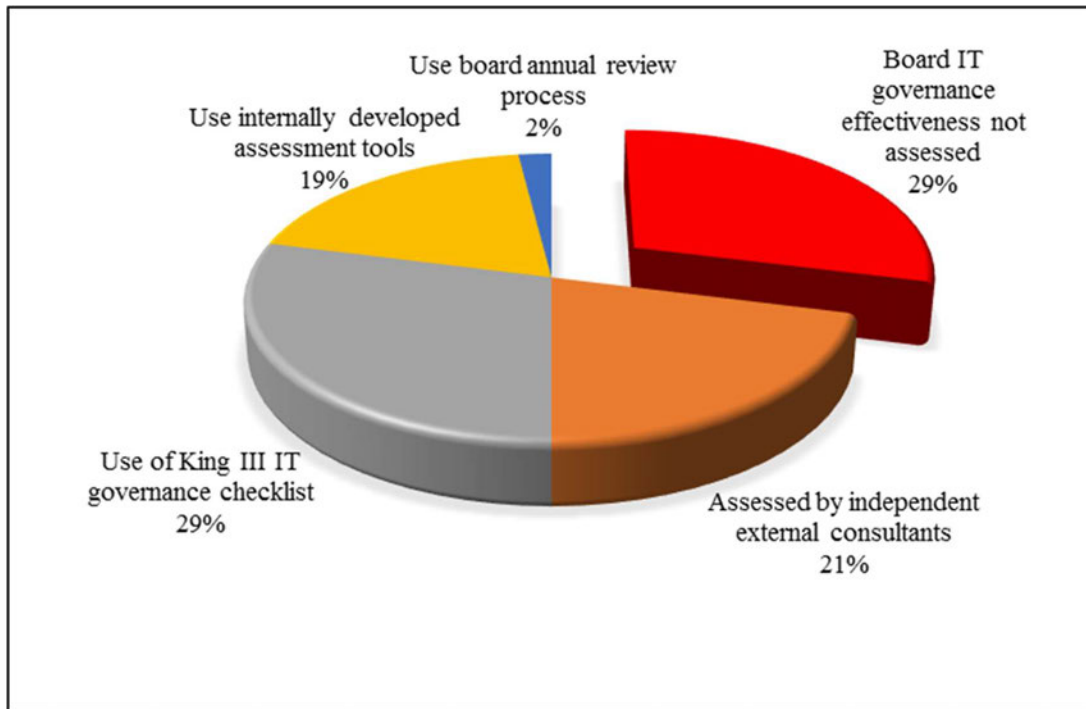


Figure 7.15: Board’s IT governance assessment

With only 21% of the respondents indicating the use of external independent consultants, it can be concluded that most boards perform internal assessments using internally developed tools and annual board review processes. A total of 57.2% of the respondents indicated that their board used COBIT 5 and ISO/SEC as reference frameworks and best practices in their IT governance oversight review process. This finding on the use of in-house developed tools for IT governance assessment is also consistent with literature. Larsen et al. (2006) identified such IT governance frameworks developed by institutions and organisations. King III (2009) indicates that an organisation should adopt and implement an IT governance framework to effect its IT governance oversight.

The next section discusses each of the hypotheses tests, the results of the Fisher exact test and the significance levels. Following that is a conclusion on the outcome and significance of the association between the dependent variables and independent variables.

7.4. RESULTS OF HYPOTHESES TESTS

This section covers the test results of the hypotheses and the analysis of the results.

7.4.1. Effects of board level IT leadership on IT governance oversight

Since IT governance oversight is the responsibility of the board, the board needs to exercise leadership in its directives to ensure effective IT governance implementation. To assess the effect of board leadership on attaining IT governance oversight, hypothesis H1 was tested to determine the association between board level IT leadership and IT governance.

H1₀: Board level IT leadership does not improve the effectiveness of IT governance.

H1₁: Board level IT leadership improves the effectiveness of IT governance.

The board's leadership is tested by both its ability to make IT-related decisions and it actually making those decisions. The effect of the board leadership on IT governance should result in an improvement of the effectiveness of IT governance over a period of time. A period of five/six years was considered following a similar time period used in the qualitative part of the study. Five questions were drafted to represent each of the five factors of board level IT leadership indicated in the research framework, to obtain responses on the board's IT leadership and one question was to determine IT governance effectiveness. The Fisher exact test was used to test the possible existence of an association between the dependent variable, "effective board level IT governance", and the independent variable, "nature of board level IT leadership". The results for the Fisher exact test are presented in Table 7.5.

The Fisher exact test was carried out between each of the five questions individually, and the single question representing board level IT governance effectiveness. The p-value for each Fisher exact test between each of the five pairs indicates significant evidence of association between each of the five factors representing the nature of board level IT leadership and IT governance effectiveness. Based on these results, H1₀ is rejected in favour of H1₁. The hypothesis that board level IT leadership does not improve the effectiveness of IT governance is rejected. Further explanation is provided on significant aspects of each of the test details highlighted in dark and light grey cells in Table 7.5.

Table 7.5: Fisher’s exact test results: Board level IT leadership vs board level IT governance improvement measure

		The board’s IT governance oversight improved over the past five/six years		Fisher’s exact test		
		No	Yes	exact value	p-value	comment
Rating of board’s ability to make IT governance-related decisions.	Very Low	3	0	29.177	0.000	significant
	Low	4	0			
	Normal	0	13			
	High	0	18			
	Very High	0	4			
Authority that approves IT strategy.	Board	1	15	18.126	0.000	significant
	CIO	1	0			
	Executive committee	0	14			
	IT committee	0	4			
	Other	5	2			
Authority that reviews and approves IT initiatives/projects of significant capital investment.	Board	3	21	10.466	0.033	significant
	Executive committee	0	8			
	CIO	0	1			
	CEO	2	1			
	Heads of Business Units	2	1			
	Other	0	3			
The board is able to use project monitoring reports to make decisions to effect the success or otherwise of projects.	No	4	3	7.811	0.009	significant
	Yes	3	32			
The extent of the board’s involvement with mitigation of IT-related risks.	Not involved	2	0	9.215	0.046	significant
	Only informed	1	4			
	Provide oversight	2	20			
	Only consulted	1	3			
	Minimally involved	1	3			
	Very involved	0	5			

Boards that have the ability to make IT-related decisions and actually make those decisions will significantly improve the board IT governance oversight over a five-/six-year period. This is further supported by the following statements based on the Fisher exact test p-values:

A board with the ability to make IT governance-related decisions improves the board's IT governance oversight over a five-/six-year period (Fisher's exact chi-square = 29.177, p-value = 0.000). The results presented in Table 7.5 and highlighted in green show that where the board's ability to make IT governance is high and very high, 52% of the respondents indicated improvement in the board's IT governance oversight over the specified five-/six-year period.

In an organisation where the board and the executive committee take the responsibility of approving the IT strategy, IT governance oversight effectiveness improves over a specified time period of five/six years (Fisher's exact chi-square test = 18.126, p-value = 0.000).

The sections in Table 7.5 highlighted in yellow, where respondents have indicated that the board (36%) and the executive committee (33%) approve IT strategy, indicate that IT governance oversight has improved.

Where boards take responsibility for the review and approval of IT initiatives/projects of significant capital investment, board level IT governance oversight is improved over the specified five-/six-year period (Fisher's exact chi-square test = 10.466, p-value = 0.33).

Based on all the details highlighted in Table 7.5 per each question asked, it is evident that 50% of the time IT governance oversight has improved. This includes instances (19%) where the executive committee has taken that responsibility.

Boards that use various types of project monitoring reports to make decisions that affect the success or otherwise of the project, improve IT governance oversight effectiveness over the specified time period (Fisher exact chi-square = 7.811, p-value = 0.009).

Regarding boards that use various project monitoring reports to make decisions that affect the success or otherwise, Table 7.5 shows that 91% of the responses indicated an improvement in board level IT governance oversight effectiveness.

Boards that provide oversight in the mitigation of IT-related risk improve their IT governance oversight effectiveness over the stipulated time period of five/six years (Fisher exact chi-square = 9.215, p-value = 0.046).

Regarding the board's involvement to mitigate IT-related risk, Table 7.5 indicates that board level IT governance oversight has improved.

Following the positive impact of the board IT leadership improving board level IT governance oversight effectiveness, the organisation's overall corporate governance must also be improved.

With all the p-values for each of the factors being significant, $H1_0$ is rejected. That, board level IT leadership factors considered in the test improves the effectiveness of IT governance.

7.4.2. The impact of internal organisational factors on the effectiveness of board level IT governance

An organisation's IT need and deployment should be in alignment with the organisation's strategic goals. The deployed IT should have the necessary capabilities to achieve the intended organisational strategic goals. To ensure that these capabilities are effective, other internal organisational factors should be adequately adjusted to support them and this is the responsibility of the board (King III, 2009; Parfitt & Tryfonas, 2009; ITGI, 2006). Hypothesis H2a was used to test whether internal organisational factors improve the effectiveness of board level IT governance.

***H2a0:** Internal organisational factors do not improve the effectiveness of board level IT governance.*

***H2a1:** Internal organisational factors improve the effectiveness of board level IT governance.*

Four questions were posed to assess how internal factors impact on the effectiveness of the board's IT governance. The four questions covered the four internal organisational factors, namely the role of IT in an organisation, the effectiveness of the IT leadership of the IT function in the organisation, the key stakeholders and their influence on IT investment decision making and business and IT strategic alignment. The results of the Fisher exact test are presented in Table 7.6.

Table 7.6: Fisher’s exact test results: Internal organisational factors vs board level IT governance improvement measure

		The board’s IT governance oversight improved over the past five/six years		Fisher’s exact test		
		No	Yes	exact value	p-value	comment
The role of IT in the organisation.	Strategic	0	9	3.255	0.203	Not significant
	Decision making	3	6			
	Operational efficiency	4	20			
The most frequent factor considered when making IT investments.	Financial (profitability, revenue, ROI, ROA, etc.)	3	8	1.593	0.792	Not significant
	Customer focus (retention, growth, satisfaction, etc.)	1	6			
	Operational efficiency	2	16			
	Knowledge management	1	5			
Effective IT leadership has contributed to the board’s IT governance oversight.	No	7	21	-	0.075	Not significant
	Yes	0	14			
How IT strategy and business strategy relate.	IT strategy is developed after business strategy	7	34	-	1.000	Not significant
	Business strategy is developed after IT strategy	0	1			

Table 7.6 shows that none of the four p-values were significant. With the p-values greater than 0.05, it is clear that there is a lack of possible observable associations (Freeman & Campbell, 2007) between the factors and improvement in the board’s IT governance oversight. Based on these results, hypothesis H2a₀ is accepted. It follows to conclude that internal organisational factors do not improve the effectiveness of board level IT governance (Fisher’s exact chi-square = 3.256, p-value = 0.203). However, the details of each of the tests

results presented in Table 7.6 are further discussed to provide insight into the relationship between the variables which would be used in the discussion chapter.

Regarding the most frequent factor the organisation considers when making an IT investment, 16 out of 42 respondents (i.e. 38%) indicated both operational efficiency and improvement of IT governance over the period (highlighted in green). The effective IT leadership factor, however, produced a reverse result with 21 out of 42 (i.e. 50%) indicating that effective leadership has not been a factor that has contributed to IT governance improvement in their organisation (highlighted in yellow and green). This is contradictory because IT governance did improve in their organisations in the five-/six-year period.

The last factor in Table 7.6 provides the nature of alignment between the IT strategy and the business strategy. A significant number of respondents, 34 out of 42 (i.e. 81%), indicated that IT strategy follows business strategy in their organisations and that IT governance has improved over the stated period of time indicated (highlighted in green).

The conclusion is that, with all of the p-values not significant, H_{2a_0} is accepted. Internal organisational factors do not improve the effectiveness of board level IT governance. However, the computed values in the crosstab indicate that operational efficiency, both as the role of IT in the organisation and as the most common factor considered when making IT investment, showed a positive influence on IT governance improvement. IT strategic alignment where IT strategy follows business strategy showed a positive influence on IT governance improvement. However, effective IT leadership was not a significant contributor to improvement in IT governance even though IT governance had improved over the stated period.

7.4.3. The impact of external organisational factors on the effectiveness of board level IT governance

The dynamic nature of the environment within which an organisation operates impacts on the organisation. Organisations have to be quick in adjusting their strategies in response to changes in the external environment to sustain the organisational performance and the continuous existence of the organisation. Organisations therefore have to respond to changes in the external environment if they are to survive. According to Minichilli et al. (2009) and codes of corporate governance (OECD, 2009), the board's oversight ensures that the organisation responds to the changes in the external environment. The board has to ensure

that the organisational strategies are appropriately adjusted in response to changes in the external environment to sustain the organisation's existence. Changes in the external environment include technological changes which the organisation may respond to by reviewing its IT strategy in alignment with the adjustment in the organisation's strategies. The board also has to ensure that the organisation responds to changes in the IT environment and the IT strategic alignment to the business strategic changes (Turel & Bart, 2014; Strebel, 2004). Hypothesis H2b was used to test whether external organisational factors improved the effectiveness of board level IT governance.

***H2b₀**: External organisational factors do not improve the effectiveness of board level IT governance.*

***H2b₁**: External organisational factors improve the effectiveness of board level IT governance.*

- To test hypothesis H2b, three questions on external factors relevant to the study were posed. The questions covered the influence of employing IT governance best practices, frameworks including King III IT governance principles and other external influencing factors. In evaluating each of the questions and responses, several low values, including zeros, per cell in the cross tabulations were observed. To overcome this, the responses in each of the three questions, presented as columns in the cross tabulation, were combined to obtain larger values (PROPHET StatGuide, 1997). According to the PROPHET StatGuide (1997), the property of the variable being represented by the question should still be preserved after the combination of columns. In such cases, the researcher should ensure that the hypothesis being tested is not changed or affected by the combination. The combination of the columns in each of the questions (factors) did not affect the hypothesis nor the property of the questions.

Based on the PROPHET StatGuide (1997), Q21's possible responses of "not applicable" and "low significance" were combined as "low significance"; the other responses "significance" and "high significance" were also combined as "high significance". A similar combination was done for questions 29 and 39 respectively. "Significance" here means "important and useful" and thus the combinations does not change the implication of the question. The computed Fisher exact test values are presented in Table 7.7.

Table 7.7: Fisher’s exact test results: External organisational factors vs board level IT governance improvement measure

		The board’s IT governance oversight improved over the past five/six years		Fisher’s exact test		
		No	Yes	exact value	p-value	comment
Significance of King III IT governance principles to the board.	Low significance	4	6	4.475	0.043	Significant
	High significance	3	29			
Board use of standards and frameworks.	Others	5	14	2.356	0.214	Not significant
	COBIT5, ITIL, RiskIT, ISO/IEC 31000, 27005, 11770	2	21			
Factors that have contributed to the board’s IT governance oversight improvement.	King III application	0	18	8.873	0.014	Significant
	Others	7	17			

From the results in Table 7.7, the following could be deduced:

Board level IT governance oversight is improved where King III IT governance principles are significantly applied by the board in effecting its IT governance responsibilities (Fisher exact chi-square =4.475, p-value = 0.043).

Regarding significance of King III IT governance principles used by the board in carrying out its IT governance oversight responsibilities, Table 7.7 shows that 94% of the respondents indicated an improvement in board level IT governance oversight (that is also 68% of all respondents). Therefore, significant application of King III IT principles by the board improves the board’s IT governance effectiveness.

Board level IT governance oversight is improved where in addition to King III IT governance principles, other IT governance frameworks, best practices and standards have been successfully applied or implemented (Fisher’s exact chi-test = 8.873, p-value = 0.014).

Based on the details in Table 7.7, respondents indicated an improvement in board level IT governance oversight where King III IT governance principles, other IT governance frameworks, best practices and standards, as well as other contributing factors have been considered and applied (highlighted in green and yellow respectively). This constitutes 83% of all respondents.

The board's use of these listed IT governance-related frameworks: COBIT 5, ITIL, RiskIT, ISO/IEC 31000, 27005, 11770 and others (of a similar nature) not listed, as reference guide when making IT-related risk mitigation decisions does not result in an improvement of the board's IT governance oversight (Fisher exact chi-square = 2.356, p-value = 0.214).

The details in Table 7.7 show that 91% of respondents indicated that the use of the listed frameworks enabled improvement in board level IT governance oversight, whereas 75% of respondents indicated that the use of other frameworks not listed also led to improvement in board level IT governance oversight (highlighted in green). The difference is not significant enough to suggest an association between board use of listed IT governance-related frameworks and improvement in the board's IT governance oversight.

Overall, even though two out of the three variables have significant p-values, $H2b_0$ is not rejected. Rather, each of the three variable are considered individually and conclusion on each drawn. With a p-value > 0.05 , the use of IT governance-related frameworks as reference guide when making IT-related decisions does not improve the board's IT governance oversight. However, with p-values < 0.05 , the board's significant application of King III IT governance principles and the use of other IT governance frameworks, best practices and standards improves the effectiveness of board level IT governance.

7.4.4. Effects of identified IT governance features on board level IT governance oversight

Because IT governance is an integral part of corporate governance, the board is responsible for ensuring the right processes, structures and mechanisms are in place. These are all regarded as features of IT governance and include IT risk management, IT investment management, compliance with laws and regulations, and the use of external IT expertise to provide input to IT governance matters. Hypothesis H3 was used to assess the effect of these features on board level IT governance oversight.

***H3₀**: Implementing identified IT governance features does not improve effectiveness of board level IT governance.*

H31: Implementing identified IT governance features improves effectiveness of board level IT governance.

The following four questions were drafted to do this assessment:

- External use of experts and advisory – Question 10 is represented by two sub-questions.
- IT investment management and progress reporting – Questions 18 is represented by four sub-questions.
- Compliance with laws and regulations – Question 22.
- Allocation of risk management responsibilities – Question 25.

The Fisher exact test values are presented in Table 7.8 and show that only two of the four questions produced significant p-values from the Fisher exact test.

The two with significant p-values are discussed first and then the others with non-significant p-values.

From the results presented in Table 7.8, the following inference may be drawn:

Boards that do not seek advice from external IT vendors, improve the effectiveness of their board level IT governance oversight (Fisher exact chi-square = 23.034, p-value = 0.000).

Regarding boards that do not seek advice from external IT vendors, Table 7.8 shows that 97% of the respondents indicated an improvement in their board level IT governance. This forms 81% of the total respondents. It follows that organisations do not usually seek advice from external IT vendors to affect their board level IT governance oversight. Only 14% of respondents indicated that their board seeks such advice from IT vendors out of which 86% indicated no improvement in the effectiveness of their board level IT governance oversight. It can thus be deduced that boards that seek advice from IT vendors when making IT governance-related decisions are unlikely to improve their effectiveness of IT governance.

Table 7.8: Fisher’s exact test results: Implemented IT governance features vs board level IT governance improvement measure

		The board’s IT governance oversight improved over the past five/six years		Fisher’s exact test		
		No	Yes	exact value	p-value	comment
The board seeks advice from external IT consultants.	No	6	21	1.895	0.390	Not significant
	Yes	1	14			
The board seeks advice from IT vendors.	No	1	34	23.024	0.000	Significant
	Yes	6	1			
The board monitors progress of IT projects using Project Progress Reports.	No	3	12	0.183	0.686	Not significant
	Yes	4	23			
The board monitors progress of IT projects using Project Issues Reports.	No	6	28	0.131	1.000	Not significant
	Yes	1	7			
The board monitors progress of IT projects using Audit reports.	No	7	25	4.227	0.168	Not significant
	Yes	0	10			
The board monitors progress of IT projects using Risk reports.	No	5	22	0.192	1.000	Not significant
	Yes	2	13			
Rating of the King III IT governance principles.	Low: Some principles are relevant.	5	4	10.702	0.002	Significant
	Medium: Most principles are relevant.	0	15			
	High: All principles are relevant.	2	16			
IT-related risk is the responsibility of	Management	5	11	4.851	0.091	Not significant
	Risk/Audit committees	2	11			
	Board	0	13			

Boards that rate most or all of the King III IT governance principles as relevant (important) to their IT governance oversight responsibilities improve their board level IT governance oversight (Fisher exact chi-square = 10.702, p-value = 0.002).

The details in Table 7.8 show that of the respondents who rated the King III IT governance principles as medium and high relevance, 97% indicated that board level IT governance oversight had improved. Contrary to that, 56% of those who rated the King III IT principles as low relevance indicated no improvement in board level IT governance oversight.

The board seeks advice from external IT consultants in making IT governance-related decisions has no significant influence on board level IT governance oversight improvement (Fisher's exact test = 1.895, p-value = 0.390, where $p > 0.05$). This indicates the lack of sufficient evidence of an association between the board's use of external consultants to assist it make IT-related decisions and improvement in IT governance. The details in the cross tabulation highlighted in grey indicate a higher response (50%) where respondents said "no" to the use of external consultants by the board and also to IT governance improvement.

The board's use of various types of reports to monitor progress of IT projects of significant capital investment does not impact improvement of board level IT governance oversight. These reports include progress reports (Fisher's exact chi-square = 0.183, p-value = 0.686), issue reports (Fisher's exact chi-square = 0.131, p-value = 1.000), audit reports (Fisher's exact chi-square = 4.227, p-value = 0.168), and risk reports (Fisher's exact chi-square = 0.192, p-value = 1.000). This indicates lack of evidence of an association between the board's use of various types of project reports to monitor IT investment projects of significant capital investment and improvement in board level IT governance oversight.

Regarding the board's use of reports, Table 7.8 shows that with the exception of progress reports, all the other report types are not used by the respondents' boards, with a significant majority percentage of respondents indicating improved board level IT governance oversight.

Board level IT governance oversight is indicated to have improved where the four listed reports have not been used. However, this is different for the use of progress reports as 85% of respondents indicated the board's use of progress reports to monitor IT projects of significant capital investment and improvement in board level IT governance oversight. Thus although not significant, progress reports indicated a positive association with improvement in IT governance oversight.

Who the board considers to be responsible for IT-related risk has no impact on the improvement in board level IT governance oversight (Fisher's exact chi-square = 4.851, p-value = 0.091, where $p > 0.05$). This indicates that there is not sufficient evidence of association between who the board considers as responsible for IT-related risk and improvement in period of five/six years. From the details of the cross tabulation, it is clear that there is a lack of significant variation between the various pairs of responses to both questions.

In conclusion, whilst only two out of the eight p-values were significant, the null hypothesis H_{30} , that implementing identified IT governance features does not improve effectiveness of board level IT governance is not accepted. Rather, the forgone discussion present probable studies on the individual factors and their p-values to further understand this observed occurrence.

7.4.5. Effects of IT governance control mechanisms on board level IT governance oversight

IT governance control refers to mechanisms instituted within an organisation to ensure control over the implementation of IT governance. Such control mechanisms include structures such as subcommittees, mainly audit and risk committees; risk policies; and directors' board experience. The effect of these control mechanisms on board level IT governance oversight was assessed by hypothesis H4.

***H4₀**: IT governance control mechanisms do not improve the effectiveness of board level IT governance.*

***H4₁**: IT governance control mechanisms improve the effectiveness of board level IT governance.*

To test hypothesis H4, four questions were posed relating to board subcommittees, directors' board experience, and IT risk policies that are formulated, implemented and reviewed.

Board subcommittee statistics have been discussed in Section 7.2 and are presented here in Table 7.9 in support of the hypothesis testing. The Fisher exact test results for the hypothesis testing are presented in Table 7.10.

Table 7.9: Percentage of respondents serving on board subcommittees

Board subcommittees	Number	Percentage
Audit Committee	16	38%
Risk Committee	14	33%
IT Committee	12	29%
Remunerations Committee	12	29%
Social and Ethics Committee	9	21%
Appointments Committee	5	12%
Other committees	5	12%
Don't serve on any committee	6	14%

Respondents were asked to select all subcommittees on which they served and Table 7.9 shows that the majority of respondents serve on an audit committee (38%), followed by the risk committee (33%) and then the IT committee (29%) and remunerations committees (29%). According to the Companies Act of South Africa (RSA, 2008), organisations must have an audit committee, remuneration committee and a social and ethics committee. The other committees are formed based on best practice recommendations of corporate governance codes. The statistics presented in Table 7.10 thus indicate that organisations do comply with both legislation and best practices.

Table 7.10: Fisher’s exact test results: IT governance implemented controls vs board level IT governance improvement measure

		The board’s IT governance oversight improved over the past five/six years		Fisher’s exact test		
		No	Yes	exact value	p-value	comment
Years of board experience.	< 1	1	1	7.268	0.126	Not significant
	1 – 5	1	17			
	6 – 10	1	7			
	11 – 20	4	6			
	16 – 20	0	2			
	> 20	0	2			
The organisation develops its own IT Risk Management policies.	No	5	7	6.851	0.014	Significant
	Yes	2	28			
Frequency of monitor, review and update of IT Risk Management policies.	Never	4	1	17.285	0.000	Significant
	Quarterly	1	3			
	Biannually	0	8			
	Annually	0	19			
	Other	2	4			

From the results presented in Table 7.9, the following could be deduced:

Directors’ years of board level experience do not impact on improvement of board level IT governance oversight (Fisher exact chi-square = 7.268, p-value = 0.126, where $p > 0.05$). There is no significant association between years of board experience and improvement in IT governance oversight.

The details in the cross tabulation show that 94% of respondents with board experience of between one to five years indicated an improvement in IT governance within the stated period of five/six years. This constitutes 40% of all respondents. Although significant, a similar percentage (40%) of respondents with more than five years of board experience also indicated improvement in IT governance. It may thus be inferred that the improvement of IT governance oversight experienced by respondents is likely to be due to other factors.

The development of an organisation’s own IT risk management policies impacts on the improvement of board level IT governance (Fisher exact chi-square = 6.851, p-value = 0.014,

where $p < 0.05$). That is, there is an association between an organisation's development of its own IT risk management policies and improvement in its IT governance oversight. Regarding organisations developing their own IT risk management policies, results in Table 7.10 show that 93% of respondents indicated improved board level IT governance oversight. This constitutes a majority of 67% of all respondents. Thus development of an organisation's own IT risk management policies improves its board level IT governance oversight.

The frequency of the board's monitoring, review and update of the organisation's IT risk management policies impacts on the improvement of board level IT governance (Fisher's exact chi-square = 17.285, p-value = 0.000, where $p < 0.05$). This indicates that, there is an association between how often the board monitors, reviews and updates the organisation's IT risk management policies and improvement in its IT governance oversight.

Regarding annual monitoring, review and update of the organisation's IT risk management policies, Table 7.10 show that all (100%) respondents indicated improved board level IT governance oversight. This constitutes 45% of all respondents. For the other frequencies, a much lower percentage indicated improvement in board level IT governance oversight. Therefore, where the board monitors, reviews and updates the organisation's IT risk management policies annually, board level IT governance oversight is improved.

In conclusion, although two out of the three p-values were significant, the null hypothesis is not rejected. Rather the forgone discussions considered each of the p-values individually and drew conclusion on each. It is concluded that director's years of board experience do not improve the effectiveness of board level IT governance. However, on the other two variables, it is concluded that the board's involvement in the in-house development of an organisation's risk policies, frequency of its review and update do improve the effectiveness of board level IT governance.

7.4.6. Effect of IT governance frameworks on board level IT governance

Board level capability to achieve effective IT governance oversight has been informed by guidelines from existing IT governance frameworks. Existing frameworks like Cobit, ITIL, ISO standards, and many others, provide guidance as to required processes, structures and policies to be implemented to achieve effective IT governance oversight. Clearly, none of these frameworks covers all the needed capabilities across the organisation. Hence, organisations combine various accepted frameworks and standards to achieve a desirable

outcome of IT governance oversight effectiveness. The effect of IT governance frameworks on board level IT governance oversight was assessed by hypothesis H5a.

H5a0: Effectiveness of board level IT governance is not enhanced if underpinned by a framework.

H5a1: Effectiveness of board level IT governance is enhanced if underpinned by a framework.

To test hypothesis H5a, three key points were established – firstly, the existing frameworks and their use; secondly, the significance and relevance of King III IT governance principles as the de-facto IT governance guidelines; and thirdly, the impact of the identified or existing frameworks being used to effectively implement IT governance oversight. The assessment was based on three main questions from the questionnaire. Responses to the list of existing IT standards and frameworks are presented in Table 7.11.

Table 7.11: Percentage use of IT governance-related standards and frameworks

Type of IT standards or framework referenced	Percentage
Frameworks including COBIT 5, ITIL, RiskIT, ISO/IEC 31000, 27005,11770	60%
I don't know	40%

Sixty percent of the respondents indicated that their board used at least one of the listed frameworks as a reference in making IT-related risk mitigation decisions. Forty percent of the respondents indicated that they did not know which IT standards or frameworks their boards use in this respect. According to the literature, boards find IT-related issues technical and they are not familiar with IT terminology. Thus, where respondents indicated not knowing what IT standards or frameworks their boards use does not conversely indicate the absence of IT standards or framework.

Tables 7.11 and 7.12 present the results of the responses on the significance and relevance of King III IT governance principles which the respondents' boards apply to implement IT governance oversight.

Table 7.12: Significant rating of King III IT governance principles

	Options	Percentage
Rating of the significance of King III IT governance principles to a board's IT governance oversight responsibility	Not really applicable	10%
	Low significance	14%
	Significant	59%
	High significance	17%

A combined percentage of respondents (76%) indicated that the King III IT governance principles are significant and of high significance. This is the majority of the respondents compared to the 24% who responded that the principles are not applicable or are of low significance.

Table 7.13: Relevance rating of King III IT governance principles

	Options	Percentage
Rating of King III IT governance principles	Low – Some principles are relevant	21%
	Medium – Some principles are relevant	36%
	High – All principles are relevant	43%

When rating the level of relevance of the King III IT governance principles, a majority (43%) of respondents indicated that the principles are of high relevance to their board's IT governance oversight responsibilities and thus its implementation. A further 36% indicated a rating of medium and only 21% indicated a rating of low relevance.

To then verify the possible influence of these findings on IT governance oversight effectiveness, the Fisher exact test was conducted between the three questions representing board level IT governance capability and IT governance effectiveness, represented by improvement in IT governance oversight over time. Question 29 was reviewed in two ways (scenarios 1 & 2) based on the responses obtained to the options of the question. This is presented in Table 7.14.

Table 7.14: Fisher’s exact test results: Board use of IT governance-related frameworks vs board level IT governance improvement measure

		The board’s IT governance oversight improved over the past five/six years		Fisher’s exact test		
		No	Yes	exact value	p-value	comment
<i>Scenario 1</i>						
Board use of standards and frameworks in making IT-related risk mitigation decisions.	Others	5	14	2.356	0.214	Not significant
	COBIT5, ITIL, RiskIT, ISO/IEC 31000, 27005, 11770	2	21			
<i>Scenario 2</i>						
Board use of standards and frameworks in making IT-related risk mitigation decisions.	Don’t know	5	12	3.312	0.99	Not significant
	COBIT5, ITIL, RiskIT, ISO/IEC 31000, 27005, 11770	2	23			

In scenario 1, the list of IT standards and frameworks option was combined with the “I don’t know” option. This was done to eliminate the possible impact of respondents not knowing about existing IT standards and frameworks on the association being investigated. In scenario 2, the list of IT standards and frameworks option was combined with the “Others not listed” option. Similarly, this was done to eliminate the potential impact of IT standards and frameworks not listed on the association being investigated. The Fisher exact test for both scenarios produced p-values that were not significant.

However, the Fisher exact test for the other two questions produced significant p-values. The summary of the Fisher exact test results for all the three questions is presented in Table 7.15.

Table 7.15: Fisher’s exact test results: Significance and relevance of IT governance frameworks vs board level IT governance improvement measure

	Has the board's IT governance oversight improved in the past five/six years?	
	<i>Fisher's exact test</i>	
	<i>p-value</i>	<i>comment</i>
How significant are the King III IT governance principles applicable to your board's IT governance oversight responsibility?	0.043	<i>Significant</i>
How do you rate the relevance of the King III IT governance principles to your board's IT governance oversight responsibilities?	0.002	<i>Significant</i>
The board uses the following IT standards or frameworks as reference in making IT-related risk mitigation decisions: Cobit 5, ITIL, RiskIT, ISO/IEC	0.214 (<i>scenario 1</i>)	<i>Not significant</i>
	0.990 (<i>scenario 2</i>)	<i>Not Significant</i>

From the Fisher exact test results in Table 7.15, the following could be deduced:

Board level IT governance oversight is improved where King III IT governance principles are significantly applied by the board to effect its IT governance responsibilities (Fisher exact chi-square = 4.475, p-value = 0.043, where $p < 0.05$). This has been similarly established in *Section 7.4.3*.

Boards that rate most or all of the King III IT governance principles as relevant (important) to their IT governance oversight responsibilities improve their board level IT governance oversight (Fisher exact chi-square = 10.702, p-value = 0.002, where $p < 0.05$). This has been established in *Section 7.4.4*.

The board’s use of the listed IT governance frameworks, namely COBIT 5, ITIL, RiskIT, ISO/IEC 31000, 27005, 11770 and others (of a similar nature not listed), as reference in making IT-related risk mitigation decisions does not impact on or influence improvement of the board’s IT governance oversight (Fisher exact chi-square = 2.356, p-value = 0.214, where $p < 0.05$). This has been similarly established in *Section 7.4.3*.

The conclusion, although two of the three p-values were significant, H5a0 is not rejected. However, since each of the p-values directly test the influence of the individual variables on

the effectiveness of board level IT governance, the conclusion is drawn on an individual basis rather than outright rejection or acceptance of H5a₀.

Considering the King III IT governance principles as a board level IT governance framework, it is established that:

(1) there is significant evidence of association between the King III IT governance principles applied by the board to effect its IT governance oversight responsibility and IT governance oversight improvement;

(2) there is significant evidence of association between the relevance of King III principles applied by the board to effect IT governance oversight and improvement of the board's IT governance oversight over the stated period of time; and

(3) other frameworks with IT governance-related guidelines do not impact or influence improvement of board level IT governance oversight. King III IT governance principles established as a board level IT governance framework are both significant and relevant to the board in carrying out its IT governance oversight responsibilities and have a significant positive influence on improving IT governance oversight performance over a period of time (five to six years).

7.4.7. Effect of board members' IT knowledge on board level IT governance oversight

IT knowledge or competence of the individual directors is considered as a determinate measure of a board's overall IT knowledge and competency. Knowledge and understanding of subject matter enables an individual to effectively interact and participate in discussions on the subject. Board level IT knowledge and competence enable board members to interrogate IT-related matters at the board level. Their lack of rigorous interrogation and debate on IT-related matters could be due to their lack of adequate knowledge and competence. The effect of board members' IT knowledge on board level IT governance oversight is assessed by hypothesis H5b.

***H5b₀**: Effectiveness of board level IT governance is not enhanced if members have knowledge that enables them to make decisions relating to IT governance.*

***H5b₁**: Effectiveness of board level IT governance is enhanced if members have knowledge that enables them to make decisions relating to IT governance.*

Table 7.16 presents the results of the hypothesis test using the Fisher exact test. The hypothesis tested the association between board members' (directors) IT knowledge and competencies, and their effectiveness in IT governance oversight.

Table 7.16: Fisher's exact test results: Directors' IT literacy and disposition vs board level IT governance improvement measure

		The board's IT governance oversight improved over the past five/six years		Fisher's exact test		
		No	Yes	exact value	p-value	comment
How do you rate your IT literacy?	Weak	2	3	3.043	0.371	Not significant
	Average	3	15			
	Very good	2	10			
	Excellent	0	7			
How comfortable/confident are you in making IT governance decisions?	Avoid making such decisions	0	1	5.365	0.266	Not significant
	Lack the knowledge to make such decisions	0	1			
	Moderately confident	2	4			
	Highly confident	5	17			
		0	12			

The Fisher exact test results indicate the following:

Literacy refers to knowledge and competency in a specific field or subject matter (Online Oxford English dictionary, 2016). The IT literacy rating of board members does not influence board level IT governance oversight (Fisher exact chi-square = 3.043, p-value = 0.371, where $p > 0.05$). Based on this result, there is no evident association between a director's (respondent) IT literacy level and improvement in IT governance oversight. Whilst the influence is not regarded as significant, respondents that indicated an average to excellent IT literacy also indicated improved board level IT governance oversight (highlighted in green).

Board members' level of comfort or confidence in making IT governance-related decisions does not influence the improvement in board level IT governance oversight (Fisher's exact chi-square = 5.365, p-value = 0.266, where $p > 0.05$). There is not sufficient evidence of association between the two variables. The details in Table 7.13 however show that board level IT governance oversight improved where respondents indicated moderate to highly confident in making IT governance decisions. Following from recommendations from the PROPHET StatGuide (1997), the low response values in both questions 34 and 35 provided in Table 7.16 were combined and the Fisher exact test recalculated. These results are provided in Table 7.17.

Table 7.17: Reviewed: Fisher's exact test results: Directors IT literacy and disposition vs board level IT governance improvement measure

		The board's IT governance oversight improved over the past five/six years		Fisher's exact test		
		No	Yes	exact value	p-value	comment
How do you rate your IT literacy?	Weak	2	3	2.490	0.244	Not significant
	Average	3	15			
	Good	2	17			
How comfortable/confident are you in making IT governance decisions?	Low confidence	2	6	3.554	0.124	Not significant
	Moderate confidence	5	17			
	Highly confident	0	12			

Although the p-value improved in both cases, the values are still $p > 0.05$ and thus not significant. The indication is still that, in both cases, there is no evident association between the respondents' IT literacy level or their level of comfort or confidence in making IT governance-related decisions and improvement in IT governance oversight by the board. However, the details in Table 7.17, highlighted in green, show that respondents with average and good IT literacy ratings indicated that their organisation's IT governance improved over the specified period (5/6 years). Similarly, respondents with moderate and high confidence ratings indicated improvement in IT governance over the past five/six years.

The conclusion is that $H5b_0$ is accepted. This indicates that the effectiveness of board level IT governance is not enhanced if members have knowledge that enables them to make

decisions relating to IT governance. That board members level of IT literacy and level of confidence in making IT-related decisions do not enhance the board's effectiveness IT governance.

7.4.8. Impact of effective board level IT governance on IT value realisation

Effective IT governance at the board level enables an organisation to build and utilise the appropriate IT capabilities to attain its strategic goals. Appropriate utilisation of IT capabilities results in IT value creation within the organisation. Effective board level IT governance ensures IT value creation through the effective use of IT capabilities. The attainment of organisational strategic goals is a measure of overall organisational performance. Effective board-level IT governance should therefore translate to improvement in organisational performance through IT value. Hypothesis 6a was used to assess the impact of effective board level IT governance on attainment of IT value add to an organisation as an intermediary effect on organisational performance.

***H6a0:** Effective board level IT governance does not add value to the organisation.*

***H6a1:** Effective board level IT governance adds value to the organisation.*

IT adds value where IT governance is being effective. The test for hypothesis H6a was conducted by considering improvement of IT governance, IT value realised and recognised, and the impact of IT on various identified stakeholders. This involved questions 37, 32 and 31 respectively. The results of the Fisher exact test are presented in Tables 7.17 and 7.18.

Table 7.18: Fisher’s exact test results: IT value add to the organisation vs board level IT governance improvement measure

		The board’s IT governance oversight improved over the past five/six years		Fisher’s exact test		
		No	Yes	exact value	p-value	comment
I believe that IT adds significant value to the organisation.	IT adds value	34	7	0.834	1.000	Not significant
I believe that IT is strategic and adds some value to the organisation.						
I believe that IT is merely an organisational tool.	IT adds no value	1	0			
Other						

Responses from question Q32 were grouped into two categories where one group indicated that IT adds value and the other group indicated that IT adds no value. Following from that, the Fisher exact test was computed and the p-value obtained as presented in Table 7.18. The p-value = 1.000, where $p > 0.05$ indicates the lack of association between respondents’ belief that IT adds value and IT governance improvement. The following could therefore be concluded: There is lack of evidence of association between IT adding value to an organisation and improvement in board level IT governance oversight (Fisher exact chi-square = 0.834, p-value = 1.000, where $p > 0.05$). This indicates that there is insufficient evidence to suggest the existence of an association between improvement in board level IT governance oversight and the significance level of IT value add to the organisation. However, 97% of respondents who indicated improvement in board level IT governance also indicated that IT adds value to the organisation as a result of effective board level IT governance oversight.

The Fisher exact test between IT governance improvement and the impact of IT implementation stakeholders is presented in Table 7.19. Only one significant p-value was obtained with the value $p = 0.048$, where $p < 0.05$ indicates an association or influence of IT governance improvement and the impact of IT implementation employees. The following could therefore be concluded:

Improvement in board level IT governance oversight impacts on value gained by employees (Fisher exact chi-square = 6.466, p-value = 0.046, where $p < 0.05$). Regarding improvement in board level IT governance, Table 7.18 shows that 91% of the respondents indicated a positive effect of IT implementation on employees (highlighted in green). Therefore, where organisations' boards have improved the effectiveness of their IT governance, IT implementation in the organisation has positively affected employees.

Table 7.19: Fisher's exact test results: IT implementation effect on stakeholders vs board level IT governance improvement measure

		The board's IT governance oversight improved over the past five/six years		Fisher's exact test		
		No	Yes	exact value	p-value	comment
Impact of IT implementation on shareholders	Negative	0	1	5.597	0.062	Not significant
	Neutral	6	13			
	Positive	1	21			
Impact of IT implementation on employees	Negative	1	0	6.466	0.048	Significant
	Neutral	2	3			
	Positive	4	32			
Impact of IT implementation on the community	Negative	0	0	2.028	0.197	Not significant
	Neutral	3	25			
	Positive	4	10			
Impact of IT implementation on the environment	Negative	0	0	4.227	0.168	Not significant
	Neutral	7	25			
	Positive	0	10			

Improvement in board level IT governance oversight does not impact on the effect of IT implementation on stakeholders such as shareholders (Fisher exact chi-square = 5.597, p-value = 0.062, where $p > 0.05$), the community (Fisher exact chi-square = 2.028, p-value = 0.197, where $p > 0.05$), and the environment (Fisher exact chi-square = 4.227, p-value = 0.168, where $p > 0.05$). These results indicate that there is not enough evidence to prove an association between improvement in board level IT governance and the impact of IT implementation on the identified stakeholders (shareholders, the community, and the environment).

The details from the table, however, show that 60% of respondents who indicated IT governance improvement also indicated a positive effect of IT implementation on shareholders (highlighted in yellow). However, the results are different for the other two stakeholders. In both cases, 71% of respondents who indicated IT governance improvement indicated a neutral effect of IT implementation on the community and environment respectively.

The conclusion on H6a₀ is that, although the majority of the p-values variables are insignificant, there is still one significant p-value, and hence H6a₀ cannot be accepted. However, the conclusion is drawn that, with the exception of IT impact on employees, the impact of IT on all the other stakeholders adds value to the organisation. The explanation is that where effective board level IT governance enables IT to impact on employees, organisational value is attained.

7.4.9. Effect of IT value an organisation gains from organisational performance

As organisations continue to deploy IT to attain organisational strategic goals, effective board level IT governance ensures that IT strategy aligns to the organisation's strategy. Organisational performance is thus enhanced where effective IT governance ensures the attainment of IT value add to the organisation. IT governance is associated with organisational performance via IT value. Hypothesis H6b was used to assess whether IT value addition increases organisational performance.

H6b₀: IT value add does not increase organisational performance.

H6b₁: IT value add increases organisational performance.

Three questions, 31, 32 and 33, were used to test the hypothesis. Question 31 had to obtain input about the effect of IT implementation on the organisation's stakeholders as a measure of IT value obtained, question 32 had to determine whether respondents believe that IT adds value to the organisation or not, and question 33 had to determine the extent to which IT contributes to organisational performance. Cross tabulation using Fisher's exact test was to assess the possible association between IT value gained by stakeholders and organisational performance measure. The Fisher exact test between these two combinations of variables produced two significant p-values out of a total of 20 possible combination of associations. The summary of the Fisher exact test p-values is presented in Tables 7.19 and 7.20.

Table 7.20: Fisher’s exact test results: IT implementation effect on shareholders vs organisational performance measures

		Where IT implementation in the organisation had positive effect on the following stakeholders;			
		Shareholders	Employees	Community	Environment
		p-values			
To what extent has IT contributed to the following area of the organisation's performance?	Return on investment	<u>0.004</u> <i>Significant</i>	0.677	0.064	0.760
	Increase in revenue	0.453	0.233	0.201	0.654
	Operational efficiency	0.387	0.628	0.355	0.941
	Customer satisfaction	0.166	0.225	<u>0.044</u> <i>Significant</i>	0.094
	Employee development	1.000	0.572	1.000	0.087

From the results in Table 7.20, the following could be deduced:

The effects of an organisation’s IT implementation on shareholder(s) impacts on the organisation’s return on investment (Fisher exact chi-square = 21.529, p-value = 0.004, where $p < 0.05$). Regarding the effect of IT implementation on shareholders, 68% of the respondents indicated a significant and very significant (combined) contribution to return on investment. This is in contrast to only 26% of respondents who indicated a neutral impact of IT implementation on shareholders but also indicated a significant to very significant (combined) contribution to return on investment. Using return on investment as a measure of organisational performance, the impact of IT implementation on shareholders results in an impact on the organisation’s performance.

The effects of an organisation’s IT implementation on the community impact on the satisfaction (level) of the organisation’s customers (Fisher exact chi-square = 7.692, p-value = 0.044, where $p < 0.05$). From the analysis, 79% of respondents indicated a significant and very significant (combined) contribution to customer satisfaction. In comparison, only 42% of respondents who indicated a neutral impact of IT implementation also indicated a significant and very significant (combined) contribution to customer satisfaction. Customers

reside in the community and the positive impact of IT implementation on the community is positively welcomed by those customers.

The summary of the Fisher exact test results for a possible association between the question Q32 measuring the IT value variable and organisational performance is shown in Table 7.21.

Table 7.21: Fisher’s exact test results: IT value add to the organisation vs organisational performance measures

		I believe that IT adds value
		p-values
To what extent has IT contributed to the following area of the organisation's performance?	Return on investment	0.238 (not significant)
	Increase in revenue	0.452 (not significant)
	Operational efficiency	0.143 (not significant)
	Customer satisfaction	0.643 (not significant)
	Employee development	0.619 (not significant)

From the results, it is clear that none of the p-values are significant and that all the values are greater than 0.05 (i.e. $p > 0.05$). This indicates that there is insufficient evidence for an association between IT value add to an organisation and the organisational performance.

From the analysis of the results in Table 7.20 (crosstab), the indication is that, where IT implementation had positive impact on the shareholders and the community, the organisational performance measured by return on investment (ROI) and customer satisfaction respectively had improved. However, this does not reflect in Table 7.21 where a direct Fisher’s exact test was conducted between the two categories of variables.

As evident in Table 7.21, IT value add does not contribute to organisational performance as measured by any of the five performance measures and therefore hypothesis $H6b_0$ is accepted.

7.4.10. Effective board level IT governance and organisational performance

The way an organisation utilises IT is dependent on its strategic intent. The achievement of this strategic intent requires a high performing IT (more efficient than in other similar organisations) which is achieved by effective IT governance. Irrespective of the business environment and uncertainty, effective IT governance is necessary for the organisation to

attain its strategic intent for IT. An organisation's strategic intent for IT would include the use of IT for growth, customer satisfaction, operational efficiency, asset utilisation, business flexibility and other measures of organisational performance. The impact of effective board level IT governance on organisational performance was assessed by hypothesis H7.

H7₀: Effective board level IT governance does not improve organisational performance.

H7₁: Effective board level IT governance improves organisational performance.

Two questions were used in testing hypothesis H7; one question measured organisational performance and the other question measured the effectiveness of board level IT governance. Organisational performance was covered by question 33 which measured the extent of the contribution of IT to the specified areas of organisational performance, namely return on investment, increase in revenue, operational efficiency and customer satisfaction. The effectiveness of IT governance was covered by question 37 which measured the improvement of board level IT governance over a given period of five/six years. Table 7.22 shows the results of the Fisher exact test for board IT governance oversight improvement against IT contribution to organisational performance measured by ROI.

Table 7.22: Fisher's exact test results: Board IT governance oversight improvement vs ROI measure of organisational performance

		The board's IT governance oversight improved over the past five/six years		Fisher's exact test		
		No	Yes	exact value	p-value	comment
To what extent has IT contributed to organisational performance by effecting return on investment?	Very minimal	1	0	15.070	0.001	Significant
	Minimal	1	5			
	Not contributed	1	11			
	Significantly	1	12			
	Very significantly	0	7			
	Not applicable	3	0			

Improvement in the effectiveness of board level IT governance impacts on organisational performance measured by the return on investment (Fisher exact test value = 15.070, p-value

= 0.001, where $p < 0.05$). The details highlighted in green in Table 7.22 show that 54% of the respondents who indicated improvement in board level IT governance oversight, indicated a significant and very significant (in combination) IT contribution to organisational performance represented by return on investment. This indicates that effective board level has a positive impact on organisational performance measured by return on investment. However, none of the p-values of the Fisher exact test for the other variables of organisational performance measures: revenue, operational efficiency, customer satisfaction and employee development were found to be significant.

The conclusion is that, effective board level IT governance improves organisational performance in terms of improvement of the organisation's ROI. Thus, whilst most of the p-values were not significant, the null hypothesis H_{70} cannot be accepted since the focus of the test is to find which aspect of organisational performance improved as a results of effective board level IT governance.

7.5. SUMMARY OF RESULTS OF HYPOTHESIS TESTED

Based on the results of the hypotheses tested, the following conclusions are made:

- a) Hypothesis H_{10} is rejected. It is concluded that in an organisation where the board provides leadership on IT oversight, the level of effectiveness of the board's IT governance is improved.
- b) Hypothesis H_{2a_0} is accepted. The hypothesis concludes that organisational internal factors does not improve the effectiveness of a board's IT governance. The impact or influence of an organisation's internal factors on the board does not improve the level of its IT governance effectiveness.
- c) Hypothesis H_{2b_0} is not rejected because one out of the three p-values (sub-hypotheses) was not significant, even though the other two were significant. It is thus concluded that two of the observed external organisational factors do improve the effectiveness of board level IT governance of an organisation. These external factors include the adoption of IT governance principles, standards and best practices of significance to the board.
- d) Hypothesis H_{3_0} is not accepted because two out of the eight p-values (sub-hypotheses) were significant, even though the other six were not significant. It is accordingly concluded

that two features of an IT governance implementation do improve the effectiveness of board level IT governance. These include a feature where the board seeks IT expert advice as part of its IT governance oversight and a feature where the board applies relevant IT governance principles.

e) Hypothesis H4₀ is not rejected because one out of the three p-values (sub-hypotheses) was not significant, even though the other two were significant. It is concluded that two of the observed IT governance control mechanisms improve the effectiveness of board level IT governance in an organisation. These controls include the board's involvement in the development of IT risk policies and controls, its reviews and monitoring of its implementation and effectiveness.

f) Hypothesis H5a₀ is not rejected because one out of the three p-values (sub-hypotheses) was not significant, even though the other two were significant. It is concluded that the effectiveness of board level IT governance is enhanced if underpinned by an IT governance framework that is considered relevant and significant by the organisation.

g) Hypothesis H5b₀ is accepted. The hypothesis concludes that the IT knowledge of board members does not improve the effectiveness of the board's level of IT governance.

h) Hypothesis H6a₀ is not accepted because one out of the four p-values (sub-hypotheses) was significant, even though the other three were not significant. Accordingly, it is concluded that effective board level IT governance in an organisation does result in IT adding value to the organisation by positively affecting its employees.

i) Hypothesis H6b₀ is accepted. Accordingly, it is concluded that IT value add to an organisation does not increase the organisation's performance measured by the five performance parameters.

j) Hypothesis H7₀ is not accepted because one out of the five p-values (sub-hypotheses) was significant, even though the other four were not significant. It is thus concluded that effective board level IT governance does improve organisational performance, which is measured by improvement in return on investment (ROI).

k) The crosstab results in Table 7.20 indicates that where IT implementation had positively affected shareholders and community, organisational performance measured by ROI and customer satisfaction respectively, had improved.

Following these findings, the conceptualised research framework was updated and is depicted in Figure 7.16.

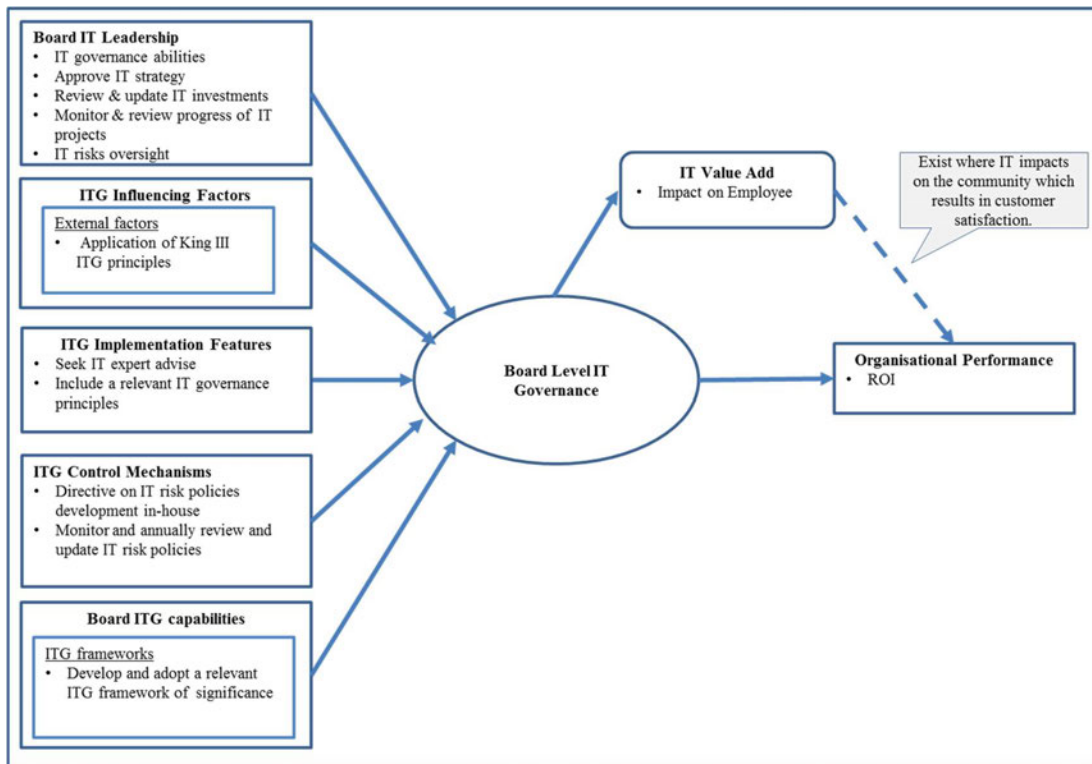


Figure 7.16: Significant associations in ITGF

The updated ITGF presented in Figure 7.16 identifies the factors and variables that have a significant positive impact on the effectiveness of an organisation’s board level IT governance. The updated ITGF shows that; the leadership role taken by the board in IT oversight, the consideration of external organisational factors in IT governance implementation, the features developed with an ITG framework, the controls development and implementation as integral part of the board’s IT governance oversight, and the adoption of an IT governance framework to underpin IT governance implementation at the board level improves the overall IT governance effectiveness at the board level of an organisation. The resultant effect of effective board level IT governance directly improves the value of IT as it impacts on employees and the organisation’s overall performance.

7.6. CONCLUSION OF THE CHAPTER

This chapter covered the analysis and findings of the data obtained from the quantitative aspect of the research. The analysis and findings of the data provided quantitative results to triangular against the qualitative results of the study presented in Chapter 6. Whilst the purpose of the chapter was to provide support for the qualitative findings (or otherwise), some significant descriptive and statistical findings were derived as well. A total of ten hypotheses were tested using mainly the Fisher exact test due to the small sample size. The test of significance was based on the p-value < 0.05 against a null hypothesis that indicated the absence of significant association between the variables being tested.

It is evident from the analysis and findings that effective board level IT governance oversight improves organisational performance, and a significant positive association exists between various factors within each of the independent variables and the effectiveness of board level IT governance oversight.

Based on the premise that the study is mainly a qualitative study with a mixed methods approach for triangulation, the results from this chapter were compared to the results in Chapter 6 to affirm (or otherwise) the findings from the qualitative analysis. Chapter 8 presents the comparison of the qualitative and quantitative analysis results.

CHAPTER 8

TRIANGULATION – COMPARATIVE ANALYSIS

8.1. INTRODUCTION

This chapter presents the analysis and findings of the qualitative study discussed in Chapter 6, the quantitative data collection discussed in Chapter 7 and their alignment with the literature review. The combined discussion achieves triangulation and validates the findings. As indicated in the methodology, the primary research method of this study was qualitative research and the quantitative method was used for triangulating and validating the qualitative findings. The discussion in this chapter therefore focuses on the themes of board level IT governance that emerged from the qualitative research and were then aligned to the factors in the board level IT governance framework (ITGF).

This chapter is presented in two sections. Section one presents the study's final conclusions on board level IT governance, and section two presents board level IT governance within the ten cases that were studied and mentioned in Section 5.9.2. This second section of the chapter is significant because the study was a multi-case study. Therefore, it was essential to gain an in-depth understanding of board level governance within the cases and to identify any peculiar governance patterns. After reviewing the financial results of the ten organisations, they were divided into three groups: small, medium and large, based on their average annual turnover from 2010 to 2014 (see Table 6.2). The within-case analysis is presented following the three group classifications.

8.2. ANALYSIS OF FINDINGS

A total of eleven key elements of differences identified across the themes and factors of the research framework are discussed in the following sections.

8.2.1. Access of IT leadership to the board

In examining access to the board, two types of IT leadership were identified from the qualitative analysis; these are executive and nonexecutive IT leadership. The executive IT leadership has the designation of CIO and reports directly to the CEO. It was found that executive IT leadership participates in executive level discussions, and provides IT support and advice to the board. The non-executive IT leadership has various designations such as IT manager, IS manager, or ICT manager and CIO in some cases. Thus the CIO designation

is not 'reserved' only for executive IT leadership. The non-executive IT leadership reports to the CFO and the CFO then reports to the CEO. The CFO acts on behalf of the IT function and thus has direct access to the executives and the board. However, it was found that some non-executive IT leadership has access to the board by invitation of the board, thus bypassing the CFO to access the board. It was noted that such non-IT leadership has the designation of CIO although they are non-executives. Both the qualitative and quantitative research found that there is a split of 50% executive CIOs and 50% non-executive CIOs.

The important finding is the board's access to the IT leadership for IT expert support and advice irrespective of the IT leadership's designation being executive or non-executive. Establishing direct access to sources of IT-related management information enables the board to overcome the challenge of "board capture" whereby the board has to depend on executives for management information (see Section 3.15.3). This also overcomes the problem of "information asymmetry" where executives are the only source of management information.

The key practice therefore is the establishment of a communication relationship between IT leadership (irrespective of the designation) and the board. The board must have direct access to the IT leadership when they need expert advice and input into their IT decision-making process. If successful, this arrangement overcomes challenges of the board reported in the literature, such as board capture and information asymmetry (Macey, 2008; Macleod, 2006; Henderson & Cudahy, 2005). It also makes IT leadership accountable to the board, as recommended by corporate governance codes such as King III (2009) and the UK Code (2012).

8.2.2. Board leadership in IT governance

Whilst the qualitative analysis and findings suggested that boards take leadership in IT governance, boards' IT knowledge and skills were still found to be limited. To some boards, IT competence is the 'elephant in the room' and board members are often reluctant to discuss IT-related matters. A possible reason for the limited IT knowledge and skills on the board is the board's own attitude towards the need to develop such knowledge and skills. However, the quantitative findings and analysis revealed significant evidence that boards have the technological competence, skills and ability to make IT governance-related decisions, and that boards have ensured that IT strategies align with business strategies.

Whilst the qualitative and quantitative findings seem contradictory, the indication is that the lack of IT knowledge on the board has not prevented them from effecting their IT oversight. The qualitative findings indicated that boards use IT committees and external IT experts, if necessary, to advise and assist them with IT oversight and decisions with IT-related matters.

To achieve IT and business strategic alignment, boards call for IT leadership support. The literature review indicated that organisations find IT strategic alignment difficult to achieve due to rapid changes in technologies, business strategies and the competitive and dynamic business environment (ITGI, 2009; Chen, Ramsay & Welsh, 2008; and Grant, 2003). The qualitative findings revealed that for boards to effectively ensure IT and business alignment, they require IT leadership that presents IT to them in a non-technical way.

8.2.3. IT deployment in support of brand equity

According to the qualitative analysis and findings, the percentage of IT initiatives with non-financial (non-tangible) returns or value has been low compared to those with financial (tangible) returns or value. IT initiatives intended to support and enhance an organisation's brand equity are usually considered as initiatives with non-financial returns and non-tangible value. Such projects, according to the qualitative findings and analysis, are not considered as priority projects and thus are likely to be relegated as less important initiatives. However, where such projects have been considered and approved by the board, the proposed IT solutions have been outside the organisation's normal products or service lines. These IT solutions establish strong, positive associations with customers and stakeholders beyond the organisation's normal engagement with them. The result of such value added solutions to customers and stakeholders is that they appreciate the brand more which in turn enhances the organisation's brand equity.

The quantitative analysis found that boards review and approve IT capital investments of significant cost based on non-financial (non-tangible) motivated returns. Factors the board considers when they review and approve such initiatives include achieving operational efficiency and meeting specific shareholders' interests, such as having a strong and appealing brand.

The two findings are thus that boards deploy IT in support of brand equity. This indicates that boards have adopted organisational sustainability beyond just financial returns on investments, such as brand equity driven by customers' and stakeholders' loyalty.

Gunawardane (2015) and Ahmad and Sherwani (2015) indicated that brand equity consists of the consumer's (or client's) loyalty to the brand, perceived quality of the brand, awareness of the brand, association with the brand and intention to continue use or acquisition of the brand. The consumer's continuous positive response to these relationships to the brand measures the brand's equity. According to De Oliveira, Silveira and Luce (2015), any positive increase or improvement in any of these consumer-related experiences with the brand significantly increases the brand equity positively. An organisation may thus employ IT in various innovative ways to enhance brand equity and to ensure that they protect this valuable asset. According to Lin (2015), innovative experience with a brand has a positive impact on the brand equity. Thus employing IT in innovative ways would improve the brand equity of the organisation.

Boards' support and approval of IT projects of non-financial (non-tangible) value is driven by stakeholder interest. Stakeholders' influence forms part of external factors that influence IT governance and is included in the ITGF. Thus, both the qualitative and quantitative findings indicate a significant and positive influence of external factors on board level IT governance.

The influence of external factors on boards when they need to approve non-financial IT projects is driven by both the sustainability of the brand being considered and the sustainability of the organisation as a whole. Organisational sustainability is in the interest of the organisation, the stakeholders and the shareholders. This is consistent with the stewardship model and enlightened shareholder model of corporate governance in which decisions are driven by non-financial outcomes and in the interest of all parties involved (The UK Code, 2012; Wixley & Everingham, 2010; King III, 2009; Parfitt & Tryfonas, 2009; Bowen et al., 2007).

8.2.4. King III IT governance principles adaptation

The qualitative analysis found that organisations have complied with King III IT governance principles and delegated IT governance oversight to either the risk committee or the audit committee. The quantitative findings corroborated the qualitative findings but further indicated that not all the King III IT governance principles are considered as significant to board level IT governance oversight. Principle 5.7 was rated low on its significance to board level IT governance.

Principle 5.7 recommends that the risk committee and the audit committee assist the board in carrying out its IT governance oversight responsibilities. The low rating of Principle 5.7 may be because the risk and audit committees are not IT focused committees. IT committees may thus be more effective than risk and audit committees which have other responsibilities apart from IT. Another reason, according to some respondents in this study, could be the board delegating too many of its responsibilities to subcommittees. In some instances, boards accept reports and recommendations from these subcommittees without further interrogating the report or recommendations. This is a call for more engagement by the board on IT-related matters rather than total reliance on subcommittees.

Thus, considering the exemption of Principle 5.7 of King III, boards should be able to take full responsibility for IT governance oversight and seek advice from IT experts and the IT committee below the board level.

8.2.5. IT policies as IT control mechanism

IT policies are necessary to ensure that organisations satisfy compliance requirements, guide the harmonious execution of IT plans, and achieve effective IT governance oversight. The qualitative findings indicated that the organisation had IT policies in place that covered various aspects of IT including deployment, risk, usage, management and oversight. Whilst the frequency of review and update of these policies has not been discussed, new policies are formulated in response to changes in the business environment such as new legislation, new technologies, and mitigation of business risk and business sustainability. External assurance processes are used to audit these policies. External consulting services such as PWC, KPMG, Deloitte, and Ernst & Young, as mentioned earlier, are external assurance service providers. These external consulting service providers, popularly referred to as the “big four”, are trusted nationally and internationally to provide quality audit, advisory and consulting services (Sikka, 2009).

The quantitative findings provided more insight on the effectiveness of IT policies governance oversight. IT policies were noted as significant in IT governance in both the qualitative and quantitative findings. What was significant regarding IT-related policies was the frequency of their review and update. The findings indicate that boards consider IT policies as a guide to their decision-making process, annually review and update their IT policies, have control over their IT decisions, and are able to monitor the implementation of their decisions. By reviewing and updating IT policies annually, organisations are able to

ensure that the dynamic changes in the business environment and new technologies are considered and appropriate responses issued.

8.2.6. Non-executive board IT skills, competencies and literacy

A lack of IT skills was named as one of the primary inhibitors of board level IT governance (Bart & Turel, 2010, Trites, 2004; Jordan & Musson, 2004). Based on the qualitative findings, most boards showed a low level of IT skills and competencies. Within that context, the findings indicated that executives have more IT skills and competencies and engage more on IT-related matters at the board levels than non-executive directors. The quantitative analysis confirmed the qualitative findings and provided further insightful findings on the board's engagement with IT issues.

According to the findings, although boards as a whole have high IT literacy and confidently make IT-related decisions, executives were found to be more confident than nonexecutives in making IT-related decisions. This finding contradicts the literature which stated that nonexecutives are expected to have more knowledge, skills and competence due to their exposure on other boards, and they should thus be able to guide the board on related matters (Johnson et al., 2000; Reich & Benbazat, 2000). The literature expressed the need and importance of IT skills and competences at the board level and that such skills lead to IT enabled value creation to the organisation (DeHaes & VanGrembergen, 2008; Huff et al., 2012; Nolan & McFarlan, 2005). A possible reason for non-executive low IT knowledge, skills and competence may be that, whilst nonexecutives are more likely to be exposed to more than one board, such exposure could be on boards with equally low IT competencies. Consequently, members have very little to learn or gain on IT competency from those engagements. Another reason could be the low availability of IT skills in South Africa in general to manage new technologies. IT- related skills have been highlighted by the Department of Home Affairs as scarce skills (RSA, 2014). Age of board members was also identified by both findings as a contributor to low IT skills at the board level. Based on the findings, most board members were above 50 years (an age group known as 'born before computer') and are not likely to be intimately involved with IT.

Overall however, the quantitative analysis indicated that board members' rating of their IT literacy levels did not influence or impact the effectiveness of board level IT governance oversight. How a board member rates their IT literacy may not necessarily rate their ability to make IT oversight decisions. According to Ogbechie (2012), diversity of skills and

expertise on the board enables the board to make high quality decisions. Also, as stated previously, boards have access to external expertise and consultancy services to assist them in decision making. Thus, whilst IT skills on the board are relevant, findings indicate that the rated level of IT skill does not have a significant impact on how effective the board's IT governance oversight is.

8.2.7. IT steering committees

IT steering committees (ITSC) were reported as management level committees rather than as board level committees. The qualitative findings indicated that whilst these committees are not board level subcommittees, much more detailed deliberations take place on these committees than at the board level. These committees are made up of executives, business unit leaders and relevant management representation and thus facilitate internal stakeholders' engagement. The findings also indicated that ITSCs provide support and advice to the board either directly or via subcommittees. The quantitative analysis found the ITSC to be the third ranked committee that directors serve on, with the audit and risk committees ranked first and second respectively. The ITSCs are also contacted by the board on issues relating to IT to provide advice or input on IT-related matters.

According to the literature, the role of ITSCs and their level of positioning within the organisation varies. Some ITSCs were found to be board level committees, whilst others were management level committees. The composition of these committees included members with a combination of IT and business knowledge to contribute effectively and knowledgeably to IT decision making. Posthumus, Von Solms and King (2010) observed that when limited IT governance expertise is present at board level, boards use committees to effectively discharge their oversight responsibilities. However, as indicated by Weiss et al. (2006), having an intermediary, such as a subcommittee, between the ITSC and the board, can weaken the importance and significance of the ITSC. It follows to suggest that ITSCs **must** have direct access to the board to be effective.

8.2.8. Governance of outsourced IT

Organisations respond to changes within their operating environment and make decisions based on existing situations. Organisations' increased use of and dependency on IT continue to be driven by changes within the operating environment of businesses. The qualitative findings show that organisations ranked small by this study in terms of their average

turnover, outsource significant parts of their IT. They do this in order to gain access to IT expertise when required rather than having such expertise engaged in-house. Two of the three organisations stated they employed IT as a tool and consider it as an expense. The significant characteristics of the IT setup in all three organisations include the lack of their boards' interest in IT oversight, absence of IT leadership, IT decisions and investment decisions being made by the CFOs, and reliance on their IT service providers for IT-related advice and decisions.

The indication here is that IT governance oversight in these outsourced engagements resides outside the board and extends beyond the organisations. In instances where board oversight is lacking, accountability is lost for any IT investment and deployment. This is best explained by the traditional model of governance (Section 2.1.2): when entity seeks directive (oversight) from an authority outside its parent body, the parent body risks losing control of the entity.

Boards of organisations with significant IT outsourced must pay specific attention to effecting governance directly over the IT outsourced relationship and demand accountability from IT leadership and outsourced service providers. The finding on board level governance in these outsourced IT environments is that there is an absence of board and IT leadership in the organisation.

8.2.9. Assurance of IT governance oversight

The qualitative findings indicated that organisations consider compliance with King III IT governance principles as a measure of how effective their IT governance oversight is. Nonetheless, whilst no non-compliance was reported in any of the published annual reports reviewed, the qualitative findings indicated the existence of some level of non-compliance within the participating organisations. Examples of such non-compliance include boards' lack of interest in IT governance matters, risk exposure in outsourced engagement, absence of documented IT strategy, and poor quality of in-house developed IT governance frameworks. The reason for this non-compliance could be that boards have not paid attention to all the King III principles. The following implications may be made about each area of non-compliance identified.

The lack of board interest in IT governance matters could be due to the board not taking responsibility for IT governance as recommended by Principle 5.1 of King III. Where

oversight of IT outsourced engagement lacks accountability from the board, the risk of business exposure is high due to the outsourced party having access to business information or infrastructure. IT risk in this case is not integrated into the business overall risk management plans and thus there is noncompliance to Principle 5.5 of King III. Effectively, strategic alignment of IT and business strategies requires the presence of an IT strategy as recommended by Principle 5.2 of King III; the absence of an IT strategy indicates the lack of alignment. Finally, an IT governance framework that lacks in specifying the structures, processes and mechanisms to be implemented for effective IT governance oversight will undermine the effectiveness of an organisation's IT governance oversight, as required by Principle 5.3 of King III.

The gap between reported compliance and actual compliance could be overcome by instituting King III to improve accountability rather than the current "apply or explain". The current paradigm of "apply or explain" has encouraged ticking of box and reporting complete compliance when in fact there is lack of compliance. King III's paradigm must be reviewed in its subsequent versions to include validation and verification processes. These processes must effect mechanisms that evaluate and affirm that King III principles have been implemented. The outcome of the verification process must be a measure of a board's oversight effectiveness (Ogbu, 2015, de Castro, 2009; Macleod, 2006).

8.2.10. Enforcement and "box ticking"

The study used "enforcement" to refer specifically to rules, regulations, practices and recommendations that are external to government legislation and laws that companies have to comply with. JSE listed companies have to comply with listing rules or face the possibility of being suspended or expelled. Included in the rules are practices and recommended governance codes like King III. The qualitative findings indicated that not all the King III IT governance principles are complied with as organisations are permitted to explain where a principle has not been applied. This is in some way confirmed by the quantitative analysis which found that Principle 5.7 of King III was rated low on significance to IT governance oversight.

Following triangulation of data sources for the study, the annual financial reports published by the ten participating JSE listed organisations were reviewed. The review of these reports indicated that all ten organisations reported compliance with the King III IT principles. However, some difference in reporting was observed which indicated varying levels of

compliance across the organisations. The qualitative analysis, however, found that some organisations did engage in “box ticking” as a measure of compliance. Macleod (2006) indicated that due to consequence of non-compliance, organisations focus on ‘box ticking’ to indicate compliance to the detriment of achieving set strategic goals. Consequently, organisations that “tick boxes” to indicate compliance have to deal with the existing non-compliance issues later and internally in order to avoid a possible suspension or expulsion. Another indication is that organisations do not take advantage of the “apply or explain” paradigm of King III. According to the King III (2009) introductory note, the spirit of King III is to enable organisations to improve their corporate governance in a linear manner in the best interest of the organisation. Avoiding “box ticking” and rather providing explanations and plans to effect compliance in later years would enable organisations to improve their corporate governance year on year as a learning process.

Therefore, the finding in practice is that, where enforcement rules exist as part of IT governance practices, the paradigm of apply or explain has not been effective but rather led to box ticking. To achieve acceptance and compliance with such enforcement rules or principles, the paradigm must be one that provides monitoring of progressive improvement of compliance and organisational performance as a measure.

8.2.11. IT VALUE ADD IMPACT ON ORGANISATIONAL PERFORMANCE

Organisations have achieved both tangible and non-tangible value from their IT implementations. The qualitative findings indicated that organisations achieved operational efficiency and saved on their operating cost following various IT implementation projects. Other IT projects had introduced innovative products and services that had resulted in increased customer numbers which translated to return on their IT investments. On the side of non-tangible value, organisations indicated that various IT projects had enabled the organisation to obtain accurate and timely information for decision-making to achieve organisational sustainability. However, organisations had no direct measurement of how such non-tangible IT value is translated into measurable organisational performance. Whilst the assumption exists within organisations, no direct measures were reported by the findings. These findings within the qualitative analysis are confirmed by the quantitative findings.

The quantitative findings indicated that, there is no direct impact or influence on organisational performance by IT value add. However, the finding indicated that, where IT deployment impacted on shareholders and the community, there is a corresponding

association with organisational performance measured by return on investment and customer satisfaction respectively. The lack of significant evidence of a direct relationship between IT value add and organisational performance is provided in the qualitative findings. Organisations' IT projects (deployments) did not focus directly on employees nor on the communities.

According to the literature, whilst the interest of stakeholders such as employees and communities (society) have been advanced within evolving corporate governance models, the primary focus of organisations is still the shareholder and the maximization of shareholder value (Letza et al., 2008; Wong & Bajuri, 2013; Wixley & Everingham, 2010). Hence, boards' approval decisions of IT projects have focused on tangible value such ROI, revenue and financial growth. Whilst the finding is consistent with the literature, it provides evidence that, should organisations consider employees and communities in their governance decision on IT projects, there is a possible impact on the overall organisational performance.

Organisations **must** derive matrixes that translates non-tangible IT value to measurable organisational performance measures to support and justify IT investments targeted at employees and communities.

8.3. ITG EFFECTIVENESS AMONG ORGANISATIONS

According to the literature, organisations with effective IT governance achieve return on their IT investment and attain higher average growth over their peers with ineffective IT governance. From the qualitative findings, sixty percent (60%) of the participating organisations had effective IT governance i.e. six out of the ten companies. Out of these organisations with effective IT governance, 80% achieved medium to high average annual growth in turnover during the period reviewed. On the other hand, 75% of the organisations that lacked effective IT governance had low to negative growth. The qualitative findings produced similar results. From the qualitative findings, effective IT governance influences or impacts on IT value add to the organisation. In addition, effective IT governance impacts positively on overall organisational performance achieved by ROI.

The overall assessment of IT governance among the ten companies were classified as effective, not effective (or lacking IT governance effectiveness) and neutral.

8.3.1. Organisations lacking ITG effectiveness

Differences were identified between organisations with effective ITG and those that lacked effective ITG. These differences related to the nature of IT leadership and the influence of internal factors on board level IT governance. The three organisations that lacked effective ITG had boards that were not interested in their IT governance responsibilities and had no direct head for their IT functions to provide IT leadership. These organisations thus lacked guidance and direction on IT-related matters and consequently were unable to implement the required IT governance oversight capabilities and controls. IT leadership provides IT knowledge and expertise to the organisation and to the board on the strategic and innovative use of IT (Valentine & Stewart, 2013; Beulen, 2004). The presence of IT leadership therefore enables the alignment of IT and business strategies. When board leadership on IT is lacking in an organisation, the organisation risks the attaining its goals since IT in such cases is not effectively aligned to the organisation's strategic goals (Nolan & McFarlan, 2005).

Regarding the value that IT adds to an organisation, two of the three organisations that lacked significant board level IT governance indicated that their IT was more of a cost and an expense. These organisations did not consider their investment and deployment of IT within their organisations as adding value. The third organisation indicated the board's comment and concern about the high cost of IT investments without supporting evidence on return on the investments. These finding may be related to the lack of IT leadership in these organisations. IT leadership has the responsibility to articulate strategic use of IT to improve operations of the organisation and enable the attainment of its goals (Wade & Hulland 2004). Additionally, these organisations have not be able to implement King III IT governance principles or have poorly done so.

8.3.2. Organisations with neutral ITG effectiveness

Only one organisation had a board level IT governance oversight rating of neutral due to a balance of significant, not significant and neutral effects of the factors. Organisation C4, rated with a neutral board level IT governance oversight, had a fragmented IT leadership setup. Different aspect of the IT functions reported to different line managers across the organisation. Classified as a large organisation in this study, the organisation was reported to have embarked on a huge ERP systems roll-out across its different operations nationally and internationally. Whilst the project was approved by the board, the board had expressed concern with the high capital cost and magnitude of the project and the expected return on

the investment. The ERP project formed part of an extensive restructuring process across the organisation to implement a centralised governance structure with IT playing a significant role.

According to Peterson (2004), an organisation's corporate governance model influences its IT governance mode. C4 was in a state of transformation from a decentralised corporate governance model to a centralised model. IT was identified as an enabler and thus positioned at the centre of the transformation. IT governance oversight at the board level was thus focused on the huge IT capital investment into the ERP project to build capabilities for competitiveness. The board's IT oversight in this case was to ensure that the investment sustains the organisation during the transformation to ensure that the expected goal is attained (Gheorghe, 2010; Short & Gerrard, 2009; King III, 2009).

The finding is significant and presents IT as an enabler of organisational transformation (Cha & Cha, 2014). The point is that, as an enabler of transformation, IT cannot be expected to yield direct returns (organisational performance), but rather has to ensure a smooth transformation. Hence, IT governance must focus on sustaining the organisation during the period of transformation. In the case of C4, sustainability of the transformation process and achieving organisational stability was the focus rather than effecting organisational performance (Du & Tanriverdi, 2014; Cha & Cha, 2014). Neutral ITG effectively defines the appropriate focus of the board on the prevailing IT matters.

8.3.3. ITG effectiveness and organisational growth

Following the classification of the ten organisations by their financial growth performance and size (Sections 6.2.1 and 6.2.2), this section is a review of the relationship between these classifications and their ITG. Considering the effectiveness of each of the organisations presented in Table 8.1 and their classifications, it is found that effective board level IT governance varied across the ten organisations irrespective of the size organisation and irrespective of the role of IT within the organisation.

However, a significant finding is the high annual percentage growth within organisations rated with significant ITG oversight effectiveness compared to the other ITG-rated organisations. Similarly, medium size organisations with significant ITG oversight effectiveness had a higher average annual percentage growth than those with non-significant ITG. According to Weil and Ross (2004), organisations with effective IT governance

achieve higher growth than their counterparts with similar strategies but with weak or ineffective IT governance. However, whilst the strategy of these organisations was not included in the study, the finding that effective board level IT governance positively impacts on organisational performance is still significant.

8.4. KEY SUCCESS FACTORS FOR ITG OVERSIGHT EFFECTIVENESS

The five key success factors identified for ITG oversight effectiveness are presented in Table 8.1.

Table 8.1: List of key success factors

ITG factors	Success factors
IT leadership	<ul style="list-style-type: none"> • IT leadership must have access to, communicate with, and participate in discussions on IT-related matters at both executive committee and board levels <ul style="list-style-type: none"> ○ An executive IT leadership would make communication easier
Internal influencing factors ➤ IT positioning	<ul style="list-style-type: none"> • How IT is positioned within the organisation and its characteristic use should be clearly defined by the board and communicated across the organisation <ul style="list-style-type: none"> ○ Clarified IT position and use within the organisation guides IT decisions including decisions by the board and executive management: on IT investment, IT leadership, project selection and implementation
IT value	<ul style="list-style-type: none"> • IT value should be clearly defined and its measurement should be defined in diverse ways across the various aspects of the business <ul style="list-style-type: none"> ○ Non-financial and non-tangible value definitions should both be strategically considered and included
Control mechanism ➤ Subcommittees: Skilled, qualified and competent	<ul style="list-style-type: none"> • Subcommittees should have the requisite skills to interrogate IT matters and effect IT governance oversight as delegated • Report in detail to the board for the board to make informed decisions and take accountability
Capability	<ul style="list-style-type: none"> • Board interrogation of IT-related matters and seeking advice where needed <ul style="list-style-type: none"> ○ Seeking advice when needed would compensate for low IT knowledge/competency on the board

The first, and main key success factor is the role played by the IT leadership. IT leadership **must** be involved with IT decision making at both the executive and board levels. Secondly, the role and position of IT within the organisation has to be clearly defined and endorsed by the board. Irrespective of the nature of the role of IT, ensuring clarity of such a role provides

the basis on which IT governance practices and processes would be established. Thirdly, IT value definition and measures need to be established by organisational policies. IT value could be tangible or intangible and thus a well-defined classification and measure would enable an organisation to identify where and how its IT adds value to the organisation. The fourth success factor is the support provided by the IT committee to the board. Again, irrespective of the level of the committee (board level or management level), it must possess the skills and competence to appropriately advise the board on IT-related matters. The fifth and last success factor is the board capability in effecting IT governance oversight. The board must identify and establish appropriate capability either directly within the board itself or within the proximity of the board for making IT-related decisions. Whilst this could be an IT committee, the role of external IT experts is recommended as it provides an external and independent perspective.

8.5. ITG OVERSIGHT CHALLENGES

The findings on ITG challenges relate mainly to board level challenges in effecting IT governance oversight. The literature however identified IT governance implementation challenges mainly at management level rather than at the board level. The only two board level challenges identified within the literature are the challenge of ensuring effective oversight of IT investment projects to ensure the successful attainment of expected return (Wilkin & Riddett, 2009; Musson, 2008), and the challenge of lack of IT skill/knowledge/competency at the board level (Valentine & Stewart, 2013; Nash, 2012; Groyberg & Bell, 2012; Parent & Reich, 2009).

IT investment oversight was identified as one of the factors that influences the effectiveness of ITG. ITG must include effective oversight of IT investment as part of its implementation features. The implementation of an effective ITG framework would ensure effective IT investment oversight. The study found the main challenge of IT skill/competence/knowledge at the board level to be the lack of critical interrogation of IT matters, i.e. reports and recommendations on IT matters obtained from subcommittees. The indication is that, whilst some board members understand IT and its role in the business, they are unable to direct its strategic use to drive the organisation's strategy (McAfee & Brynjolfsson, 2012; Muhanna & Stoel, 2010; Masli, Richardson, Sanchez & Smith, 2011). Whilst IT skills, competence and knowledge may be lacking on some boards, existing codes of corporate governance recommend the use of IT experts and advisors to assist the board with its deliberations and

decision making on IT matters. Boards must therefore not be limited by the lack of IT skills, competence and knowledge to be effective with ITG.

The ITG capability factor within the ITG framework requires the board to build capabilities that enable interrogation and effective board engagement in IT-related matters. This includes utilising the IT governance framework and attending training programmes for board orientation and directors' development. Ultimately, in all cases, a board has to apply its skill of duty, of care and diligence to interrogate reports and seek clarity where needed. Effective ITG therefore requires boards to acquire the relevant capabilities to enable them to make the right strategic choices, understand the working processes and variables that link board effectiveness and decision making to organisational performance outcomes.

8.6. CONCLUSION

The findings indicated that irrespective of the size of the organisation or the role of its IT deployment, effective ITG oversight improves the organisation's overall performance.

Organisations with a significant outsourced portion of IT are most likely to lose board oversight of IT which could also result in loss of board accountability. Therefore, in an outsourced environment, boards must endeavour to take control and maintain IT governance oversight and accountability and not relegate that responsibility to management or to an outsourced service provider.

According to the findings, an organisation going through transformation and restructuring may employ IT as a pivotal change catalyst. This is a reflection of an organisation's strategic decision making regarding its IT governance. However, during such instances, IT governance oversight by the board may be lost due to the board's focus on the extensive cost implication and maintenance of solvency and sustainability. Incorporating IT governance significantly within corporate governance ensures the board's continuous oversight of IT during the process. IT can thus be considered and successfully used as a change catalyst.

The next chapter provide recommendations to improve IT governance oversight and suggested future research to further the understanding of board level IT governance.

CHAPTER 9

CONCLUSION AND RECOMMENDATIONS

9.1. INTRODUCTION

This chapter presents the conclusion of the study and proposes recommendations for implementation and suggestions for future studies. The need for IT oversight has been prompted by extensive IT risk exposure of organisations due to the continuous increase in IT investments and subsequent increased dependency on IT. Thus, to ensure the effectiveness of IT oversight, IT governance has been elevated as a board level responsibility and incorporated into corporate governance practices and codes in South Africa. Following the incorporation of IT governance into corporate governance, the need for studies and research into IT governance has received more attention in recent times. However, studies that focus on understanding the insight of IT governance at the board level and how the board effects IT oversight have been limited. This study has thus contributed in bridging the gap in the understanding of IT governance implementation as a corporate governance practice at the board level.

9.2. KEY FINDINGS

Following the analysis, findings and discussions, the key findings are summarised as follows:

Board level IT governance oversight was found to be significantly effective within JSE listed companies located within the KZN province. The finding indicates that effective ITG oversight improves organisational performance.

Board interrogation of and engagement in IT-related matters was identified as the main board level challenge to IT decision making; rather than the actual existence of IT knowledge and competence of the board. However, a critical human factor identified for ITG success is the need for the board to improve its overall corporate governance competencies and expertise.

Based on the findings, the majority of board members were above the age of 50 years and thus more likely not to be IT savvy. Board members' IT knowledge and competence were found to be insignificant in influencing the board's IT governance effectiveness. These two findings affirm why IT competency and knowledge are lacking or limited on boards.

ITG oversight and decision-making rights are lost or weakened when a significant portion of IT in an organisation is outsourced.

ITG oversight in times of organisational restructuring and transformation becomes focused on overseeing IT investments and on the attainment of returns as the organisation's resources are limited and thus require stringent dispersion and control.

Organisations tick boxes to indicate compliance in order to satisfy enforcement requirements, whilst they only continue to try and attain actual compliance thereafter.

In practice, due to increased pressure on boards from various sources, both internal and external, boards have become more dependent on subcommittees to ease the pressure. The delegation of IT governance to IT committees has therefore become more prominent and they are expected to provide both expert advice and support to IT governance processes.

Business expectations for IT are rising. To help meet the strategic needs of the business, many organisations are implementing IT governance framework practices to enhance IT and business strategy alignment.

Five key success factors were identified as significant within the ITG model to achieve effective ITG oversight.

Only one key challenge was identified at the board level that affects ITG oversight effectiveness. A recommendation is thus provided on how to overcome that challenge.

9.3. RECOMMENDATIONS FOR EFFECTIVE ITG OVERSIGHT

The following recommendations are made to assist organisations to pursue and achieve effective ITG oversight.

- Balance of skills on the board should include IT skills: Whilst various corporate governance codes and best practices have recommended a balance of skills on the board, this has not been the case. Boards have been dominated by financial and accounting skills. Also, current directorship induction programmes focus more on financial aspects of directorship skills. However, the role of IT in organisations has elevated IT skills and competencies as a significant requirement in effective decision making. IT skills and competencies on the board cannot be limited to a limited list of nonexecutives. Following from the findings of this study, the following are recommended:
 - Directors' induction programmes undertaken by organisations for new directors should incorporate an overview of IT skills and competencies for directors.

Whilst some programmes include the role of directors in IT oversight, they do not include what skills and competencies directors should have. Directors should be trained to understand the various functional areas of IT (Applications & Systems, Infrastructure & Telecommunications, Services).

- Understanding these IT functional areas would enable directors to better understand the strategic alignment required between business strategy and IT strategy. Directors' skills upgrade training should then incorporate IT strategic decisions that include understanding IT strategy, IT investment decision making, IT policies, IT risks, IT value delivery and IT performance.
- Develop and implement an appropriate IT governance framework: Organisations should develop and implement their own in-house IT governance framework. This should commence by first clarifying what an IT governance framework is, its content, quality and standards. It must be clarified that King III IT principles are a set of guidelines and not an IT governance framework. The board should charge and oversee the development and implementation of the IT governance framework. Whilst many frameworks exist, they only cover aspects of IT governance and do not fit all organisations. An in-house development approach would enable the organisation to include the relevant and appropriate elements that fit the organisation. The development should be guided by existing best practices and standards.
- IT risk oversight: The board should be fully involved in the process of IT risk oversight at the board level. This should involve the board partaking, together with executive management, in the formulation of IT risk policies. IT risk policies form the basis of the consideration of IT risk exposure to the organisation and hence guide IT investments and deployments within the organisation. Well formulated IT policies would then guide the interaction and communication on IT risks between the executives and the board. The following process should be followed:
 - An IT risk register should be presented to the board for noting as part of the board pack for all board meetings. This IT risk register should highlight, for each risk listed, a corresponding risk policy being affected. Most frequent policies being affected should be reviewed and updated where appropriate.
 - Delegation of IT risk to board committees – whilst this practice is consistent with most corporate governance codes, reports presented by these committees should

be interrogated by the entire board in alignment with the appropriate risk policies following the process above. It is recommended that the entire board should be allowed to apply its mind on all IT risk-related issues brought before the board as a board responsibility rather than just a few committee members.

- **IT Steering Committee:** Organisations should set up an IT steering committee. It is recommended that this committee should be a management level committee rather than a board level committee. The role of the committee is not to make IT-related decisions nor to be delegated with such oversight but rather to recommend appropriate use of IT and to facilitate its adoption and integration into the organisation. The committee should also oversee the implementation of the board's IT related directives. The committee's terms of reference should include the identification and review of new technologies, facilitate and ensure that all business units or functions take ownership of their IT projects and systems, and facilitate IT project rescue to turn around challenged projects. The committee would be accountable to the CEO and constitute business unit heads, IT representatives from each IT functional area and appropriate external IT experts.
- **IT Advisory to the board:** Whilst various corporate governance codes have recommended that the board seek advice from experts when needed, it is recommended that such advice on IT should come first from the internal IT leadership. IT leadership being the head of the IT function within the organisation should be empowered and invited by the board as the first point of IT advisory to the board. The head of IT is in the best position to translate technical IT into a business strategy tool and present that in a comprehensible manner to the board. The organisation should therefore ensure that the head of IT is highly skilled and competent. However, should it be required, the board could seek external advice.
- **Development of a guide for the board on ITG:** This is a proposed questionnaire to assist the board with the basics of ITG and guide them on areas of IT governance to focus on. The following questions in Table 9.1 are recommended for board members to ask at all times during board meetings.

Table 9.1: Board level IT governance questions to ask

	ITG questions	Explanation
1.	<p>What is our current strategic use of IT?</p> <ul style="list-style-type: none"> • Are all related projects on track? • Are we obtaining expected value? 	<p>This ensures consistent reminder to the board of strategic use of IT and its related issues.</p>
2.	<p>What are the listed risks and have they been dealt with?</p> <ul style="list-style-type: none"> • What is the risk management plan for each and what is its status? 	<p>This provides a constant reminder and involvement of the board on IT risk oversight.</p>
3.	<p>What are the current external IT issues of interest to us?</p> <ul style="list-style-type: none"> • What IT advancements have the potential to impact us? 	<p>This provides awareness to the board on IT advancements and the opportunities and threats.</p>
4.	<p>What are the current IT investment requests?</p> <ul style="list-style-type: none"> • Have all been vetted in alignment with our strategy? <p>An approved project selection process and business case template should exist and be followed. This should be developed and approved by the board.</p>	<p>This is to enable the board to consider and approve strategic IT projects. This would eliminate or reduce possible IT project failures.</p>
5.	<p>What are the IT agenda items?</p> <ul style="list-style-type: none"> • Are all such items board level issues? <p>IT agenda items should focus on decision making, directives, monitoring and evaluation of implemented IT directives.</p>	<p>To ensure that only board level IT issues are brought to the board whilst issues relating to IT implementation are relegated to management.</p>

9.4. UNIQUE CONTRIBUTION OF THE STUDY

This study has contributed to the knowledge on corporate governance, IT governance and board level responsibilities. The following are the unique contributions of the study:

- **Corporate and IT governance in South Africa**

The overall contribution of the study is that, as a South African based study, it has provided an understanding of board level IT governance in South Africa and the level of effectiveness of board IT governance within JSE listed companies.

- **Insight on board level IT governance by JSE listed companies**

The study has provided insight and understanding on how boards of a sample JSE listed companies govern IT. The overall findings indicated that boards of JSE listed companies govern IT effectively at the board level. The study provided details of the findings on the level of effectiveness of each of the factors included in the research framework on board level IT governance.

- **A framework for effective board level IT governance oversight**

The derived ITGF provides components of a board level IT governance framework and the factors that significantly impact on its effectiveness. The framework would help organisations understand and overcome the ambiguity of and distinction between IT ‘governance’ and ‘management’. The framework can be reviewed, tested and used in future studies.

- **The use of multiple theories**

The study contributes to the call by Bart and Turel (2014) and others for a multiple theories approach in a study to better understand how boards govern IT. The study reviewed and applied the following theories: agency theory, stakeholder theory, stewardship theory, resource dependency theory, strategic choice theory and institution theory. These theories formed the basis of the conceptual board level IT governance framework (ITGF) and its use as the research framework for the study.

- **Thematic analysis using NVivo**

The study methodology provided an improvement to the O’Neil (2013) four-stage systematic approach to thematic analysis when using NVivo. O’Neil’s approach was an

improvement of the Alfoldi and Sinkovics (2012) six-stage approach. Improving on each stage of O'Neil's approach improved the level of rigour in the thematic analysis to achieve a more in-depth analysis and interpretation of the themes derived.

- King III IT governance principles' significance and relevance ranking
The study found the King III IT governance principles to be very significant to board IT governance oversight. The principles were ranked by respondents based on the level of relevance to board level IT governance and are presented in Table 7.3.
- Board level IT governance key success factors for effectiveness
The study identified a list of key success factors for achieving effective board level IT governance. These factors are board level focused and a South African perspective. This contributes to other similar factors found outside South Africa and below board level IT governance.
- Location of IT governance
This study has introduced that, IT governance as underpinned by governance theories should not be at any other level but at the board.
- Some significant findings
Board members' diverse board skills and competences improve the board's IT governance effectiveness rather than their IT skills and competence.
Boards have used internal IT experts rather than external experts to achieve effective IT governance. This includes consulting and involving the IT leadership directly in discussions on IT matters rather than the CFO or any other non-IT head of IT.
- Future studies
A conceptualised corporate governance framework that identified factors that influence and impact corporate governance was derived. This can be tested by future studies to understand how the identified factors enable the achievement of effective corporate governance implementation, organisational sustainability and market response.

Overall, the study found that board IT governance levels improve organisational performance. This finding is consistent with most findings of other studies reviewed within the literature.

9.5. LIMITATIONS OF THE STUDY

IT governance as a responsibility of the board was codified as a corporate governance best practice in South Africa in 2009 by the King III code. Studies on the subject are thus limited, with very few South African specific empirical studies. Literature referring specifically to board level IT governance oversight is also lacking, and that which is available focuses only certain aspects of board level IT governance and not on the entire phenomenon of board level IT governance.

Difficulty in generalising results: the study is primarily a qualitative study and backed by a quantitative method that used a purposive sample. Thus the results are not generalisable across the entire JSE population. However, the combined use of various triangulation techniques validates the findings as a good reflection of the nature of ITG oversight in JSE listed organisations across the KZN province.

In the qualitative approach, respondents were mainly executives including CEOs, CFOs, CIO and other participants on boards – their views could be biased in their favour as implementers of board oversight decisions. However, the use of triangulation with quantitative data obtained from independent executives acting as individuals rather than as representatives of their organisations compensated for the bias.

The difficulty of initially obtaining access to executives and boards of organisations was a limitation to the study. This was overcome by the use of networks such as professional associations and professional events (or functions). However, professionals accessed through these avenues were ready to participate as individuals but not as representatives of their organisation.

The issue of time and availability of resources to facilitate the study was a limitation to the study. Being an exploratory case study using mixed methods, the need for adequate time and resources to enable the researcher to obtain both qualitative and quantitative data is important. However, the study was constrained by time and funds as it had to be completed within specified maximum time.

9.6. RECOMMENDATION FOR FUTURE STUDIES

The conceptualised research framework needs to be tested by various other similar studies to improve upon the model and to validate its efficacy. The following studies are recommended:

- A study replicating the quantitative method to test and improve the model, is recommended. For such a test to be generalisable across JSE listed companies, it is recommended that a quantitative approach, with a simple random sampling technique, be used for all JSE listed companies.
- A study replicating the qualitative method using a multi-case method but with a full board participating (both executive and non-executives) for each case. This would provide a balanced source of data per board and an equal basis for the multi-case analysis of the nature of ITG oversight across the cases.
- A study replicating the study with both listed and non-listed companies. The study can then conduct a comparative analysis between the two groupings. This would investigate if there is a difference in ITG effectiveness within an “enforced” environment like the JSE and non-JSE environment.

9.7. CONCLUSION OF THE CHAPTER

The aim of this research was to establish how boards of JSE listed companies govern IT as an integral part of their corporate governance responsibility. JSE listed companies have been mandated by the JSE listing rules to comply with the King III corporate governance code of good governance. The King III corporate governance code includes IT governance principles to guide the board in effecting IT governance oversight.

The objectives of the study were guided by the King III principles; however, gaps were identified in the implementation of the principles. A sub-objective was to derive a board level IT governance model that establishes the link between oversight effectiveness, organisational value obtained from IT and overall organisational performance.

The data gathered and analysed provided insight into the nature of ITG oversight implemented by JSE listed organisations and the existing gaps. A conceptual framework was developed and utilised to establish and access the links between ITG oversight, IT value,

and organisational performance. The research limitations were identified and recommendations provided for future studies to further validate the ITGF, to improve the ITG and to minimise future limitations. This study has made unique contribution to the body of knowledge of IT governance and serve as a springboard for new research.

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APPENDIX 1:
LETTER TO REQUEST FOR PARTICIPATION

UNIVERSITY OF KWAZULU-NATAL
GRADUATE SCHOOL OF BUSINESS AND LEADERSHIP



DBA/PHD Research Project

Researcher: Sonny Ako-Nai (Tel. No.: 0832474615)

Supervisor: Professor Anesh Singh (Tel. No.: 031 260 7081)

Research Office: Mariette Snyman; Email snvmanm@ukzn.ac.za 031 260 8350

Dear Sir / Madam;

Request for Participation

My name is Sonny Anyetei Ako-Nai a DBA student (Doctorate) at the Graduate School of Business and Leadership, of the University of KwaZulu Natal and would like to you to participate in my doctoral research.

Research Title: The title of my research is "IT Governance implementation Framework for the Board: A Corporate Governance Perspective".

Objective of the research: The main objective of the research is to derive and validate an IT governance framework for effective board level IT governance in South Africa.

Your participation: To complete the attached research questionnaire which would take you about 15-20 minutes to complete.

Your participation voluntary. You may refuse or withdraw your participate at any time with no negative consequence. There will be no monetary gain from participating. Confidentiality and anonymity of all collected data will be maintained by the Graduate School of Business and Leadership, UKZN.

If you have any questions or concerns about completing the questionnaire or about participating in this study, you may contact me or my supervisor at the numbers listed above

Your participation will be greatly appreciated.

A black rectangular box redacting the signature of the researcher.

0th July, 2015

Sonny A M Ako-Nai (Researcher)
DBA Student. UKZN

skonsis@ukzn.ac.za; 083 247 4615 / 033 260 5996

APPENDIX 2:
LETTER TO REQUEST FOR GATEKEEPER'S LETTER



Dear Sir,

REQUEST FOR GATEKEEPERS LETTER

I am supervising Mr. Sonny Anyetel Aho-Nai Doctorate (DBA) study entitled "IT Governance Implementation Framework for the Board: A Corporate Governance Perspective". In order to make an original contribution to knowledge Mr. Aho-Nai needs to collect data from your company, **Combined Motor Holdings Limited**. It is a requirement of our University ethics committee to obtain prior permission for the study. We would be grateful if you could grant permission for the study as requested in the attached document.



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INSPIRING GREATNESS



APPENDIX 3: ETHICAL CLEARANCE LETTER



28 September 2015

Mr Anyetei Sonny Ako-Nai (202519925)
Graduate School of Business & Leadership
Westville Campus

Dear Mr Ako-Nai,

Protocol reference number: HSS/0959/015D

Project title: IT Governance Implementation Framework for South African Companies: A Corporate Governance Perspective

Full Approval – Expedited Application

In response to your application received on 24 July 2015, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol have been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours

Dr

/r

Cc Supervisor: Professor Anesh Singh
Cc Academic Leader Research: Dr Muhammod Hoque
Cc School Administrator: Ms Zarina Bullyraj

Humanities & Social Sciences Research Ethics Committee

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APPENDIX 4:
SAMPLE OF QUESTIONNAIRE

Research Questionnaire

IT Governance implementation Framework for the Board:
A Corporate Governance Approach

SECTION A - GENERAL

1. Your job title?
 - Chairman - CEO - MD - CFO - CIO - COO
 - Other (specify)
2. Your director status on the board?
 - executive non-executive (not independent) non-executive (independent)
 - other (specify)
3. Which board committee/s do you serve on?(select all applicable options)
 - None - Audit - Risk - Remuneration - Appointment - IT
 - Social & Ethics - other (specify)
4. How many years of board experience do you have?
 - < 1 1 - 5 6 - 10 11 - 15 16 - 20 > 20
5. What is your highest academic qualification?
 High School Post Matric Diploma University Degree
 Post Graduate Diploma / Honours Master's Degree PhD/Doctorate
 Other (specify)
6. Gender
 Female Male
7. Age
 20 - 29 years 30 - 39 years 40 - 49 years 50 - 59 years 60 years and over
8. What category of industry does your organization belong?

<input type="checkbox"/> Academia/Education	<input type="checkbox"/> Manufacturing
<input type="checkbox"/> Agriculture and Mining	<input type="checkbox"/> Media and Entertainment
<input type="checkbox"/> Accounting & Management Consulting	<input type="checkbox"/> Real Estate and Construction
<input type="checkbox"/> Banking & Finance	<input type="checkbox"/> Retail
<input type="checkbox"/> Information Technology /Computers and Electronics	<input type="checkbox"/> Software Development, Web/Internet
<input type="checkbox"/> Energy and Utilities	<input type="checkbox"/> Telecommunications
<input type="checkbox"/> Insurance	<input type="checkbox"/> Transportation and Logistics
<input type="checkbox"/> Government	<input type="checkbox"/> Travel Recreation and Leisure
<input type="checkbox"/> Pharmaceuticals, and Biotech	<input type="checkbox"/> Wholesale and Distribution

SECTION B

Answer the following questions by ticking the appropriate box/es

1. How do you rate your board's ability to make IT governance related decisions?
 - Very high - High - Neutral - Low - Very low

2. Who/Which advisory source/s does the board use to assist its IT governance related decision making? (Select all applicable source/s)?
 Chief Information Officer
 Board level IT sub-committee
 Management level IT committee
 External IT consultants
 IT vendors
 Others (specify)

3. What is the main role of Information Technology (IT) in your organization?
 Strategic
 Decision Making
 Operational Efficiency

4. If you have selected "Decision Making" in question (3); at which level is it used for decision making?
 Board level
 Management level
 N/A (if other options selected in question "3")

5. Who approves the IT Strategy?
 Board
 CIO
 Executive Committee
 IT committee
 Other (specify)

6. How often is the IT strategy presented to the board for review and approval?
 - never - every year - every 2years - every 3years - every 5years
 - Other (specify)

7. Which of the following is true for your organization?
 IT strategy is developed after the business strategy in support of the business strategy
 Business Strategy is developed after the IT strategy to take advantage of IT enhancements

8. Which body / entity within the organisation reviews and approves IT investments initiatives/projects of significant capital investment?

- Board
- Executive committee
- Chief Information Officer (CIO)
- Chief Financial Officer (CFO)
- Chief Executive Officer (CEO)
- The head of the business function / unit requiring the IT system / project
- Other (specify)

9. Which of the following has been the most frequent factor considered by the body / entity in question (8) when making its final approval decision of the IT investment initiative / project?

- Financial (including increasing profitability, revenue, ROI, ROA, etc.)
- Customer focus (including customer retention/satisfaction/growth, resolve complaints, etc.)
- Operational efficiency (including reducing wastage, automation, economy of scale, increase production throughput etc.)
- Employment development (improve employee skills, promotion and succession planning, awareness, etc.)
- Knowledge management (information documentation/sharing, collaboration, process management, performance enhancement, etc.)
- N/A (I answered No to question 8)

10. How does your board monitor progress of these significant IT projects?

- Progress Reports
- Risk Reports
- Issues Reports
- Audit Reports
- Other (specify)

11. From the report(s), is the board able to make decisions to effect the success or otherwise of the project? - No - Yes

12. If your answer to question (11) is "No", why?

- The board is not informed about the status of the projects(s)
- Report(s) too technical
- Reports(s) contain inadequate information
- Report(s) not comprehensible
- Others (specify)
- N/A (I answered Yes to question 11)

13. How significant are the King III IT governance principles applicable to your board IT governance oversight responsibility?

- Not applicable - Low significance - Significant - High significance

14. How would you rate the relevance of the King III governance principles in your board IT governance oversight responsibility?

- High – All principles are relevant
- Medium – Most principles are relevant
- Low - Some principles are relevant

15. Based on your answer in question (14), which of the King III IT governance principles are relevant and applicable to your board's IT governance oversight? (select one or more as appropriate)

- Principle 1:** The Board should be responsible for IT Governance
- Principle 2:** IT should be aligned with the performance and sustainability objectives of the company
- Principle 3:** The Board should delegate to management the responsibility for the implementation of an IT governance framework
- Principle 4:** The Board should monitor and evaluate significant IT investment and expenditure
- Principle 5:** IT should form an integral part of the company's risk management
- Principle 6:** The Board should ensure that information assets are managed effectively
- Principle 7:** A risk committee and audit committee should assist the Board in carrying out its IT responsibilities

16. To what extent is the board involved in mitigating IT related risk?

- Not Involved - Only Informed - Provide Oversight - Consulted
- Minimally Involved - Fully Involved

17. The board considers IT related risks to be the responsibility of

- Management - Internal Audit - External Audit - Risk / Audit Committee
- Board - Other (specify)

18. Has the organization developed its own IT Risk management Policies?

- No - Yes

19. If your answer to question (18) is "No", why is this so?

- Have adapted existing International IT policy framework(s)
- Under development
- Integral part of the organization general risk policies
- Not a concern of the board
- Other (specify)
- N/A (if answer to question "18" is "YES")

20. If your answer to question (18) is "Yes", what has been the board's level of involvement in formulation of these policies?

- Not involved
 - Consulted
 - Approve final document
 - Very Involved
 - N/A (if answer to question "18" is "No")

21. Which of the following standards/frameworks has the board used as reference in making IT related risk mitigation decisions?

- I don't know
 - COBIT5 (or other versions)
 - ITIL
 - Risk IT
 - ISO/IEC 31000, 27005, 11770 (and others)
 - Other (specify)

22. How often does the board monitor, review and update the organization's IT risk policies?

- Never
 - Quarterly
 - Bi-annually
 - Annually
 - Other (specify)

23. What effect has IT implementation in your organization had on the following stakeholders?

	Negative	Neutral	Positive
Shareholders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Employees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

24. Based on my years of experience serving on board(s), I believe that, IT

- adds significant value to the organization
 - is strategic and adds some value to the organization
 - is an expense that adds little value
 - is merely an operational tool
 - Other (specify)

25. To what extent has IT contributed to the following areas of organizational performance of your organization? (1=very minimal; 2=minimal; 3=not contributed; 4=significant; 5=very significant)

	1	2	3	4	5	N/A
Return on Investment (ROI)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increase in Revenue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Operational Efficiency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Customer Satisfaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Employee Development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

26. How do you rate your own IT literacy?

- Poor - Weak - Average - Very good - Excellent

27. How comfortable / confident are you in making IT governance decision?

- I avoid making such decisions - I lack the knowledge to do that
 - Low confidence - Moderate confidence - Very confident

28. How does the board assess its IT governance oversight effectiveness?

- The board does not assess its IT governance
 Use of independent external consultants
 Using King III IT governance checklist
 Use of other internal self-assessment board assessment tools
 Others (specify)

29. Has the board's IT governance oversight improved over the past five/six years?

- No - Yes

30. If "Yes" to question (29), which of the following have contributed to the improvement of the board's IT governance oversight?

- Successful adoption and implementation of IT governance framework / best practice / standards
 Board involvement and ownership of IT governance oversight
 Application of King III IT governance principles
 Effective IT leadership
 Others (specify)
 N/A (if answer to question "29" is "No")

31. If "No" to question (29), which of the following have contributed to the decline or lack of improvement of the board's IT governance oversight?

- Lack of board involvement and oversight
 Poor board oversight
 Poor/failed adaptation of IT governance framework / best practice / standards
 Poor IT leadership
 Poor/low board members' IT knowledge/understanding
 Others (specify)
 N/A (if answer to question "29" is "YES")

32. What can be done to improve IT governance competence of your board?

- Training
 - Recruit board members with IT experience / qualification

- Include the CIO / executive head of the IT function as a board member
- Include IT Experts as Non-executive directors on the board
- Other (specify)

33. Do you have any more comments on the effective Implementation of IT governance by the board? (specify) _____

APPENDIX 5:
INTERVIEW INSTRUMENT

Interview Instrument

Research Title: IT Governance Implementation Framework for South African Companies - A Corporate Governance Perspective

Purpose: To obtain insight on how IT governance is being implemented
Target Interviewee: Executive & Non-Executive Directors

1. Organizations use IT for various reasons. How important is IT within your organization?
2. Has your board responded to take direct responsibility for IT governance oversight as recommended by King III? To Explain and Discuss.
3. What are the views being expressed by executives and the board about IT governance roles and responsibilities? To Explain and Discuss.
4. What are some of the main IT related issues that come to the board? To Explain and Discuss.
5. What are some of the main concerns expressed by board about IT use within the organization? To Explain and Discuss.
6. Has the board or the executive expressed concern about the ethical use of IT within the organization? To Explain and Discuss.
7. Do you consider (or believe) that IT adds value to the organization? To Explain and Discuss.
8. How successful has your board been in effecting IT governance oversight? Explain. What have been the key successes and challenges? To Explain and Discuss.
9. In what ways can IT governance be improved in your organization? To Explain and Discuss.
10. What advice would you give to boards of emerging companies to implement effective IT governance? To Explain and Discuss.
