The adoption of IT governance for outsourcing and virtual team management in IT projects

by

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Declaration

I certify that the dissertation submitted by me for the degree Master's of Commerce (Information Technology Management) at the University of Johannesburg is my independent work and has not been submitted by me for a degree at another university

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Abstract

IT governance is an important factor in the success of Information Technology systems and implementation. The adoption of IT governance and its effectiveness is not clear or documented. The purpose of this study is to understand the adoption and effectiveness of IT governance in South African organisations as they conduct Information Technology projects both internally and externally.

This study is explorative in nature as it seeks to understand the effectiveness of IT governance using the questionnaire as an instrument for collecting data. The research methodology of this study is quantitative. The target sample is IT (Information Technology) employees that work in various South African organisations both private and public. The sample size is 164 employees.

The findings of this study show that South African organisations make extensive use of IT governance. There is data indicating that IT governance is applied locally on their day-to-day IT projects. The study found that there is management support and deliberate effort to monitor and measure the effectiveness of IT governance. The study further shows that there is strong adoption of IT governance in external IT projects such as outsourced IT projects. Finally, it shows a strong use of virtual teams in IT projects in South African organisations, and also a relatively high application of IT governance principles in virtual teamwork.

Key terms: IT governance, IT outsourcing, virtual team, IT governance frameworks

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CHAPTER ONE: INTRODUCTION

1.1 Introduction

The need for virtual teams due to globalisation cannot be over-emphasized (Townsend, DeMarie & Hendrickson, 1998; Castells, 1999; Kimble, Barlow & Li, 2000). No organisation or as a matter of fact country is self-sufficient in anything especially technology and more specifically information technology. Many organisations and/or countries have been driven to other countries or locations to source technical skills that will augment their existing capacity (Townsend et al., 1998). In some cases, organisations tend to turn to other organisations for their non-core technical requirements (KPMG, 2012).

The quality of IT Services has a direct impact on business processes. There has been a steady growth in the outsourcing market over the years. For this reason, the need for a governance structure in these relationships cannot be disputed (Beulen & Ribbers, 2007) because lack of governance and business knowledge has contributed significantly to the high failures of IT projects (Hamersly, 2015). Outsourcing of information technology project such as software development has become the norm today (The Economist Intelligence Unit, 2009; Townsend et al., 1998; KPMG, 2012).

There are a wide variety of reasons why organisations outsource some or most of their information technology services. South Africa like the rest of the world has embraced this concept especially in critical areas such as the financial sector; banking and insurance (KPMG, 2012). South Africa, being one of the largest economies in Africa, in order to effectively handle the technical and technological requirement of its financial power-houses, has had the need to outsource some of these critical services.

Thus, the need for governance and project management in a virtual environment, and for virtual teams materialized (Hamersly, 2015). In the aftermath of corporate scandals involving large corporations and government officials, the need for proper governance is unquestionable (National Computing Centre, 2005). In South Africa, and especially in the financial sector, governance; corporate governance, information technology governance, and related-control mechanism are paramount. Corporate governance is achievable

locally within a local environment or conventional arrangement. However, when a project spans geographic areas such as countries, cultures and languages, the tone of governance generally changes, and therefore needs special thought in terms of its effectiveness.

It should be noted that organisations may adopt governance practices internally and externally. When governance frameworks are applied on their internal projects like information system implementation, in-house software development projects, and their processes, these can be referred to as internal or local IT projects. However, when they have to work with third-parties under outsourcing or when working with remote and virtual teams, the projects will be considered external to the organisation.

This investigation covers both use-cases with regards to IT governance in IT outsourcing, and IT Governance in virtual team work in the South African context. The investigation into these two areas was motivated with a view to establishing application, effectiveness, challenges and other relevant information that may be uncovered in the course of this study.

1.2 Problem Statement

Globalisation is a reality in today's life (Castells, 1999; Kimble et al., 2000), and a variety of economic activities seem to be relatively simple, for example, short-term activities or relationships such as purchasing an item from another country, and shipping it anywhere in the world successfully. However, challenges ensue when relationships are protracted or are on a long-term basis such as in a software development IT project (Leidner, Kayworth & Mora-Tavarez, 2002; Townsend et al., 1998; Geister, Konradt & Hertel, 2005). This is even more common when a group of people from different cultures, languages, time-zones, beliefs, work ethnics, etc. need to collaborate on a project (Richards & Bilgin, 2012;Leidner et al., 2002; Townsend et al., 1998;Kimble, Li & Barlow, 2000; Greenberg, Greenberg & Antonoucci, 2007).

For this reason, the need for a governance structure in these relationships cannot be disputed (Beulen & Ribbers, 2007). Evidence available suggests that lack of governance

and business knowledge has contributed significantly to the high failures of IT projects (Hamersly, 2015).

1.3 Research Objectives

The main objective of this study is to investigate the application of IT Governance in local South African organisations, specifically, looking at IT governance from an Information Technology projects point-of-view on internal and external IT projects.

The objective is to investigate the application of governance in the area of internal IT projects implementation. Here, the emphasis is on application of IT governance on the day-to-day running of Information Technology activities which the researcher refers to as internal projects. However, firstly, there will be a need to investigate the existence of Information Technology governance, corporate governance and other forms of governance if applicable.

Secondly, as part of the objective, the application of IT governance in these organisations with respect to Information Technology projects conducted externally will be investigated. Here, the researcher refers to these projects are external projects. In this case, the research will investigate the adoption and especially the application of Information Technology governance on Information Technology projects executed using outsourced resources. These can be 'once-off' IT project like 'integrate CRM application with accounting application' or protracted IT projects like 'develop and manage ticketing system'.

Since external projects are conducted mostly off-site from the host organisation, the use of virtual teams on these projects are common. With the "distributed" nature of Information technology resources worldwide and available technology, most Information Technology resources are not necessarily collocated. Project teams are most times located in different geographic locations, hence the need for virtual team work. To manage the relationship between the outsourcer and their partners, the question of how IT governance is applied in these circumstances is important to understand.

1.4 Primary Research Questions

In order to investigate the adoption of IT governance in IT projects (internal), IT outsourcing (external) and Working with Virtual Teams (external), there is a need to ask questions. These questions are grouped and labelled appropriately to cover the two main areas on the investigation. The first question relates to "internal" IT governance, and the second and third relate to "external" projects; for example, using 3rd-party resources and working on IT projects with virtual teams.

1.4.1 Research Question 1: How can Information Technology governance in South African organisations be assessed?

Sub-questions:

a) Is IT governance in practice in local organisations and to what extent is it applied?
b) How committed is the management of these organisations to ensuring IT governance compliance? Is there management "buy-in", training of employees and certifications, etc.?
c) How is IT governance effected?
d) Is IT governance extended to IT projects executed by their IT partners?
e) Is there a measurement of success/failures of IT governance in organisations?
f) What governance principles, methodologies or frameworks are used by South African organisations and why?

1.4.2 Research Question 2: How is IT governance applied in terms of managing outsourced and external IT projects?

Sub-questions:

a) Do local organisations have IT governance or other governance principles covering their IT activities including externally executed projects such as those that are outsourced?
b) What is the nature of the functions that local organisations are outsourcing and how is IT governance influenced?
c) To what extent is the governance of the host organisation influenced by the governance of the guest organisation. In other words, whose governance is applied?
d) Is there a deliberate effort to ensure outsourced IT projects comply with IT governance and governance in general?
e) How is governance ensured in an outsourcing or virtual team environment, for example handling of confidential information and intellectual property?
f) What are the main reasons for outsourcing?

1.4.3 Research Question 3: Is there IT governance application in IT projects executed via virtual teams using 3rd-party resources?

Sub-questions:

a) Are local organisations executing projects with teams that are not collocated and working with virtual teams?
b) To what extent is IT projects executed with teams that are located remotely or on 3rd-party environment overseen using IT governance principles and methods?
c) If the organisations are using virtual teams and are following the appropriate guidelines, how is compliance with IT governance principles guaranteed especially by the host organisation?
d) What are the challenges of working with virtual teams on IT projects and at the same time ensuring compliance of the IT governance?
e) How can the maturity of organisations involved with outsourced projects and those in virtual teams be measured?

1.5 Rationale for this research work

A search for previous work on IT governance, virtual team work, and outsourcing in South African organisations yielded little results. However, there is evidence of South African organisations engaged in outsourced IT projects and utilizing virtual work environments. This lack of information highlights a need for more awareness, information and knowledge that may be useful in this domain. It is the researcher's desire that this work will be potentially useful for both theory and practice.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Governance and particularly organisational governance has become a critical part of organisations, economies and countries. This prominence was partly due to the financial scandals that rocked financial industries around the world, and that dented the images of many organisations and individuals (Turbit, 2005; Li, Naughton & Hovey, 2008; Sollicito, 2005). These occurrences highlighted the need for proper accountability and governance. There are different governances and governance itself is hard to define because it means different things depending on the context, industry, the organisation type, hierarchy, etc. For example, corporate governance is "a system by which business corporations are directed and controlled" (Organisation for Economic Co-operation and Development, 2004; The Cadbury Report, 1992). It is important to distinguish governance in our context from the other forms of governance, such as Corporate Governance, National or State Governance, Political Governance, and so on (Institute of Directors Southern Africa, 2016). This study will however, look at governance in relation to organisations, such as: Project Governance, Information Technology Governance, Corporate Governance, etc. All the types of Governances relevant to this study will be defined at a later stage in this study.

This research project intends to focus on governance in the Information Technology field, with specific emphasis on IT operations or projects carried out using external resources - where a host organisation engages the services of an external organisation or third-party. We will look at literature on the application of Governance in the following areas:

- Corporate governance
- Governance of IT projects
- Application of governance in outsourced projects and virtual teams

2.2 Governance

2.2.1 What is governance?

Governance is not easy to define. Contexts helps shape the definitions of concepts. The Merriam-Webster dictionary (2016) defines governance as the way a city or company is

controlled by the people who run it. In another definition of governance, the Business Dictionary (2016) points out key factors in the definition of governance; establishment of policies, continuous monitoring of proper implementation, the mechanism to balance the powers of the members as they execute their duties of enhancing the prosperity and viability of the organisation. The above definition seems to lean towards that of corporate governance, which is defined comprehensively by the Organisation for Economic Co-operation and Development (2016) as a structure by which an organisation's management, board, stakeholders and shareholders can use to determine the objectives of the organisation so that these objectives are attainable by monitoring performance. According to The Cadbury Report (1992), corporate governance is "the system by which companies are directed and controlled" (The Cadbury Report, 1992).

2.2.2 Corporate Governance

Corporate governance came into attention when crisis and failures began to negatively affect major corporates like Enron, Worldcom, Tyco, Healthsouth, AIG, to name a few. This highlighted the need for corporate governance and accountability in organisations as regulation (Turbit, 2005; Li et al., 2008; Sollicito, 2005). Corporate governance is simply a way to allow organisations perform their social responsibilities; allow their activities to be scrutinized by the public as well as respond to any concerns they may have attracted. In other words, conducting business in an open and accountable way (Organisation for Economic Co-operation and Development, 2004; The Cadbury Report, 1992; Institute of Directors, 2009). Corporate governance is a key non-financial value driver in organisations. Recently, the interest in corporate governance has gained popularity within organisations as there is increase in awareness on the part of directors who have noticed the concerns of the public and investors on the activities of their organisations on society (Cheung & Chan, 2004; Africa Renewal, 2002). However, there has been criticism on the subject such as cost, prescriptive nature of some governances, ‘one size fit all’ approach, too much attention on compliance requirement, statutory requirements, etc. (Institute of Directors, 2009; Crowther & Jatana, 2004; Brown, 2018).

Corporate governance codes are not set permanently. They are constantly revised in developed countries such as those in Europe, and in developing/emerging economies

like Asian countries (Cheung & Chan, 2004; Organisation for Economic Co-operation and Development, 2016). In the United Kingdom Corporate governance reports are reviewed and superseded accordingly, and in Africa, sound corporate governance has been a key issue discussed at the African Union and New Partnership for Africa's Development (NEPAD) according to Africa Renewal (2002) and Mukamunana (2006).

However, even with all the efforts of the various reports, frameworks, standards and best practices, there are many cases where corporate governance failed. For example, due to weaknesses in corporate governance, companies like HIH Insurance and One-Tel companies collapsed. This was after the establishment of Australia's corporate governance standard - AS 8015-2005. The world economic collapse of 2008 affected the United States and majority of countries around the world even though corporate governance is being developed and established in countries around the world (Turbit, 2005; Sollicito, 2005).

Several corporate governance reports, codes and recommendations exist, some of which are specific to countries while some are adopted in several countries. A discussion of a few relevant corporate governance codes and reports are found later in this section

2.2.3 Corporate governance decline in South Africa

Corporate and other governances are critical in South Africa. There has been a decline in corporate governance, ethics and compliance. In a recent publication of Fin24, Niselow (2018) noted that only a fraction of employees in the public sector vouched for risk management for example in his survey. The same sentiment was echoed earlier by other authors in their Journal of Business Ethics report (Rossouw, van der Watt & Malan, 2002). They argued that even though the King Report on Corporate Governance (1994) ignited interest on corporate governance in South Africa, it is not an indication that there is no cause for concern.

2.2.3 Corporate Governance Reports

2.2.3.1 The King Report – South Africa

Due to changes in the South African Companies Act no. 71 of 2008 and transformational developments in international governance (Institute of Directors, 2009; The South African Institute of Chartered Accountants, 2009), the King Committee was established. The King Report is the primary corporate governance principles used as reference document for all organisations in South Africa (Muller, 2011). Over the years, several versions of the King report have emerged. King II was replaced by King III when it became outdated. King III was implemented on 1 March 2010 even though the Code was launched on 1 September 2009. The primary purpose of this document is to promote good corporate governance in South Africa. The King IV Report emerged on 1 April 2017 and is a revised version of the King III Report incorporating new international corporate governance codes and best practices such as increased compliance requirements, reporting and disclosure requirements, new technologies as well as risks and opportunities to mention a few (Smith & Jenkins, 2016). Key changes highlighted by Deloitte (2017) on the new King IV is that King IV is updated to be outcome-based instead of rules-based. It is set to assume that all its principles are applied and therefore expects organisations to explain its applications, hence 'apply and explain'. It favours transparency and disclosures, roles and responsibilities of stakeholders, ethical leadership, attitude, mind-set and behaviour. It recognises intellectual capital as a separate asset of organisations with the need for application of governance structures in other to protect and enhance it. According to PWC (2017) quoting Prof Mervyn King "the overarching objective of King IV™ is to make corporate governance more accessible and relevant to a wider range of organisations, and to be the catalyst for a shift from a compliance-based mind-set to one that sees corporate governance as a lever for value creation".

Unlike the SOX Act which will be considered later in this study, the King Report is more about "apply or explain" as opposed to "comply or else" of the American SOX. The King Reports were mainly for listed corporate organisations, financial institutions, and public sector enterprises but the current King IV is designed to cover all establishments in South Africa. However, there are concerns around its applicability to non-profit organisations (Muller, 2011; Hendricks & Wyngaard, 2010).

2.2.3.2 Sarbanes-Oxley Act – United States

Sarbanes Oxley Act is the corporate governance legislation in the United States. The financial scandals of early 2000s, like those of Enron, Tyco and WorldCom, shocked investors and their confidence in financial managers. The Sarbanes-Oxley Act came into being as a result of these occurrences. The US government had to find a way to protect investors from the changes brought about by the financial fraud activities of corporations (Kulkani & Maniam, 2014; Finkelstein, 2009; Institute of Directors, 2009). The Sarbanes-Oxley Act passed into law in 2002 was designed to bring reforms that will improve the financial disclosures from corporations that aims to prevent financial fraud (Investopedia, 2016). However, according to Institute of Directors (2009) and Muller (2011), it has been criticised by experts for the following reasons:

- It's "comply or else" regime is considered a prescriptive and rule-based compliance method which imposes sanctions for non-compliance. This means it could lead to people being convicted of crimes, face heavy fines or serve jail-time as a result of non-compliance.
- The cost of complying with SOX is incredibly high, it is considered to be more than the total write-off cost of three of the biggest financial scandals.
- The "one size fits all" approach is not suitable to all businesses. Businesses vary considerably to a large degree.
- The fact that compliance comes before the enterprise. Organisations might become too focused on compliance to the detriment of the enterprise.
- It's tendency to smother innovation, creativity and the entrepreneurial spirit due to its rigidity and perceived harshness.

Also, some argue that it did not prevent subsequent financial failures after 2008 (Finkelstein, 2009; Institute of Directors, 2009).

2.2.3.3 United Kingdom Corporate Governance Standards

The United Kingdom went through several committees, reports and standards in an effort to establish and develop the United Kingdom's corporate governance standard. Some of these Committees and Reports include, The Cadbury Report, The Greenbury Report, The

Hampel Report, The Higgs Report, The Turnbull Report, Combined Code/ UK Corporate Governance Code, Financial Reporting Council (FRC), etc.

Table 1: Corporate governance in United Kingdom

#	Report	Year
1	Committee on the Financial Aspects of Corporate Governance	1991
2	Cadbury Report	1992
3	Greenbury Report	1995
4	Hampel Committee	1998
5	Turnbull Report	1999
6	Higgs Review	2003
7	Smith Report	2003
8	Tyson Review	2003
9	Combined Code	2003
10	Turnbull Report	2004
11	Combined Code	2005
12	Companies Act	2006
13	Revised UK Corporate Governance Code	2009
14	FRC Consultation on Turnbull Report	2010
Corporate governance development timeline in the United Kingdom from 1991 to 2010.		

Adapted from The Institute of Chartered Accountants in England and Wales (http://www.icaew.com, 2016).

Corporate governance in the United Kingdom (UK) shows a steady progression as seen in table 1. These UK reports and codes reflect the need to establish corporate governance mechanism in every economy, it demonstrates the need to continually upgrade and review financial and corporate governance tools to match the circumstances.

2.2.3.4 Organisation for Economic Co-operation & Development (OECD)

There are five aspects of governance covered by the Organisation for Economic Co-operation and Development principles, these are: looking after the rights of the shareholder, equitable treatment of shareholders, the role of stakeholders in corporate governance, disclosure and transparency and the responsibilities of the board (Cheung & Chan, 2004; Organisation for Economic Co-operation and Development, 2016). According to Organisation for Economic Co-operation and Development website (2016), the Organisation for Economic Co-operation and Development was formed in 1960 by 18

European countries, the United States of American and Canada. They came together to form an organisation that is dedicated to forging economic development among its member countries. Other countries joined in, starting with Japan in 1964. Today, 35 Organisation for Economic Co-operation and Development member countries worldwide regularly turn to one another to identify problems, discuss and analyse them, and promote policies to solve them. The track record is striking. The US has seen its national wealth almost triple in the five decades since the Organisation for Economic Co-operation and Development was created, calculated in terms of gross domestic product per head of population. Other OECD countries have seen similar, and in some cases even more spectacular, progress according to Organisation for Economic Co-operation and Development (2016).

2.2.3.5 Chinese Securities Regulatory Commission (CSRC)

From the mid-1990s, China setup the first two stock exchanges – Shanghai Stock Exchange (SSE) and the Shenzhen Stock Exchange (SZCE) with the Chinese Securities Regulatory Commission as regulator. Following these developments, China began testing modern enterprise structures and introduced the Company Law – a law that was designed specifically to fully delineate rights and responsibilities of modern companies. They also introduced the Securities Law – which provides for substantial sharing holding disclosures, prohibitions on market misconducts and penalties on misleading statements (Kang, Shi, Brown, 2008; Jian & Yu, 2016). Studies have shown the Chinese economy growing at an average of 9.73% annually as the Chinese stock market continues to develop and mature, and more companies get listed – corporate governance is critically necessary for China at this stage (Kang et al., 2008; Jian & Yu, 2016). However, there are concerns regarding the Chinese corporate governance adoption and maturity. Corporate governance is hindered by a range of problems including lack of independence among board directors, insider trading, false financial disclosures, immature capital markets and the old problem of large state ownership, role of board and supervisory board alignment in terms of responsibility and supervision (Kang et al., 2008; Organisation for Economic Co-operation and Development, 2011).

2.2.3.6 Corporate Governance in India

Indian's corporate governance initiatives started only in 1991 followed by the setting up of the Securities and Exchange Board of India (SEBI) in 1992. Like similar setups in other countries, the SEBI's objective was to supervise and standardise stock trading in India. However, it began to lay foundations for corporate governance, rules and regulations (Kulkani & Maniam, 2014). Two committees were formed under the SEBI in an effort to formalise best practice on corporate governance. These committees were named Kumar Mangalam Birla and Narayan Murthy respectively. At their recommendation, Clause 49 was established and included in the listing contract for companies on the Indian Stock Exchange. This Clause contains all the regulations, and requirements of the minimum number of independent directors, board members, required committees, code of conduct, audit committee rules and limits. Companies not exhibiting the principles contained in this Clause were consequently removed from the listing and penalised financially (Kulkani & Maniam, 2014).

2.2.3.7 Corporate Governance in other Asian Countries

The adoption of corporate governance by emerging or developing economies such as those in Asian countries failed to prevent the 1997 Asian financial crisis. However, it can be argued that while these countries were indeed embracing corporate governance changes and requirements, they were still immature in terms of their corporate governance as well as their respective economies (Kang et al., 2008; Jian & Yu, 2016; Li et al., 2008).

Asian countries, especially China, have shown considerable economic growth (Kang et al., 2008; Jian & Yu, 2016), partly due to the changes they made which can be attributed to the improvement in their corporate governance. Studies have also revealed that Asian countries were keen in developing and establishing corporate governance according to the Organisation for Economic Co-operation and Development standards (Organisation for Economic Co-operation and Development, 2016; Cheung & Chan, 2004; Jian & Yu, 2016). However, it is important to note that various factors which are sometimes common in Asian countries are having a negative impact on the success of corporate governance. Some of these challenges include investor protection, (foreign and local), legal and regulatory issues affecting the development of codes, protection of minority shareholders

and foreign investors, equitable treatment of shareholders, transparency and disclosures, ownership structure, etc. (Kang et al., 2008; Jian & Yu, 2016; Cheung & Chan, 2004; Li et al., 2008)

2.2.3.8 COSO

COSO (Committee of Sponsoring Organizations of the Treadway Organizations of the Treadway Commission) is a U.S. private-sector initiative, formed in 1985. The main objective for setting up COSO is to assist organisations with regards to the effectiveness and efficiency of operations; the reliability of financial reporting; and compliance with applicable laws and regulations (COSO, 2016; PWC, 2016).

The above discussion can be summarized as follows:

Table 2: Corporate Governance Methods

Code/Report/Act	Approach	Type	Main characteristics	Country
Sarbanes-Oxley Act	Comply or else	Act	○ Greater Oversight of Accounting Practices ○ Increased independence of auditors and analysts ○ Increased Penalties for Corporate Crime ○ Tighter Controls on Insider Activity	United States
King Report	Apply and explain	Report	○ Ethical leadership and corporate citizenship ○ Boards and directors ○ Audit committees ○ Risk governance ○ IT governance ○ Compliance ○ Internal audit ○ Stakeholder relationships ○ Integrated reporting and disclosure	South Africa
OECD	Comply or explain	Principles/Codes	○ The rights, roles and equitable treatment of shareholders ○ Disclosure and transparency ○ The responsibilities of the board	Numerous
Hampel Report	Comply or explain	Report	○ Review implementation of Cadbury and Greenbury reports	United Kingdom

Cadbury Report	Comply or explain	Report	○ Financial reporting and accountability	United Kingdom
Greenbury Report	Comply or explain	Report	○ Recommendations around directors' remuneration ○ Disclosures in company annual reports	United Kingdom
Higgs	Comply or explain	Report	○ Role and effectiveness of non-executive directors	United Kingdom
Kumar Mangalam Birla & Narayan Murthy Reports	Comply or explain	Act	○ Auditor – company relationship ○ Rotation of auditors ○ Defining Independent audit committee's responsibilities ○ Audit reports ○ Independent directors ○ Related parties ○ Risk management ○ Director compensation ○ Codes of conduct and financial disclosures	India
Combined Code	Comply or explain	Report/Code	○ Leadership ○ Effectiveness ○ Accountability ○ Remuneration ○ Relations with Shareholders	United Kingdom

China Securities Regulatory Commission (LC Code and SC Code)	Comply or explain	Code	○ Shareholder and shareholders' meeting ○ Controlling shareholders ○ Directors and board of directors ○ Supervisors and supervisory board ○ Performance assessments and incentive and disciplinary systems ○ Stakeholders and clients relationship ○ Information and disclosure and transparency	China

In table 2 above, several corporate governance Reports, Standard, Acts are listed showing their main characteristics, the approach they take on corporate governance and the country from which they originate. While majority of the Reports are from the United Kingdom, such as Hampel Report, Cadbury Report, Greenbury Report, Higgs and the Combined Code, other countries are represented such as those in Asia, for example, Kumar Mangalam Birla & Narayan Murthy Reports for India, China Securities Regulatory Commission (LC Code and SC Code), Sarbanes-Oxley Act (United States of America), Organisation for Economic Co-operation & Development (adopted by many countries) and the South African King Report.

A quick scan of the table shows a common theme in the operating principles of the listed Reports or Acts; they are all geared towards financial accountability, proper governance, leadership, transparency and disclosure. Another common attribute is the 'comply or explain' approach which most of the Acts and Reports recommend. This suggests that the respective authorities are disposed to showing leniency and latitude to l encourage adoption and compliance by organisations.

2.2.4 Summary

We have established that corporate governance is in fact a necessity for organisations operating in any country and any context. Abiding by corporate governance Reports, Acts and rules has a direct impact on the performance of an organisation and its ability to draw investors. Corporate governance adoption has an overarching effect on the economies of countries and is therefore becoming a regulation by governments. We briefly discussed leading corporate governance Reports like the various United Kingdom Reports, King Report, SOX-Act, Organisation for Economic Co-operation and Development, etc. All these, are fashioned to fit their respective countries or economies in terms of corporate governance.

While this research work is mainly around governance in the Information Technology context, it is difficult to isolate IT governance or the other related-governances available from corporate governance. Discussing corporate governance here is to show how far-reaching corporate governance and the other sub-governances in their entirety can be.

2.3 Governance of Information Technology and IT Projects

2.3.1 Introduction

Irrespective of the nature of the business, whether it is an IT project or not, corporate governance is a means of ensuring that businesses get a return on their investment (Shleifer & Vishny, 1997; Peterson, 2004). In the light of the sheer number of IT project failures, and the suspicion business has on IT, governance is now a requirement for all projects (Hamersly, 2015; Calder, 2016).

In this section, we will discuss two main areas: IT governance and governance in IT projects. Firstly, for IT governance, we will look at the need and value of IT governance and their respective frameworks for example COBIT. Then we will look at governance in Information Technology project management where we will focus on Project in Controlled Environment II (PRINCE 2) and Project Management Body of Knowledge (PMBoK). While there will be reference to project management methodologies that are also applicable outside information technology, the purpose is to provide clarity and context to aid understanding since projects that use these methodologies share the same attributes.

2.3.2 Information Technology Governance

A comprehensive definition of IT governance is provided by IT Governance Institute (2003) “IT governance is the responsibility of the board of directors and executive management. It is an integral part of enterprise governance and consists of the leadership and organisational structures and processes that ensure that the organisation’s IT sustains and extends the organisation’s strategies and objectives.” To ensure that projects, even IT projects, are properly planned and executed in accordance to the best project management practice is referred to as project governance (Turbit, 2005). Project governance is therefore a framework to ensure that projects are executed in a manner that it delivers the expected value.

Information Technology governance falls under corporate governance (Von Solms & Von Solms, 2008), its purposes is to provide the capacity for the Board, Information

Technology management and executive management to control the development and implementation of Information Technology strategies successfully through structures, processes and relational mechanism of IT Governance (Grembergen, 2004; Peterson, 2004).

The marriage between IT and business decisions requires certain structural mechanisms to ensure that it functions. Business and IT decisions must be integrated in such a way that the effectiveness of these decisions can be monitored and learned from (Peterson, Parker & Ribbers, 2002). The process involves:

- Identifying opportunities
- Exposition of the business case
- Prioritization of decisions
- Selection of decision/processes

Subsequently, monitoring performance, success, and post-evaluation of these decisions become critical. However, at an organisational level, there is a constant debate around which method is best: centralization versus decentralization (Peterson, 2004). These challenges have a potential to create factions within an organisation. These conflicts and disagreements can fuel the notorious conflict between IT and business stakeholders within an organisation (Grembergen, 2004). Importantly, Grembergen (2004) noted that power struggles and cultural clashes continue to plague IT governance in organisations where the question is not 'which way is the best?' but 'whose way will it be?' More attention given to the structural part of IT Governance while little attention is paid to the 'process' part of IT Governance (Peterson, Parker & Ribbers, 2002). These authors contend that IT Governance processes designed and applied in the traditional organisations may not be relevant in contemporary organisational contexts.

Peterson (2004) posits that IT governance is beyond these contentions, since it can only further the goals of specific stakeholders. He recommends that it should be 'whose way is best' to help meet the enterprise goals. Organisations have tried to incorporate the best features of both sides in order to achieve a balance between these two methods (centralised vs decentralised). However, the author (Peterson (2004)) also suggests that

the degree to which organisations can achieve these competing demands will be a measure of its strategic flexibility – whether it is IT-Centric or Business-Centric under a Federated IT governance model. (This can be achieved under a federal IT governance model IT-Centric federal model is a system where the IT corporate executives are responsible for decisions such as IT service management, whereas in a Business-centric federal model, divisional business executives take leading roles in business application decisions. The key is in the level of involvement and participation of the respective executives.

2.3.3 IT Governance as a Requirement

Since IT is said to be the bloodline of most organisations (Von Solms & Von Solms, 2008), it is therefore imperative that the owners or directors safeguard IT services through good IT Governance. Business executives agree that business and IT are integral to the success of organisations and therefore the two must be aligned to ensure sustainability (PricewaterhouseCoopers, 2009). Organisations now see that getting the efficiency and effectiveness of IT is not only about technology but also shared IT Governance. In the past, business executives could treat IT decisions with some degree of levity. They could afford to delegate, ignore or avoid IT-related decisions. This is no longer the case (Peterson, 2004). IT Governance is critical in an organisation, and as a recommendation of various governance guides or frameworks, such as King Report, SOX Act, and other corporate governances Acts and codes, it is the responsibility of the highest level of organisations which is the Board of Directors (PricewaterhouseCoopers, 2009; Li et al., 2008; Institute of Directors Southern Africa, 2016). It is the duty of management to align business and IT with sustainability goals in mind, manage the implementation of IT, monitor and evaluate IT investments and expenditure, as well as risks that may arise from the use of IT (PricewaterhouseCoopers, 2009).

It has been generally recommended that management in organisations take full responsibility of IT governance (IT Governance Institute, 2008). The executive management and board of directors is responsible and accountable for IT governance. International 'best practices' such as COBIT (Control Objectives for Information and Related Technology) and ITIL (Information Technology Infrastructure Library) are

recommended for IT Governance (IT Governance Institute, 2003; PricewaterhouseCoopers, 2009).

South African organisations are advised to review the King III recommendations on IT governance (Institute of Directors, 2009). The disposition or inclination of the King III Report is towards 'apply or explain', and since the tone of King III in South Africa is not prescriptive and allows organisation to use their discretion in doing what is best for their organisations (Institute of Directors, 2009). The Board of Directors must ensure strict adherence to the recommendations of the King III Report, otherwise, the Board would have to write and sign an explanation (PricewaterhouseCoopers, 2009).

2.3.4 The Value of IT Governance

The benefits of a proper IT Governance implementation are numerous and cannot be exaggerated, it is also difficult to exhaust, however, Turbit (2005) makes mention of the following:

- IT Governance enables and facilitates the marriage between IT and Business strategies which are known to previously be in conflict or separate.
- IT Governance has cost savings on account of proper analysis, evaluation, implementation and monitoring of joint decisions.
- It gives organisations a chance at eliminating or reducing risks associated with IT.
- Compliance with regulations and legislation is inherent to the adoption of proper IT Governance, and organisations embrace transparency, accountability and sustainability to shareholders and society where they operate.

IT Governance however, has its own inherent challenges within organisations and in collaborations.

2.3.5 Governance Frameworks for Information Technology Projects

The main purpose of governance frameworks is to help organisations implement available best practices. These in turn assist them to avoid financial losses due to compliance failures as well as ensure that they pass regulatory audits. Common governance frameworks available today are COBIT, ITIL and ISO 27001 (DuMoulin, 2015). These frameworks, standards and best practices have a potential for delivering on their

promises, however, they must be tailored to the needs of the business otherwise using them as mere technical guide can render implementations costly and ineffective (IT Governance, 2008). In the following section, while we acknowledge other popular methodologies and frameworks, only COBIT (Control Objectives for Information and Related Technology) and ITIL (Information Technology Infrastructure Library) will be considered.

2.3.6 Governance and Managing Organisations through COBIT

COBIT is an acronym of Control Objectives for Information and Related Technology. It is an IT-focused governance and control framework created by the Information Systems Audit and Control Association (ISACA). COBIT is open standard and non-proprietary (ISACA, 2016a). There is a need for IT governance as organisations and governments are beginning to realise the importance of IT in the economy of the world especially after these past few challenging years with world economy. This necessitated the need to employ frameworks or a method of supervising the activities of IT in organisations (De Haes & Grembergen, 2008; IT Governance Institute, 2008). For this reason among others, governance of IT requires implementation through a carefully thought governance framework. Individuals who practice IT and organisations that do IT are expected to comply with various frameworks and methodologies available (De Haes & Grembergen, 2008).

COBIT's aim is to be a framework that supports governance of IT by defining and aligning business goals with IT goals and IT processes (De Haes & Grembergen, 2008; IT Governance Institute, 2003). IT processes require tools for regulatory compliance by governments or corporate governance. COBIT is being increasingly adopted globally as the governance and control model for implementing and demonstrating effective IT governance. The framework addresses both business and IT functional areas across an enterprise and considers the IT-related interests of internal and external stakeholders (DuMoulin, 2015). Enterprises of all sizes, whether commercial, not-for- profit or in the public sector, can benefit from COBIT 5 which is based on 5 principles (ISACA, 2016b; IT Governance Institute, 2005).

The 5 principles of COBIT includes meeting Stakeholder Needs, Covering the Enterprise End-to- End, Applying a Single, Integrated Framework, Enabling a Holistic Approach, and Separating Governance from Management (ISACA, 2016b).

2.3.7 Governance and Implementing Information Technology Infrastructure Library (ITIL)

ITIL is an acronym for Information Technology Infrastructure Library. ITIL defines a guidance of best practice processes. These are high-level processes that can be tailored to the need of organisations. They are not set rules or processes as organisations are free to select and apply those processes that are relevant to their situation (IT Governance Institute, 2005).

The management guidelines are generic and action oriented (IT Governance Institute, 2005). They are intended to help the organization implementing IT projects. In the earlier version of COBIT, certain guidelines were highlighted in response to managements' need to improve control and measurability of IT through maturity models, critical success factors (CSFs), key goal indicators (KGIs) and key performance indicators (KPIs) (Grembergen, 2004). These include

- Maturity models which are designed to measure and indicate good performance.
- Critical success factors - The need to establish an IT control profile by determining what is important and the factors necessary to be in place to ensure the success of the control.
- Management awareness of the risks of not achieving their objectives.
- Establishing a measure of benchmarking in order to measure and compare with others and what they are doing.

2.3.8 ISO 38500 IT Governance Standard

The International Organization for Standardization and the International Electro-technical jointly published this standard in 2008. It was created based on an earlier Australian standard (AS 8015 developed in 2005), it was formerly ISO 29382 before the new ISO/IEC 39500 was adopted. Its main objective is to serve as a framework with which Directors can use to promote effective, efficient, and acceptable use of information technology. Directors include owners, board members, directors, partners, senior

executives and other persons in similar positions within an organisation, as well as those advising them (ISO, 2016, Standards Australia, 2015).

The standard draws from these six principles:

- Establish responsibilities
- Plan to best support the organization
- Acquire validly
- Ensure performance when required
- Ensure conformance with rules
- Ensure respect for human factors

Table 3: Main Features of Selected Frameworks

STANDARD	MAIN CHARACTERISTICS	DOMAIN	SCOPE
COBIT 5	Governance of IT by defining and aligning business goals with IT goals and IT processes.	IT Governance	Enterprise
ITIL	These are high-level processes that can be tailored to the need of organisations.	Service Management	Can be tailored
ISO/IEC 38500	Directors can use to promote effective, efficient, and acceptable use of information technology.	IT Governance	Enterprise
ISO/IEC 27001	Manage the security of information assets such as financial information, intellectual property, employee details or organisation's information.	Security	Enterprise

There are several IT governance frameworks available today, however, in the table 3, we have a summary of some selected frameworks as discussed previously in this text. The main characteristics highlight the key strengths of the framework and its use and applicability within an organisation. It is also helpful in indicating the scope and domain where the framework in question can be applied within the organisation.

2.3.9 Governance and Project Management

As mentioned in the introduction, the focus of this work in relation to project management is in IT project management. However, since IT or IS project management and project management share the same principles, the theme *project management* will be used to discuss these topics.

The health of an organisations depends on how it is governed or operated (Organisation for Economic Co-operation and Development, 2016). Since IT is also project-managed as other functions necessary for the health of the organisation, we will look at how governance influences the management of projects. The Association for Project Management (2017) defines project management as the application of processes, methods, knowledge, skills and experience to achieve the project's ultimate objectives. They further described governance as a set of policies, functions, regulations, processes, procedures and responsibilities that define the organisations, management and control of projects, programme and portfolio. This definition of governance, shows that holistically, governance is a mechanism through which organisations' endavours are established. This suggests a strong link between project management and organisational governance.

2.3.10 Ensuring Governance through Project Management

There are numerous project management methodologies, frameworks and processes such as Project Management Body of Knowledge, Association for Project Management, PRINCE 2, etc., but according to Hamersly (2015) and Kovach & Mariani (2012), 80% of projects fail due to lack of governance and business knowledge. This has further highlighted the need for proper governance in IT projects (Singleton, Xiong & Wey, 2015). However, to ensure success of governance of projects, there must be a balance of leadership and management. As leadership or governance leans towards people-orientated activities, management leans towards project goals-oriented activities in a project circumstance (Muller & Turner, 2005).

A project is a temporary endeavour undertaken to create a unique product, service, or result (PMBoK, 2014). This definition highlights the important aspects of a project. If projects are not properly managed, it will fail. The high rate of IT project failures necessitated various project management frameworks including PMBoK, PRINCE2, Agile, P2M, and several others. As IT projects are part of the focus of this study, it is important to briefly look at the methods in which IT projects are managed and implemented today. Due to the large number of available methodologies, we will only briefly discuss PMBoK and Prince 2.

2.3.11 Project Management Body of Knowledge

PMBoK is an acronym for Project Management Body of Knowledge. It is like an encyclopaedia of information on all things project management for the North American project management society. PMBoK to North America is what PRINCE 2 is to the United Kingdom as frameworks used to manage projects (Wideman, 2002). According to Project Management Body of Knowledge, 3rd Edition (2004), "Project Management Body of Knowledge is the sum of knowledge within the profession of project management." This body of knowledge includes both published and unpublished proven traditional practices in the project management field (PMI, 2004).

The primary purpose of the PMBoK Guide is to identify that subset of the Project Management Body of Knowledge that is generally recognised as good practice. To 'identify' means to provide a general overview as opposed to exhaustive description; and 'generally recognised' means that the knowledge and practices described are applicable to most projects most of the time, and that there is widespread consensus about their value and usefulness (PMI, 2004). Lastly, 'good practice' means that there is a general agreement that the correct application of these skills, tools, and techniques can enhance the chances of success over a wide range of different projects. However, 'good practice' does not mean that the knowledge described should always be applied uniformly on all projects; therefore, project management team is responsible for determining what is appropriate for any given project (PMI, 2004).

2.3.12 PRojects IN Controlled Environment (PRINCE 2)

PRINCE 2 is a process-based approach for project management that provides a set of easy-to-tailor and scalable method for the management irrespective of the type of project. The method is the de-facto standard for project management in the UK and is widely practiced and quickly spreading throughout the world. It provides a process model (of eight processes) that is intended to be applied as a set of steps in a logical sequence by a project manager in planning and managing a project (Wideman, 2002).

The PRINCE2 approach has the advantage that (because it is somewhat prescriptive) it causes a degree of standardisation in an organisation. Whilst allowing for tailoring to a range of projects, it generally requires all projects to undertake the same steps

(processes) and use the same terminology. This has obvious benefits in corporate programme management, project staff training programs, and project performance and tracking systems. The disadvantage may be that it potentially constrains creativity in the variety of methods applied to managing a project. Business processes that are existing must be reviewed and integrated with PRINCE2. There is a need to have executive or management buy-in. Stakeholders must be trained. If third party companies are used, they must be fully PRINCE2-compliant.

2.3.13 General Recommendation

The underlying difference between the PMBoK and PRINCE 2 is that the PMBOK offers the project manager a considerable array of information about proven practices in this field and invites the project manager to apply these where they deem appropriate whereas PRINCE2 provides a more prescriptive (although flexible) set of steps for the project manager and teams to follow (Karaman & Kurt, 2015). Several organisations have recognised that there are benefits in allowing both PMBOK and PRINCE2 to co-exist as they have many complimentary elements (Bell, 2009). However, other methodologies and standards such as Project Management Association of Japan (2016), APMBoK, Agile, are available but the general recommendation is for organisations to cautiously select what is effective, practical, cost effective and suitable. Otherwise, as Ertel and his colleagues (2008) and O'Sheedy (2012) put it, they must tailor the system of their choice to their environment.

2.3.14 Summary

We were able to show via literature that Information Technology projects needs governance as a requirement. We have looked at several methodologies, principles and frameworks available to implement governance in projects such as COBIT, ITIL, ISO 27001, etc., and specifically, project management methodologies such as PMBoK and PRINCE 2 that are favoured to foster proper Information Technology project management. The main essence is that these rules, guides, principles, methodologies, etc. will help ensure governance in Information Technology projects and endeavours in line with corporate governance principles being the overarching objective.

What about projects or Information Technology endeavours that are not carried out in-house? How does this governance extend to an environment where the host organisation does not have full control? Is governance relevant, and is there a way to ensure this? In the next section, we will look at governance in an outsourcing relationship.

2.4 Governance in Outsourced Projects

2.4.1 Introduction

Governance and outsourcing are broad topics that are beyond the intention of this work. For this reason, it is important to only focus on aspects and materials that are relevant to this research work. Very often, organisations outsource some of their work, especially the non-core aspects of their business. It is common for organisations to outsource IT projects to external providers. In such an event, governance needs to be applied as a requirement based on the materials we have already reviewed and some that we will see later in this work. This is the particular focus of this research work and the accompanying literature review: governance of outsourced IT or Information Systems projects between organisations.

In this section, we will discuss outsourcing, state the different methods of outsourcing available today as well as some key issues that link outsourcing to governance. We will consider reasons why outsourcing relationships may fail and what can be done to prevent this from happening to organisations seeking to outsource. Also, we will examine the motivations for outsourcing and collaborative work and why effective governance is a requirement. Finally, we will look at outsourcing governance in South African organisations – we will consider governance at the local organisation as well as how governance is transferred and translated in an outsourcing relationship in a South African context.

2.4.2 General Background on Outsourcing

As the economic climate is getting more difficult for private and public organisations, the need to innovate and strategize is increasingly important (Hojnik, 2010; Kremic et al., 2006). In the pursuit of survival, organisations are faced with a general need to minimise

cost, increase profit, and stem competition, etc. in order to stay relevant in business (Smuts, van der Merwe, Kotze & Loock, 2010; Bolina, A., Demneri, A., Hodgson, D., Mancher, M.J., Revesz, S., Ristuccia, H., Wahi, R., & Zechnich, D., 2013). One of the ways they achieve this is by outsourcing some of their functions especially their non-core functions to other organisations that are well-established in those functions (Cheon, Grover & Teng, 1995; Fulton, Muir & Janssen, 2006). It can also be described as an agreement between a supplier and a customer for services or processes that were provided internally previously in the form of a contract (Fan, 2000). Outsourcing is also described as a process where an organisation contracts out some of its functions to a 3rd party organisation (Bolina et al., 2013; IT Governance Institute, 2005). From several definitions of outsourcing from literature available, there are certain important elements essential to the concept of outsourcing – a customer, a supplier, services/process, relationship and the contract. These should be borne in mind as we begin to explore the topic of outsourcing and governance.

2.4.3 Why Do Organisations Outsource?

In studying literature on the reasons why organisations outsource, this research work found a few common reasons why organisations engage in outsourcing. These reasons are not all the same in all the different organisations. For example, an organisation may opt for outsourcing for cost savings while another organisation may be in it for quality improvement or a combination of reasons.

Table 4: Reasons for Outsourcing

Common Reasons for Outsourcing	
• Cost savings	• Greater flexibility
• Reduced capital expenditures	• Copy competitors
• Capital infusion	• Get rid of problem functions
• Quality improvement	• Better accountability/management
• Increased speed	• Access to latest technology/infrastructure
• Augment staff	• Access to skills and talent
• Transfer fixed costs to variable	• Increase focus on core functions
• Legal compliance	• Reduce politic pressures or scrutiny

Table 4 shows a collated a list of reasons why organisations engage in outsourcing from various authors such as Fan (2000), Stacey, Steffen & Barrett (1997), Barac & Motubatse (2009) and Gonzalez, Gasco & Llopis (2010) to name a few.

2.4.4 Outsourcing Models, Approaches, Lifecycles and Frameworks

In a bid to foment a way forward, there have been are several models, approaches, frameworks and lifecycles developed in academia and by outsourcing consultants (Bolina et al., 2013; KPMG, 2012; Singleton et al., 2015; Gewald & Helbig, 2006; Vitasek, Stevens & Kawamoto, 2011; CGI, 2017), most of which are consultancy firms with considerable outsourcing management experience in the industry. For example, Deloitte proposed the following approach when considering outsourcing (Tweardy et al., 2015). Firstly, a strong business case must be developed to justify the need for the outsourcing relationship and what must be achieved through this relationship such as cost-savings or resource reallocation. This must be clear from the onset. Secondly, a dedicated team to manage and oversee the transition of the project must be created in order to align dependencies and interconnections for each element that is outsourced. Thirdly, the model should be

defined such that it delineates what is outsourced and what is retained and how they drive the organisations' strategic priorities or plans. Fourthly, a future state model must be created with the organisation's roles, processes and responsibilities versus those of the provider. Lastly, business value objective must be driven by focusing on the management of the relationship through governance.

Tweardy and his colleagues (2015) submits three major elements that must be integrated to strengthen outsourcing activities. These include: Contracting, Transition Management and Vendor Management. In another publication, there are outsourcing lifecycle proposed by Deloitte (Bolina et al., 2013) which lists five phases of an outsourcing relationship: define strategy and operating model, develop solution and request for proposal, evaluate deal and manage transaction, execute transition and transformation and finally, Manage on-going operations. It is clear from the above that a systematic approach needs to be adopted from the early stages of solution development, through transition and transformation to managing on-going operations. This is also in line with Deloitte's (2013) six phases: Assess, Prepare, Evaluate, Commit, Transition and transform, and Optimize. It is further confirmed by Vitasek and colleagues (2011) whose proposed vested governance framework includes relationship management, transformation management, and exit management, people/change management. Also, Marias (2012) identifies harvesting value, planning and design, third generation governance, creating efficiency and technology enablement as critical enablers of deriving the value of outsourcing through governance according. Lastly, there is also the concept of retained organisation. This refers to the remaining employees at the outsourcer who would enforce alignment between the organisations and manage the relationship as opposed to managing a service provider (Vitasek et al., 2011).

To summarise, there are various outsourcing governance frameworks, approaches, models, lifecycles, and so on available. Notable from them all is the fact that they all unanimously agree that there must be an initial phase that covers assessment, preparation, evaluation and contract. This will allow the organisation to justify the need to outsource as a strategy and to commit to it. The other aspects included in these approaches have to do with contract and relationship management or transition management. These deal with what must be done after the initial phase has been

successful. There is a requirement to transition both organisations involved into working as a unit - like an extension of the outsourcer. At this stage, relationships, processes, responsibilities, change management and transition management are fully outlined, understood and engaged. There must be regular "health-checks" through the course of the relationship to ensure that both organisations are on the same level of expectation. Finally, depending on the nature of the relationship, both organisations can optimise their relationship, contract and management of on-going operations and they can prepare to part ways through exit management should the contract come to an end.

2.4.5 Challenges and Pitfalls of Outsourcing

While outsourcing can be a strategic solution, there are challenges and certain pitfalls to note (Tweardy et al., 2015). The authors highlight some of the common challenges of outsourcing in the table 5 below:

Table 5: Pitfalls of Outsourcing

Common Pitfalls of Outsourcing	
• Maturity of the outsourcer organisation	• Lack of experience from managers involved
• Integration challenges between the parties	• A narrow view of the relationship
• Lack of foresight	• Skewed expectations
• Inadequate relationship management	• Strategic fitness/unfitness between the organisations
• Lack of sufficient planning	• Insufficient commitment from top management

They also highlighted common failure points for example:

- Where the provider's sales and implementation teams are not in sync regarding the project at hand.
- Different expected outcomes between the parties.

- Lack of readiness or sufficient planning for the retained organisation for the transition process from the outsourcer organisation to the outsourcing organisation.
- No clear plan to garner the full financial benefit out of the relationship from the outsourcer retained organisation.
- Challenges that may arise in the first three months of operation that might erode confidence in the process from the outsourcer's side.
- Underinvestment in the governance of the relationship and the service provided and related costs.

According to Tweardy et al. (2015), these can cause schedule delays, cost overruns, service shortfalls, compliance failures, and an unpleasant experience for the parties and may lead to the termination of outsourcing arrangements.

2.4.6 Significance of Governance in Outsourcing

One of the chief reasons why organisations engage in outsourcing as noted from literature is cost reduction (Hojnik, 2010; Bolina et al., 2013). However, some authors argue that there are more sophisticated reasons organisations outsource beyond cost reduction, for example strategic repositioning of the organisation (PWC, 2008; IT Governance Institute, 2005; Hojnik, 2010). Outsourcing services is a trend that is on the rise irrespective (Bolina et al., 2013). But while organisations continue to adopt outsourcing because of the benefit it offers, organisations must be aware that outsourcing is also risky (Gewald & Helbig, 2006; Bolina et al., 2013; Grembergen, 2004; IT Governance Institute, 2005; PWC, 2008; Deloitte, 2014). The risks associated with outsourcing must be intentionally addressed in a formal manner hence the need for governance in Outsourcing (Bolina et al., 2013). This involves clearly setting the objective for the outsourcing relationships, defining roles, responsibilities, performance measurement, interfaces and controls for change management, as well as other relevant services (Amberg & Nair, 2016; IT Governance Institute, 2005).

Governance ensures compliance (Turbit, 2005; Peterson, 2004). Therefore, regulations and other compliance-related factors have significant impact on the success of IT projects. However, non-compliance to effective governance strategy by these organisations, as well as the lack of appropriate guiding methodologies could jeopardize

these benefits and lead to project failures (Kremic, Tukel & Rom, 2006). It is therefore necessary for externals suppliers such as those in outsourcing to play a big role in the bigger picture, they must be included in governance and IT strategy (National Computing Centre, 2005).

2.4.7 Governance and Risk

The bloodline of most organisations today lies in their Information Technology as it can cause serious risk to an organisation (Gewald & Helbig, 2006). The responsibility of managing the risk that could ensue on account of the use of IT is the core of IT Governance (Von Solms & Von Solms, 2008). The King Report placed special emphasis on risk management having recognised the necessity of IT in business strategies in today's business environment (PricewaterhouseCoopers, 2009), and risk management is inseparable from business strategy and processes (Bolina et al., 2013). Organisations can benefit from governance in terms of IT project risk management be it in outsourcing or virtual team-work.

2.4.8 Linking Outsourcing and Governance

We have established that outsourcing is an important part of business strategy. However, we have also established that it is risky. Effective outsourcing governance ensures that all the potential benefits and value of an outsourcing contract is achieved (Marais, 2012; CGI, 2017). Outsourcing governance structures are constructed to manage risks that might arise from the engagement. Therefore, there is a need to have it well-grounded and established (Gewald & Helbig, 2006; Bolina et al., 2013). IT Governance is one of the means through which these risks can be mitigated (Bolina et al., 2013). Effective management of the outsourcing relationship through governance can be challenging and complex (Fischer, Hirschheim & George, 2012; Marias, 2012). The advent of this new endeavour and the changes it introduced to the workplace has made it popular and drawn significant attention to teamwork and outsourcing (Saunders, Van Slyke & Vogel, 2004; Geister et al., 2005; Kimble, Li & Barlow, 2000; Greenberg et al., 2007). It is also of interest in academic literature (Townsend et al., 2004).

2.4.9 Effective Governance and Outsourcing Relationship

From literature available, the success or failure of an outsourcing relationship depends on effective governance (Lavitt, Chan & Babin, 2012; Amberg & Nair, 2016; Singleton et al., 2015). Recent studies have indicated lack or inadequate outsourcing governance to be the chief reason for organisations that failed to achieve the desired outcome of their outsourcing engagement (Gewald & Helbig, 2006; Marias, 2012; Smuts et al., 2010; Singleton et al., 2015; CGI, 2017; Vitasek et al., 2011). This is indicative of a problem with the management of the relationship (Gewald & Helbig, 2006; Fischer et al., 2012; Amberg & Nair, 2016). Tweardy et al. (2015), showed in their research that organisations tend to sign outsourcing contracts and hope that their desired outcome will simply be delivered without strong commitment. Another research carried out by Gewald & Helbig (2006)shows that organisations sometimes lack experience and are not able to reposition and reorganise themselves to harvest the best out of their outsourcing relationships. These organisations are probably not aware that as a consequence of outsourcing, they need to organise a department that will act as the interface to manage and report on the outsourcing contract on a daily basis (Gewald & Helbig, 2006). This way, the two organisations are constantly engaging one another on the requirements of the project or contract. The parties concerned should strive to work together and see the relationship as a mutually benefiting activity (Vitasek et al., 2011; Gewald & Helbig, 2006; Pena, 2012).

Furthermore, governance of an outsourcing relationship is a two-way process that requires effective communication from both sides, a protocol must be set to ensure consistency in the flow of information, control and exchanges in order to effectively manage the relationship for the ultimate benefit of all involved (PWC, 2008; IT Governance, 2016; Deloitte, 2014).

2.4.10 Contractual and Relational Governance of Outsourcing

Authors Fischer, Hirschheim & George (2012) and Vitasek, Stevens & Kawamoto (2011) found that contractual and relational governance are the key mechanisms though which IT outsourcing is generally conducted. Contractual governance is through a contract and emphasises formal control while relational governance is based on trust through informal

control. These authors and other literature assert that mutual understanding and cooperation for every stage of the relationship is important in outsourcing relationships (Gewald & Helbig, 2006). Contract governance is one of the two popular governance methods (Fischer et al., 2012; Singleton et al., 2015; Khakhar, 2013). An effective outsourcing contract governance is critical for its success (Amberg & Nair, 2016; Singleton et al., 2015). However, Singleton and his colleagues (2015) argue that outsourcing governance is more than a simple contract governance, and cost reduction does not always equate value-creation or value-retention (IT Governance Institute, 2005). Singleton and his colleagues (2015) propose eight tenets of effective outsource governance such as performance, financial, contract, project and program management, risk and compliance management, relationship and change management, consumption and business case management and issues and deliverables management. These tenets cover all the aspects covered by other authors in the literature studied, such as those highlighted by Tweardy et al. (2015). Singleton and his colleagues (2015) as well as Fulton et al. (2006) contend that if organisations implement effective and robust governance in their outsourcing contract, they can achieve cost saving of more than thirty percent on top of achieving compliance by ensuring performance visibility and access to data and information.

2.4.11 Outsourcing in South African organisations

According to KPMG (2012), South African organisations engage in one form of outsourcing or another. During the course of this research information on outsourcing at a global level was found in abundance, however, there was scanty literature in the South African context. A search for information and statistics on South African outsourcing activities yielded little information. But there is evidence of South African outsourcing operations especially in the IT, back-office, tax, insurance, manufacturing, financial, and advisory services such as internal audit and financial directorships. Much like their counterparts globally, South African organisations are outsourcing their non-core activities (PricewaterhouseCoopers, 2009; Liberty, 2015; Fin24, 2014; Naude, 2009). Grant Thornton International Business Report (Fin24, 2014) found that South African organisations are keen on outsourcing above the global average. Primary drivers include improve efficiencies, access to skills and cost savings.

However, in a Grant Thornton Report in Fin24 (2014) there is a warning regarding the implications of outsourcing large portions of an organisation's operations in the form of financial and legal challenges especially when the Protection of Personal Information Act (POPI) becomes effective. In addition to this potential problem, other inhibitors include the organisations' perception of outsourcing as too complex to implement, costly and a potential to lose control of their key strength.

2.4.12 Motivation for Governance of Outsourcing Work in South African Context

While conducting preliminary research for this work, information regarding the practice of governance in outsourcing in South African organisations was scanty and not well-documented. This in part has been the fuel for this research work since there are evidences of a large number of South African organisations engaging in outsourcing. However, the magnitude of this phenomenon is not recorded, and no information regarding how these relationships work with regards to governance principles and its application through the lifetime of an outsourced or overseas project. In this work, we have looked at governance and outsourcing in various countries, we were able to determine to some extent their governance maturity over time and as they evolved. Nevertheless, it is important to measure the effectiveness of South African governance principles in these relationships.

2.4.13 Summary

The main focus of this project work is governance and outsourcing. In the preceding section, we discussed outsourcing by providing background information on what it is and why organisations engage in outsourcing. We also reviewed literature on the challenges of outsourcing, its pitfalls as well as the risks involved and the motivation to contemplate governance for IT projects that are outsourced. We linked outsourcing and governance and established a justification for governance in an outsourcing relationship.

In the next section, we will look at virtual teams, virtual team-work and the governance of IT projects executed in this manner.

2.5 Governance in Virtual Team Work

2.5.1 Introduction

In this section, we will discuss virtual team work and governance. As mentioned in the previous section, due to the broad nature of these topics, we will state the focus of the following section clearly here in the introduction. From our previous discussion, projects executed via an outsourcing relationship have local and external teams working together. In these cases, virtual teams are formed as a consequence of how they must work. This is especially common when the project involves software or application development. The team members will have little or no physical contact; however, work is done and information is shared. In this case, considering IT governance for example, perhaps, none, one or both organisations have "established" IT governance principles and methodologies in place. In this section, we will discuss virtual teams, outsourcing with virtual teams, importance and challenges of virtual teams as well as governance in this respect.

2.5.2 Application of Governance in Virtual Team Work

Corporate governance and IT governance frameworks should cover an entire organisation and as a consequence, even its operations outside its physical geographic location or work done virtually or in proxy. In this section, virtual teams are discussed as it relates to corporate and IT governance and with emphasis on virtual teams based on an out-sourcing relationship.

There is a growing need for virtual team work, this is in part fuelled by factors such as globalisation (KPMG, 2012). For these and many other reasons, not all projects embarked by organisations are executed by teams that are collocated. Some of these projects are executed at overseas branches or by outsourcing organisations. The premise is that even if you have governance in the organisation, there should be governance applied on projects conducted overseas by outsourcing or branches located in other territories.

2.5.3 What are Virtual Teams?

There are several definitions available today for virtual teams or virtual teamwork. These place emphasis on three characteristics; it must be a functional team with a single purpose, geographically dispersed and/or organisationally dispersed (Townsend et al., 1998), and use technology as a means of communication (Wong, 2004; Zhan, Bai & Liu, 2007; Leidner et al., 2002; Gibson & Cohen, 2003; Geister et al., 2005; Lee-Kelley & Sankey, 2017). However, the definition of a virtual team can be confusing and misleading depending on the background of an author (Gibson & Cohen, 2003; Kimble, Li & Barlow, 2000).

Virtual Teams have gained prominence recently, and it is imperative to understand how they work (Saunders et al., 2004; Geister et al., 2005; Kimble, Li & Barlow, 2000; Greenberg et al., 2007). In practice, virtual team members rarely meet in a face-to-face setup, and since members are geographically dispersed, virtual teams are normally temporary structures, created specifically to achieve a purpose. However, there are cases where they may continue to exist depending on the nature of work or project involved (Townsend et al., 2004). According to Townsend and his colleagues (2004) virtual teams have membership that may be fluid; membership changing as the project demands.

2.5.4 Importance of Governance in Projects using Virtual Teams

As we have established in this work, IT projects or any project undertaken by an organisation is a risk (Hamersly, 2015; Bolina et al., 2013). Irrespective of the method through which the project is executed, there will be a need for governance and management from both the host organisation and the guest organisation (Hamersly, 2015).

Virtual teams are a complex and dynamic setup which introduce some complexity to the corporate environment unlike the traditional work environment because its members are in diverse locations and its structure is different. Virtual teams also introduce a new challenge in terms of how to realise good governance of the virtual team in order to reap its full benefits and high performance (Zhan et al., 2007; Kimball, 1997). Secondly, Corporate Governance differ considerably from country to country using different rules,

regulations, laws, ethics, etc. This has added another layer of challenges for organisations extending their resources by executing their projects across national, cultural and political boundaries (Jian & Yu, 2016).

2.5.5 Purpose and Benefits of Virtual Teams

The advancement of communication technologies, changing business environments and development in the virtual environments has made it necessary to adapt a new type of work environment (Zhan et al., 2007). Organisations have downsized, re-organised, and adopted organisational structures in the face of global competition and changing business landscape (Townsend et al., 1998). One of the outcome of these changes is the adoption of Global Virtual Teams (Saunders et al., 2004). The popularity and adoption of Global Virtual Teams is fuelled by the increasing reliance on virtual team work, major improvement in telecommunications, and advancement in collaborative technologies (Saunders et al., 2004).

The main purpose of Virtual Teams is to facilitate work projects where the team members are not co-located (Townsend et al., 1998). The benefit is that it bridges the gap where one organisation does not have the required resources, and outsources the project to another organisation located elsewhere. It could also be that the organisation has offices in other locations, and team members need to participate in the project from different geographic locations (Townsend et al., 1998). Virtual teams have the ability to leverage time to their benefit; work can continue asynchronously as workers are placed in different time zones. This allows more productivity and effectiveness of the team over a period of time (Saunders et al., 2004).

2.5.6 Motivation for Outsourcing and Virtual Team Work on IT Projects

Organisations outsource some of their tasks strategically to reap the benefits of utilizing the services of specialised services from other organisations specialising in their non-core areas (KPMG, 2012, Bolina et al., 2013). Various authors agree that outsourcing has become a strategic imperative in the current economic climate (Tweardy, Bolina, Wilton, David & Loo, 2015). As competition become aggressive, organisations are constantly evolving as they face challenges by these competitors (Zhan et al., 2007; KPMG, 2012). According to Townsend et al. (2004) and Hamersly, (2015), virtual teams in outsourcing

environments can address the evolving organisational challenges that arise when some key processes have been outsourced to firms that are more specialized in that area. The two organisations involved go through a kind of transformation where they can achieve the competitive synergy of collaborative work exploiting the advantages offered by telecommunication and related technologies. Virtual team work has become part of the answer to these challenges where organisations can leverage on it to achieve competitive advantage (Wong, 2004). Organisations can nurture each other as there is a shift from traditional competitive business environment to strategic business environments where a group of synergistic organisations can enjoy the mutual benefits of the strengths (Pena, 2012).

Townsend et al. (2004) and Wong (2004) in establishing that the factors that primarily drive the move from face-to-face team work to virtual team work noted that organisations are adopting organisational structure that are flatter or horizontal. This has become prevalent recently. Also, pressure from increasing global competition, sharp advancement in transport and information technology has forced organisations to 'flatten' their organisational structures in order to respond quicker to competition; the more layers of management organisations have, the longer it takes to make decisions or react to events.

Inter-organisational cooperation is necessary in the face of competition in the new corporate environment. Organisations can nurture each other as there is a shift from traditional competitive business environment to strategic business environments where a group of synergistic organisations can enjoy the mutual benefits of the strengths. It is important to note that this arrangement forces these organisations to become increasingly dependent on each other; the success of one determining the success of the other according to the authors. Because of this need, the work environment has changed as well. It is shifting towards service or knowledge work environment from a production environment (Inman, 2016; Kim, 2006; Udland, 2015). A production environment thrives on structure (Abilla, 2010; Jiang, 2009; Hayes & Schmenner, 1978; Ashe-Edmunds, 2016; Schieltz, 2016) and unlike service and knowledge work which often requires teamwork and collaboration in a dynamic work environment that changes according to

the requirement of the customer (Inman, 2016; Kim, 2006; Udland, 2015). The characteristic of a successful service organisation is based on its ability to respond to customer needs the earliest possible. In other words, the organisations ability to be flexible and evolve as required. This also influences the structure of most organisations from highly structured to more ad hoc arrangement (Townsend et al., 1998).

Previously, organisations integrated vertically so that they could have a stronger control of processes which were used to acquire raw materials and produce finished goods (Townsend et al., 1998). However, managing these processes have become a problem because organisations have realised that diversification and specialization have made direct management unwieldly. In response, organisations have eliminated their unneeded processes in order to focus on their core and value-added services. As a result, instead of the vertical integration with other organisations, strategic partnering and/or outsourcing ensued.

This relationship allowed organisations the right amount of control as well as enjoying the economies of scale as a collective output of the group. It is important to note that this arrangement forces these organisations to become increasingly dependent on each other; the success of one determining the success of the other (Townsend et al., 1998).

Workers' expectations of organisational participation have changed. Younger employees who were born in the era of explosive advancement in information technology, have a tendency to adapt quickly in the workplace that employs virtual team work (The Economist Intelligence Unit, 2009). These 'new generation' workers are technologically sophisticated and would expect a high level of sophistication from their employers. The increase in the number of employees opting for telework is a testament to this. Telework has mutual benefits to the employer and employee, however, it has its work challenges as well.

The rise in global trade and corporate activity, economic reforms in Europe and China has encouraged trade agreements between major countries. Unlike in the past, this has afforded organisations irrespective of size the opportunity to engage in multinational

operations and teamwork that spans geographic boundaries. This has increased the efficiency and productivity of these organisations (Townsend et al., 2004).

In Virtual Teams, members can be geographically dispersed with divers perspectives, skills and knowledge, this provide organisations with the flexibility to draw on these qualities which otherwise would not be found in a local collaboration (Greenberg et al., 2007). Organisations leverage the abilities of their local employees and that of their partner organizations meet the demands of today's global competitive environment (Greenberg et al., 2007). Furthermore, this dynamic work environment enables cross-synthesis of cultures, values, and work ethics (Richards & Bilgin, 2012).

2.5.7 Challenges of Virtual Teams on Projects

Best practices, technology and Virtual Teams are constantly evolving (Hamersly, 2015). However, more specifically, culture, logistics, language, technology and communication are some of the major challenges facing virtual teams (Leidner et al., 2002; Townsend et al., 1998). Townsend and his colleagues (1998) argue that beyond these challenges of culture, logistics, time, etc., Virtual Teams have the challenge of finding new ways to express themselves in this new environment, as well as the need to have a strong team participation skill. Communication, specifically personal communication style is one of the major barriers of Virtual Teams Projects according to the virtual team report conducted by RW^3 (2010). With respect to employees in organisations, Townsend and his colleagues (1998) noted that as with any change, there will be resistance by employees. Especially when they have to work differently from what they are used to.

2.5.8 Summary

In the preceding section, we have established that Information Technology work can be carried out using a virtual team. Information technology projects have associated risks. This and many other reasons necessitate the introduction of governance in IT projects carried out on behalf of organisations. Such as, projects carried out virtually via virtual teams, and specifically, teams that are not co-located and that have an outsourcing element in the relationship. An example can be seen in General Data Protection Regulations; the EU General Data Protection Regulation in Europe (https://eugdpr.org/) or Data Protection Acts of other countries.

In the above sections, literature reviewed justified the need and importance for governance in outsourcing relationships between organisations and in the last section a review of the challenges of virtual teams as linked to the research questions.

2.6 Conclusion

This research project is focused on governance of Information Technology with specific emphasis on outsourcing and virtual team work. However, due to the importance of corporate governance to the subject matter, we were able to show the relevance of governance as it is beyond the immediate organisation but has a ripple and overarching effect on countries and economies. Therefore, the need for governance from an organisational stand-point cannot be over-emphasised.

In this literature review, we discussed corporate and Information Technology governance, the application of governance in Information Technology projects, Information Technology outsourcing and how virtual team work in outsourced projects require governance. In summary, these materials highlighted a fundamental fact while corporate governance and by extension other governances have become statutory requirements in most countries, it is a necessity for some organisations as a means of survival because of the risks inherent in the way business is conducted today. As Information Technology projects and other projects are failing, the risks are getting higher, necessitating the introduction of mechanisms such as governance, project management methodologies, etc. with the aim of checking or mitigating potential negative circumstances for the organisation.

In the next chapter, we will discuss the research design and methodology as well as the data collection methods to be employed in collecting relevant data to assist us in understanding, confirming and verifying the information gathered from literature that we reviewed.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

3.1 Research Type

A search of available literature reveals a long list of different types of research designs such as Exploration, Explanation, Prediction, Evaluation, Historical, descriptive (e.g., case-study, naturalistic observation, Survey), Correlational (e.g., case-control study, observational study), Semi-experimental (e.g., field experiment, quasi-experiment), Experimental (Experiment with random assignment), Review (literature review, Systematic review), Meta-analytic, etc. (van Wyk, 2014; Welman, Kruger & Mitchell, 2005). However, this work will only consider a few and focus on the specific one that will help the research to determine the most appropriate method to apply to the research work in order for the research to produce valid results. The research was designed as an exploratory study since it did not start with a specific problem but rather to find out the problem.

3.1.1 Exploratory Study

The researcher had challenges locating previous research work on the subject matter in a South African context. Literature on local content on IT Governance itself is scanty. There is little information about the topic being investigated and we do not know what we are expecting. For this reason, an exploratory research design is appropriate to help us understand the matter, and consequently decide the best approach, data collection method, population and sampling methods to solve the current problem (Hardina, 2008).

Exploratory research (Welman et al., 2005) does not start with a specific problem. Exploratory designs are said to be the most suitable and beneficial approach to projects where the subject matter lacks established and certain information and especially when there is inexperience, unfamiliarity and only tacit knowledge on the subject matter (Van Wyk 2014).

Van Wyk (2014) further explained that “this is the most useful (and appropriate) research design for those projects that are addressing a subject about which there are high levels of uncertainty and ignorance about the subject, and when the problem is not very well understood (i.e. very little existing research on the subject matter).”

A research that requires an informal structure and lacks rigidity is best suited for exploratory studies. Therefore, this research work will be conducted as an exploratory study. For example, we would like to know what is currently happening in this domain by exploring first of all. After exploring through contact with respondents who meet our context, we will begin to delve deeper into the actual workings of these organisations with respect to Governance, Outsourcing and Virtual Teams. There are questions that may be appropriate to ask, the essence is to draw out information about organisations, employees, virtual team work, outsourced projects and governance:

- Is there IT Governance in your organisation?
- How is Governance applied in your organisation?
- Is your organisational IT Governance applied on all projects - local and remote?
- How is it applied in a remote project and Virtual Team context?
- What are the benefits and or challenges of working in a Virtual Team in terms of governance?

3.1.2 Descriptive Study

This is considered the most accurate of researches because it is based on statistics or numbers (Thomas, 2013). In this type of research, the researcher aims to describe data and characteristics of the object of study by studying the statistical data generated from frequencies, averages and other statistical information. However, it does not provide information about the causes of what is being studied (Sheikh & Bibi, 2010).

A researcher may want to describe what he or she has observed or found on an existing concept, people or situation. This is usually not new to the research but can be additional knowledge or new observation or findings. Researchers can use descriptive studies for a combination of qualitative and quantitative method, however, it is mostly involved with quantitative research techniques (Hardina, 2008).

3.1.3 Explanatory Study

This design is not applicable to the current work, particularly because it seeks to provide an explanation to how something works, a phenomena or concept. Depending on the objectives of a research, explanatory research can build on both exploratory research

and descriptive research in that it identifies or explores the "why" of a condition. Its aim is to explain the purpose of a research (Sheikh & Bibi, 2010) or search for explanations for events and phenomena (Rajasekar, Philominathan & Chinnathambi, 2013). Hardina (2008) in highlighting the link between explanatory studies and hypothesis testing asserts that in explanatory research, existing theories could be used to derive hypothesis as well as test the hypothesis. Explanatory researches are normally associated with quantitative studies and hypothesis testing (Hardina, 2008).

Explanatory researches are undertaken in situations where the subject matter is well understood and literature is well documented. This is not the case in this study.

3.2 Motivation for Choice of Design

This research work is in an area that can be described as 'unknown' or scarcely documented in terms of the South African context. It is not uncommon to find large volumes of articles, academic and industry research projects in this area, however, these are commonly found to be of other advanced societies. For this reason, this work will have an exploratory undertone, the design must cater for areas that may seem unconventional in order to fulfil the purpose of this work.

3.3 Research Paradigms

There are two major frameworks for thinking about the social world also known as paradigms. A paradigms, is a technical term used to describe the way we think about things and researches (Thomas, 2013; Sukamolson, 2005; Goldkuhl, 2012; Thanh, N.C. & Thanh, T.T.L., 2015). In research, paradigms are important because they can set how the researcher will approach the problem to develop the most effective path to achieve the objective of the research. There are numerous paradigms, each paradigm is right for different questions, depending on how the researcher intends to answer the questions (Thomas, 2013; Sukamolson 2005). However, in this text, only two will be considered. The famous and older positivist paradigm and the interpretivist paradigm. This research work takes an interpretivist paradigm position as oppose to positivist paradigm. The positivist approach will be discussed first.

In positivism, knowledge is obtained objectively, and should be obtained in a straight-forward and easily recordable manner (Thomas, 2013; Sukamolson, 2005; Sheikh & Bibi, 2010). In other words, the positivists assert that social matters can be observed, studied, recorded scientifically. Famous social scientists like Auguste Comte, Saint-Simon, and Laplace suggested that positivism is the most advanced form of scientific thinking. Scottish philosopher David Hume is a proponent of the principle of verification which supports the positivists recommendation for a need to be completely neutral and objective, watching from outside as disinterested parties to avoid contamination (Edirisingha, 2012; Thomas, 2013). In summary, positivists believe that using only experiment and observation, they are able to understand a phenomenon and that rational deduction is sufficient to explain concepts and knowledge (Ryan, 2008).

Interpretivism on the other hand tells of a different approach. Interpretivism came about after it started to become clear that positivism is not a perfect fit for social science after all (Thomas, 2013). This view posits that reality is multiple and basically relative as realities are subjective (Edirisingha, 2012). Many scholars including ReviseSociology (2015) assert that knowledge acquired in this discipline is socially constructed rather than objectively determined. Therefore, interpretivism has been considered as an alternative to positivist paradigm, the opposite of positivism (Thomas, 2013) or anti-positivism (Dash, 2008) even though Sukamolson (2005) argues against making such distinction. Knowledge in this paradigm is said to be everywhere and is socially constructed and the knower's own value or position on a matter is taken into account and therefore subjective (Thomas, 2013; Sheikh & Bibi, 2010). This is the premise on which interpretivism is based. Usually, an interpretivist researcher is interested in people and their relationships or a social phenomenon and therefore employs a subjectivist approach to the study (Dash, 2008). To the interpretivists, it is important to know what is going on in the minds of the subjects or respondents; how their worlds are constructed and how they 'see' things. This is sometimes referred to as the interpretivist worldview (Thomas, 2013). Furthermore, a researcher has the opportunity to immerse him/herself in the research context for the purpose of gaining understanding. The focus is on qualitative analysis using tools such as personal interviews, personal constructs, observations, individual's

accounts, etc (Dash, 2008; Edirisingha, 2012). In some texts, this paradigm is also referred to as subjectivism, for example, Sukamolson (2005).

Similar research conducted in this area were conducted using this view. For example, Economists Intelligence Unit (2009) used a survey for a similar project.

3.4 Motivation for Interpretivist Approach

A research approach (paradigm) to be taken must be linked to the objective of the research and how the researcher will approach the problem (Thomas, 2013). The motivation for using interpretivism is that this research work seeks understanding and interpretation of the issue at hand. It relies on the personal opinions of subjects and their experiences. This type of knowledge cannot be gleaned using a positivist approach. The interpretivist approach will afford the researcher the opportunity to get into the situation for the sake of understanding, using pre-knowledge of the phenomena, in this case governance, to draw a distinction between what is useful and what is not, and allowing both science and personal experience to play a role in finding more accurate data.

A positivist approach will not lend itself as the best approach in this case because this research work is fully on human experiences and opinions for which the positivist approach is largely disqualified due to its empirical characteristics. As ReviseSociology (2015) puts it, positivism advances the scientific quantitative methods, while, the interpretivism promotes the use of humanistic qualitative methods. While this work is about governance in the information technology domain, the context for the purpose of gleaning the information relevant to this study is largely a social one even though there are arguments about employing interpretivism in Information Science research work (Goldkuhl, 2012). Research in sciences generally tilt towards a positivist approach as it involves numbers, physical quantities, objectivity, context-free generalizations, etc. (Thomas, 2013; Dash, 2008; Edirisingha, 2012; Sheikh & Bibi, 2010) However, there are other aspects of research that this method has been proven inefficient (Chowdhury, 2014; Thomas, 2013).

For these reasons, it is the strong belief of the researcher that this research work should adopt the interpretivism approach as the best means to achieve its purpose.

3.5 Quantitative vs Qualitative

The best method through which the questions raised in this work will be answered will determine the method to adopt. Quantitative research and qualitative research lend themselves to positivism and interpretivism respectively. They are not opposite to each other, instead they can be used together to complement each other (Thomas, 2013; Sukamolson, 2005; Spanjaard & Freeman, 2006). Quantitative and qualitative researches can be crudely described as researches that involve counting or quantifying items and the ones that do not use numbers respectively (Thomas, 2013; Sheikh & Bibi, 2010). For this research undertaking a quantitative approach will be used.

3.6 Design frame

The research work needs to be organised in a manner that will make it successfully implemented. This bearing the research objectives in mind. Therefore, the researcher need to elaborate on the strategy and a comprehensive plan that will ensure the research will achieve its purpose. This is also called the design frame of the research or the framework that is used to organise the work (Joseph, 2014; Thomas, 2013: 133).

3.7 Design frame selection

There are many design frames used by researchers. Depending on the use-case, these design frames have their advantages and disadvantages which affect applicability. Common design frames are survey, case study, action research, experimental research and ethnography. In the following sections, three design frames will be described with their respective advantages and disadvantages as adapted from various authors (O'Brien, 1998; Biggam, 2008; LeCompte & Schensul, 2010; Bernard, 2013; Graziano & Raulin, 2013; Adams et al., 2014; Harrison & Mills, 2016).

3.7.1 Case Study

When a researcher needs to approach a research work where there is exploration, explanation, and description, a case study is more suitable research methodology design frame. Because of its nature, a case study allows a researcher to delve into complex issues in real-life context through several sources of evidence (Harrison & Mills, 2016). It allows for detailed data collection over a period and through multiple sources which can

range from audio-visual materials, observations, interviews or documents as well as reports. Data must be collected in its natural state as a requirement for case studies.

Advantages

- It is suitable and reliable to formulate hypothesis for further research study
- It gives an opportunity for in-depth exploration of a situation hence a holistic approach
- It simplifies complex theories and concepts
- It allows thorough and detailed work by researchers

Disadvantages

- It is costly and time-consuming
- Its result is impossible to generalize
- Because it is done for small units, classification is impossible
- It is not objective but rather subjective method of study

3.7.2 Survey

A survey is said to be a systematic technique of collecting information from a group or groups of people. This technique can be a quick interview or the use of questionnaires. It is generally used to collection information from respondents about their knowledge, attitudes or experience of a particular phenomenon under investigation. It is useful to researchers because it allows results to be generalizable to a large set of population. It allows for research procedures to collect data in a natural setting or environments.

Advantages

- A survey represents a large set population.
- Its results gives a better description of the characteristic of a general population.
- It is relatively cheaper to researchers
- They are convenient because surveys like questionnaires can be administered through mail, fax or through the internet.
- Observer subjectivity is eliminated ensuring bias from the researchers is minimal.

Disadvantages

- The questions are set and inflexible.
- Its results may not be as valid as other methods where respondents are studied alone and in details.

3.7.3 Experimental research

Experimental research is prevalence in scientific research domain where an attempt to test a hypothesis (theory) through some sort of experiment is common. In experimental research, a researcher at an initial stage define a research problem, then formulate hypotheses and lastly test whether the hypotheses formulated are correct by experimentation. To embark on experimental research, a researcher must be versed in using statistical techniques and tools. Experiments are seldom used in management and business research due to the constraint in controlling the influential factors in the process of conducting the experiment.

Advantages

- Experimental research is elementary, uncomplicated, and efficient method of research that may be applied across many disciplines
- Higher level of control over the variables in question and with a high chance of finding accurate result
- Experimental research result is more precise as compared to other methods of research
- Experimental research is susceptible prone to unpredictable (random error), systematic (experimental error) or human error

Disadvantages

- The absolute control over the variables been tested in experimental research creates artificial situations
- Internal validity is ensured occasionally at the expense of external validity in experimental research design.

- It is seldom conducted in a natural environment because it is extremely impossible to control extraneous variables

3.8 Choice of design frame for this study

Having looked at the suitability of these design frames, this study uses survey because it meets the requirements of the researcher and the objective of the study. The other instruments will not be suitable even though this study is exploratory and case studies gives researches the ability to explore complex issues in real life (Harrison & Mills, 2016). As noted earlier, the cost time and funds. Secondly, in order to generalise the results of the study, the researcher needs large amounts of data that is relatively easy to obtain. Experimental research is more useful in scientific disciplines where there is experiments conducted. This research has identified a target population as employees representing organisation (natural environment), therefore, experimental research was not suitable.

3.9 Time frame

The time frame for data collection is important because it helps the researcher determine how much data relevant to the study can be collected. From the beginning of the research, the research must know the type of information that should be collected; whether it can be collected at once or over a period. This can determine the success of the study. On this basis, researcher should consider cross-sectional and longitudinal research designs (Daniel, 2012; Paavilainen-Mantymaki & Hassett, 2013; Graziano & Raulin, 2013; Welman et al., 2005).

3.9.1 Longitudinal research design

Longitudinal research design is the type of design used when the researcher intends to examine the same group at different intervals over an extended amount of time (Welman et al., 2005; Daniel, 2012; Paavilainen-Mantymaki & Hassett, 2013). In this type of study the researcher does not interfere with the subjects or respondents but simply observes. However, the researcher conducts series of observations of the same subject or respondents for extensive period of time (Graziano & Raulin, 2013).

A strength of this design is that is able to show when changes or developments are found from the characteristics of the subjects being studied at an individual and group level.

Therefore, it chronologies the series of events and changes over a particular period of time for weeks or even years. (Paavilainen-Mantymaki & Hassett, 2013, Welman et al., 2005; Thomas, 2013).

The main disadvantages of this design is that a considerable number of participants may drop out of the study prior to the completion of the study, they are time-consuming and expensive (Welman et al., 2005). Examples of this design are panel designs, cohort designs and trend designs (Welman et al., 2005; Thomas, 2013).

3.9.2 Cross-sectional research design

In the cross-sectional design, the group or groups studied are done together at the same time. It is sometimes described as a snapshot. Which is different from the longitudinal researcher design in relation to time because it is all done within a period (Thomas, 2013; Welman et al., 2005; Daniel, 2012; Graziano & Raulin, 2013). The researcher does not need to follow-up with the respondents at a later time, everything is conducted and concluded one time.

In a cross-sectional study, the group or groups must be representative of a target population to allow for generalization of the result of the findings so that validity is guaranteed. Secondly, the sample size must be large enough to cover for the area of the research interest and to ensure that the sample specification is relatively less problematic compared to longitudinal study samples (Daniel, 2012).

The following figures distinguish longitudinal research design cross-sectional research design.

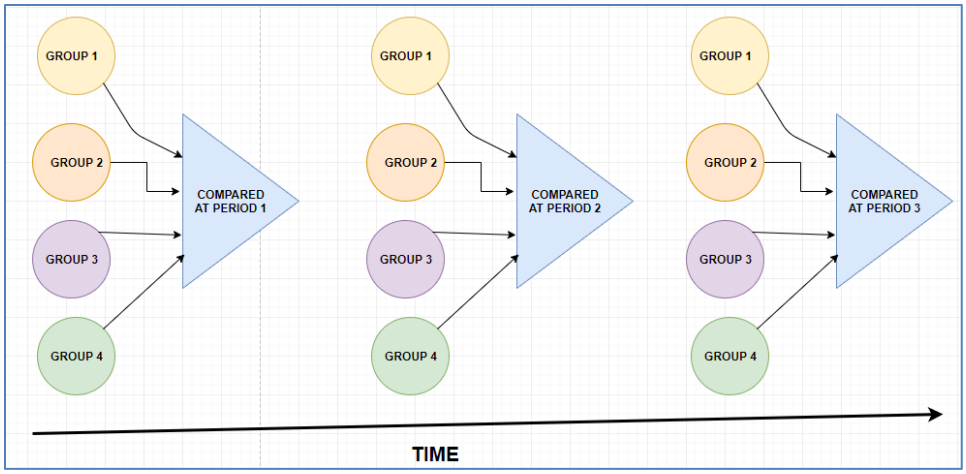

Figure 1: Longitudinal Research Design

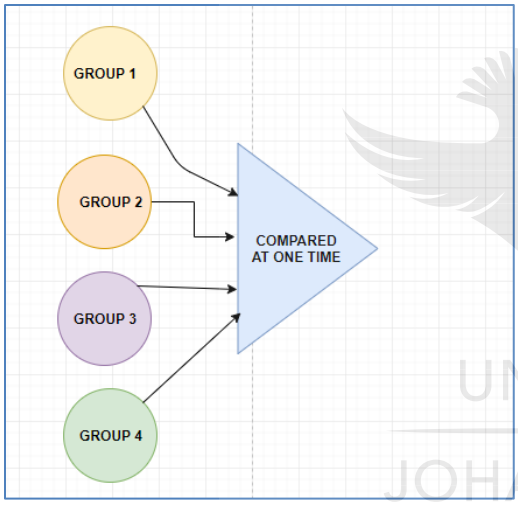

Figure 2: Cross-Sectional Research Design

Therefore, based on the difference between the longitudinal and cross-section research designs as well as the figures illustrating these differences, it is clear that the research would opt for the cross-sectional design.

The cross-sectional design sufficient for investigating IT governance in organisations in terms of outsourcing and virtual team work.

The study has identified a sample of South African organisations which is a sample set of the population which will be administered by a survey at one time. The sample will be

large enough to be able to generalize to a larger target population in South Africa. The nature of this study will not be suitable for longitudinal research design.

3.10 Research population and research context

According to Welman et al. (2005:52), "The population of a study is the study object and consists of individual, groups, organisations, human products and events or the conditions to which they are exposed". To reduce the likelihood of errors and of invalid or inappropriate data collection, we were interested in respondents who have experienced work within these areas: virtual team work, outsourced work, compliance and governance. The target population must come from organisations that are established in the areas mentioned. This is to ensure that the population is consistent with our research objectives and increase the validity of our findings.

In research, a 'sample' refers to a subset that is representative of a larger population. In order for results to be generalisable therefore, the sample must be representative. "By "representative" we imply that the sample has the exact properties in the exact same proportions as the population from which it was drawn, but in smaller numbers" (Welman et al., 2005:55).

3.11 Population and sampling

Based on the objectives of a research and the sample the research is interested in. There is a need to have a clear understanding of the research's target population to avoid *"a population specification bias"*(Daniel, 2012:9). Therefore, the researcher needs to take consideration of the target population in order to get the right sample choice since the target population is population which the research would ideally want to generalize the result to (Welmman).

Secondly, most representative of the target population is of the sample the more the researcher is confident to generalize their findings. For this reason, a thorough understanding of both population and sample is very important (Graziano & Raulin, 2013).

3.12 Sampling

There are two types of sampling: namely, probability sampling and non-probability sampling. In probability sampling, we can be sure that any item in the population will be included in the sample. Non-probability sampling is the contrast of probability sampling; we cannot ascertain the probability (Welman et al., 2005). Examples of probability sampling are simple random sampling, cluster sampling, stratified sampling and systematic sampling. In simple random sampling, each member of the population has the same chance of being included in the sample and each sample of a particular size has the same probability of being chosen (Welman et al., 2005).

There are other probability sampling methods which are not relevant to this study but are worth mentioning. Systematic sampling is when you select sample from a population after every interval for example after counting a certain number of elements in the population. Cluster sampling is where you draw from a heterogeneous group called clusters and then apply simple random sampling or stratified random sampling to obtain an eventual sample. Stratified sampling is where stratum (level/segment) is applied to a population as a subset of the main population that shares the same characteristics such as gender or vocation. Systematic and cluster sampling methods are not applicable sampling methods to the population being considered for this study. Non-probability sampling methods include Purposive, Convenience/Accidental, Snowball and Quota.

3.13 Sampling method for this study

Since a sample's representativeness of the target population is influenced by the sampling procedure used, the sample size and the level of participation or response, if this is not obtainable, then a purposive sampling, a type of non-probability sampling method can be used (Welman, et al., 2005). In purposive or Judgmental sampling, the researcher chooses the sample based on who they think would be appropriate for the study. This is used primarily when there is a limited number of people that have expertise in the area being researched. This is worth considering for this work given the characteristics/profile required of our respondents.

Non-probability sampling methods like purposive, self-selection and convenience sampling are desirable given the fact that the researcher is trying to ensure that the

respondents are the right sample. However, they are not usable. It is difficult to determine the representativeness of the sample using purposive sampling and self-selection. Generalization will also be flawed when convenience sampling is used because they were easy to obtain.

The general population for this study is companies and organisations that are registered in South Africa. As at 2005, there were 553,425 registered businesses in South African according to World Bank collection of development indicators (Trading Ecomonics, 2019). It is obvious that this information may be invalid given the time that has passed, companies are registered and closed over time. For this reason the total population is not known to the researcher. However, the target population for this study are those using information technology, preferably those organisations that have IT sections or departments; a subset of the total population. For this reason, the researcher opted to use simple random sampling. However, it must be noted that the researcher ensured that the organisation has an employee that is allowed qualified to fill the questionnaire on their behalf before the questionnaire is administered. Therefore, the unit of analysis is the organisation and not the respondent in their own capacity.

3.14 Respondent profile

The profile of the respondents (organisations and persons) need to be carefully predetermined. As previously stated, the success of this work is based on a number of factors which include the type of organisation, the respondents or employees, the type of work conducted at the workplace, etc. The target is three hundred organisations. This number is more realistic due to the nature of this study and how data is to be collected. Daniel (2012) suggests that resources should not be wasted as researchers battle with which sample size is too little or too large for a study. The objective should be more on the size that will allow generalisation to be made (O'Dwyer & Bernauer, 2014).

3.15 Limitations of the research design

Ideally, the study will take one respondent from each organisation as the data obtained will be considered representative of the organisation in general. This has both merit and demerit for the study. One of the merits is that the researcher does not have to collect

data from multiple respondents which can be time-consuming and difficult. The respondents can be considered “selected” or appropriate for the purpose of the study by providing a questionnaire to an organization, ensuring that the data collected is representative of the organisation.

3.16 Pre-Testing of the instrument (Questionnaire)

It was necessary to pre-test the questionnaire for this study. 15 questionnaires were administered to employees that fit the respondents profile described here. Feedback was received, and the correction applied immediately after consulting with the statisticians and supervisor. Secondly, appropriate amendments were made on the instrument in an effort to align the constructs to the objectives as well as reduce the number of questions while not compromising on the quality of the questions being asked.

Subsequent administration of the instrument did not raise questions and most of the questionnaires are completed accurately and completely. The researcher made room for sections that may not be applicable to respondents accordingly.

3.17 Data Collection

Data collection is the systematic process of collecting and measuring data that we are interested in (Welman et al., 2005). The data collected should be as a result of the research questions which will be analysed and results obtained.

3.18 Data Collection Methods

There are different data collection methods available depending on the type of research being conducted. It is important to select the most appropriate data collection methods to avoid inaccurate data hence erroneous results. Inaccurate data collected will have a negative impact on the result of the research and render it useless. For this research, a quantitative data collection method, specifically survey through questionnaires will be employed.

Quantitative data collection methods are structured and depend on random sampling. Their results are aggregated and summarised, compared and generalised. Examples of

data collection strategies for quantitative research include administering surveys in the form of questionnaires, counting and recording events, etc.(Thomas, 2013).

Questionnaires were chosen for this work because they are the most appropriate means to collect quantitative data from a large population in a cost effective way. This is in contrast with qualitative data collection methods like interviews. It is common knowledge that one of the major strengths of questionnaires is that they allow respondents to be honest and truthful in answering questions compared to when a respondent is being interviewed face-to-face or telephonically (Welman et al., 2005). One of the challenges of administering questionnaires is that the number of returned questionnaires is sometimes small compared to the number sent out, like we found in this research.

Questionnaires returned on physical paper or electronically via email (scanned and emailed) were manually entered into IBM SPSS Statistics 24 application. Data capturing was done in batches as the questionnaires were returned. The same software application was used to analyse the data.

3.19 Research instrument and constructs

There is a need to group questions on questionnaires by topic, scaling technique adopted, content or multiple criteria (Alreck & Bannister, 1995). The purpose of this is to allow the researcher to link the research questions or hypothesis (O'Dwyer & Bernauer, 2014). In this research work, grouping was done by content and domain for each of the main areas like outsourcing and virtual team work. The questionnaire was groups based on the constructs that were developed. A total of six constructs were identified and the questions were asked based on these constructs.

Table 6 shows each of the constructs, number of questions in each of the construct and the total number of questions in the questionnaire.

Table 6: Distribution of constructs and survey questions

N0.	Construct	Number of items
1	Adoption of IT Governance in Outsourcing	3
2	Effectiveness of IT Governance	7
3	IT Governance in Outsourcing Implementation	4
4	Virtual Team Adoption	3
5	Virtual team implementation	4
6	IT Governance Training and Adoption	4
	TOTAL	**25**

The questionnaire uses close-ended questions with a nominal measurement scale in the demographic section and Likert scale in the other sections. Nominal measurements are numbers that are assigned to allow researchers distinguish individuals on attributes that are being measured (Welman et al., 2005)

A Likert scale allows researchers to measure attitudes respondents towards a question to indicate their levels of agreement based on their attitude, beliefs or characteristics (Thomas, 2013). The respondent would answer based on a rating scale on each item on a five-point or seven-point scale (Thomas, 2013; Alreck & Bannister, 1995). Likert scales fall under attitude scales (Welman et al., 2005). This study adopted a five-point scale with the following options: strongly disagree, partially disagree neutral, agree and strongly agree.

The questionnaire can be found in the appendix 1.

3.20 Questionnaire Development and Administration

The questions in the questionnaires were developed from the research main questions as well as the sub-questions, and the literature that was reviewed by the researcher. The questions were also grouped based on the research question areas like IT governance in organisations, in managing IT outsourced projects and the use of virtual teams in South Africa.

Questionnaires were administered to respondents that match the respondent profile. These questionnaires will be handed out by hand and in person. A letter of introduction will accompany each questionnaire. In this letter, respondents will be informed about the purpose of the survey, the objectives, the benefits as well as other ethical requirements.

Close-ended and open-ended questions will be asked in the questionnaires. Close-ended and open-ended questions will be used that are in line with our research objectives. Close-ended questions will be applied in areas where there is a need to restrict the respondents' determined options and increase the quality of information received.

Open-ended questions will be used to solicit more details in areas where the respondent needs to shed more light on his/her choice of answer in the close-ended question.

3.21 Ethical Consideration

3.21.1Introduction

Knowing what constitutes ethical research is important for all everyone who conduct research projects or use and apply the results from research findings. The ethical clearance of this study is found in appendix 2.

3.21.2 Special Consideration

Since this research will deal with human participants, we will be considering important aspects of ethics such as Respect for Persons – informed consent, privacy and confidentiality, risk benefit and beneficence, and justice.

3.21.3 Respect for Persons – Informed Consent

In this context, we will ensure the following: disclose all necessary information about the research, comprehension and voluntary participation. This research will disclose information to participants regarding the research procedure, its purpose, risks and anticipated benefits, and a chance for the respondents to ask questions and to withdraw at any time.

We will also consider comprehension so that the participants have a good understanding of what research is about and its general purpose.

We will also ensure that participants are not coerced into participating but do so voluntarily.

3.21.4 Respect for Persons – Privacy and confidentiality

Since privacy and confidentiality are very important components for research involving human participants, information collected from participants for this study will be highly guarded and used solely for the purpose of this study. All information collected will be kept private or destroyed after the study has been completed. Participants will be notified if necessary.

3.21.5 Risk Benefit & Beneficence

This work may uncover information that is important to the development of IT governance, literature on outsourcing in South African context as well as information about virtual team work. The information gleaned from this work will add to what is already known and documented. For this reason, the issue of beneficence will be covered as it will be 'doing good' to the South African organisations involved in any of these areas as well as future or further research in this area.

3.21.6 Justice

Today, there has been specific attention given to prevent using one population or strata of society or population for research and then apply the findings to another population. As part of this study, we will ensure that justice is enforced in our interaction with the respondents and selection.

3.21.7 Limitations

A major limitation under ethics is that employees had to respond on behalf of their organisation. Given that employees may have varying opinions on their organisation, the researcher made effort to ensure that at least only authorised employees would respond on behalf of their organisations.

In the introduction letter, the researcher provided a guide for the employee who can fill out the questionnaire in an organisation. In some cases, a formal consent form required to be filled by the researcher while approval letters were required in other cases.

3.22 Reliability and Validity of Research

When conducting research or studies, the research needs to be both reliable and valid. Both concepts are important in research studies because they are used to ensure the accuracy of the assessment and evaluation of a research work (Adefioye, 2015). These concepts also vary depending on the nature of the study be it quantitative or qualitative (Creswell, 2014; Thomas, 2013).

3.22.1 Reliability

Reliability refers to whether your data collection techniques and analytic procedures would reproduce consistent findings if they were repeated on another occasion or if they were replicated by another researcher (Thomas, 2013), or the consistency of a measuring instrument (Muller, 2011). It is therefore the credibility of the study (Welman et al., 2005). There are several types of reliability; such as stability, homogeneity and equivalence (Adefioye, 2015)

3.22.1.1 Threats to research reliability

Participant error: Any factor which adversely alters the way in which a participant performs. For example, interviewing participants during certain time of day might influence the answers they provide for the same questions.

Participant bias. Any factor which produces a false response. For example, interviewing participants in the open-office might cause the participant to provide false responses.

Researcher error. Any factor which alters the researcher's interpretation. Using interview as an example, a researcher might be affected by fatigue which can influence how researcher would ask questions. If researcher schedules say six interviews in one day, the manner which researcher would ask questions at the beginning of the interviews might differ towards the end of the day due to fatigue.

Researcher bias. Any factor which induces bias in the researcher's recording of responses. For example, when researcher interpret responses in a subjective manner.

3.22.2 Validity

Validity is considered the extent to which a concept is accurately measured in a quantitative study (Welman et al., 2005; Thomas, 2013; Adefioye, 2015; Heale & Twycross, 2015; Muller, 2011). For example, a survey designed to explore depression but which actually measures anxiety would not be a considered valid. There are several types of validity such as construct validity, internal validity external validity, criterion-related validity, content validity, etc. (Thatcher, 2010). However, only construct validity, internal validity and external validity will be considered.

3.22.2.1 Construct validity

This type of validity considers the extent to which the research measures what it claims to measure (Thomas, 2013). This has to do with all the choices made while designing the research such as methodology, instruments, research nature, research strategy, and other factors (Welman et al., 2005). For example, a researcher might be asked to justify the construct of his research. A research might be based on an issue that has never been researched before, the researcher can use the exploratory research for this purpose and as the justification for it. The constructs for this study are listed in table 6. There are a total of twenty-five questions from six constructs.

3.22.2.2 Internal validity

This type of validity is considered true when the research demonstrates a causal relationship between two variables (Welman et al., 2005; Thomas, 2013). This is clearer in experimental research where there are independent variables and dependent variables. This validity seeks to find the relationship between the two.

3.22.2.3 External validity

An indication of whether a study's findings can be generalised to other relevant settings or groups (Welman et al., 2005; Thomas, 2013; Adefioye, 2015). For example, when choosing a sample from a population. Can the findings of the sample be generalised to other sample from the same population? In other words, it is a measure of how "representative" the study's findings are of the population.

3.23 Conclusion

In this preceding section, the overall research design and how data will be collected were discussed. Exploratory study was the research type adopted and discussed. The research design and paradigms were also discussed with relevant details including why the researcher chose them given the context of this study.

The instrument of data collection was discussed and all necessary precautions were taken to ensure that the instrument aligned with the study and was effective for the purpose on this study. This was done with the help of statisticians and senior researchers.

The plan for data analysis and statistics for the study were discussed to cement the understanding of the approaches that are used for data analysis of exploratory studies and the ones chosen for this study and why. Research concepts and terms such as validity, reliability, were discussed mentioning threats to their usage in this study and the precaution taken to avoid them in this study.

Finally, ethical consideration for this research study was discussed and the precautions taken to address the possibility of breaching these ethical contracts.

CHAPTER FOUR: RESEARCH DATA ANALYSIS

4.1 Introduction

This chapter demonstrates the data collected from the administration of the questionnaires. As mentioned in the preceding chapter, the questionnaire was the preferred instrument of data collection for this research work. Over three hundred questionnaires were distributed, however, only one hundred and sixty four questionnaires were completed and returned on time.

4.2 Data collection, cleaning and processing

Data was collected from public and private organisations in South Africa as indicated in the objectives of this work. The respondents selected from these organisations were those dealing with Information technology directly. These were the respondents targeted in these organisations in order to obtain data relevant to the objectives of this study.

The data collected was captured in a statistical computer software (SPSS) and analysed. Before then, the researcher had to remove all questionnaires that were partly completed so that all questionnaires administered and returned were scrutinized for incomplete information and removed. Invalid responses were also screened and cleaned before data capture. The one hundred and sixty four questionnaires were numbered for easy of reference during capturing. A questionnaire was used to code the questionnaires into the analysis application (SPSS). The data collected was subjected to tests to ensure that the data collected and captured are complete and consistent.

In the questionnaire (attached in the appendix), data collection was divided into four sections. At the end of this chapter, a summary sub-section will be added.

4.3 Demographic descriptions

The definition and purpose of collecting demographic data will be provided briefly for the purpose of understanding the relevance of this data. Demographics is used to statistically show the characteristics of a population at a point in time (Connelly, 2013; French, 2014). Demographics provide data that can be generalised from a sample to a larger population (French, 2014). Demographic data has many benefits and purposes. For example, it

gives an indication of whether the researcher is looking at the right sample/population, certain characteristics that may be otherwise hidden, etc. Once collected, it can be used for decision-making and planning based on the data received.

4.3.1 Training - Project management/governance/IT certifications

In this survey, figure 3 indicates the number of "yes" and "no" for each training or certification area. This question was asked in connection to the research sub-question 1.4.1 (b). It seeks to find out the commitment of management to governance as shown in their commitment to the training and certification of their employees.

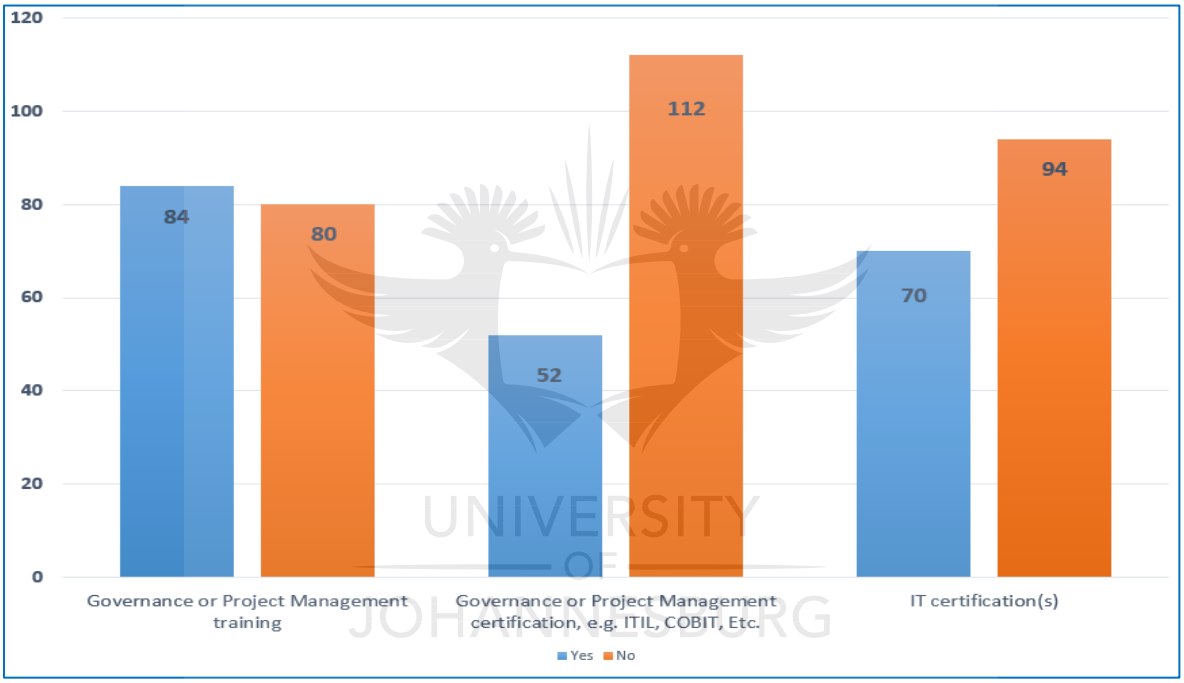

Figure 3: Training and Certification

There may be value in having additional training in project management, IT certifications or governance qualifications. Some of these could be in-house training or international certifications. Since this can influence the experience of governance in organisations, it is an important factor to capture against respondents.

In terms of training and certifications in the area of interest, respondents who have attended project management training or governance training of some kind accounted for 40.8% and 34.0% with formal 'IT certifications'. However, the results show that there are

fewer people with professional IT governance certificates such as ITIL and COBIT as the count is 25.2% as shown in figure 3.

4.3.2 Industry where the organisation operates

In this survey, figure4.8 indicates the distribution of the organisations among available industries:

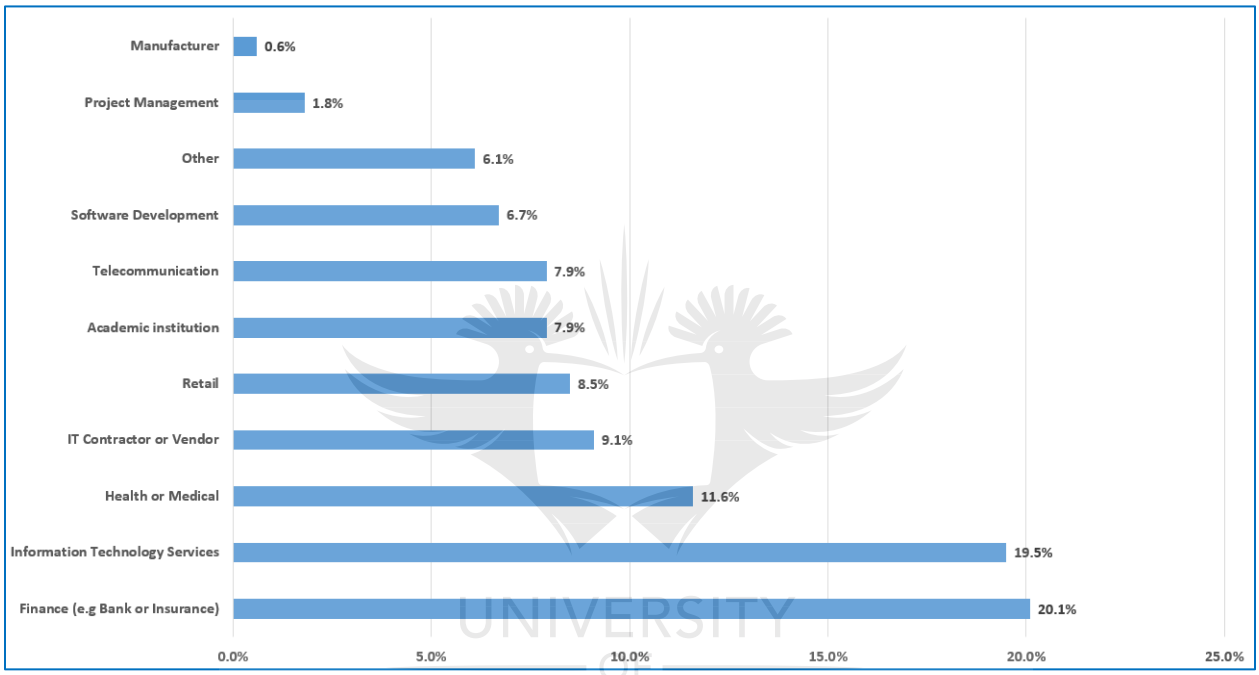

Figure 4: Industry where organisation operates

Figure 4 shows the percentage scores for all industries listed on the questionnaire as well as "others" where respondents filled in their industry manually. The results show that 3 industries account for over half of the total number of respondents at 51.2%. In the result, 'Finance' 20.1%, 'Information Technology' 19.5% and 'Health or medical' 11.6%. This information also shows the industries where IT governance is adopted, and how IT professionals are distributed and working in the country. There is more that can be extracted from this data but it is not the focus of this study.

While IT is present in most establishments, the level of governance and management, and their applications might differ. Therefore, the need to map the industry where respondents work and the extent to which they practice governance is necessary.

A list of industries were provided such as finance (e.g. Bank/Insurance), telecommunication, information technology services, software development, health/medical services, manufacturers, academic institutions, IT contractor or vendor, project management companies, retail, etc. The questionnaire made provision for organisations and industries that may not be captured due to space on the questionnaire. This was intentional as there may be other organisations that fit the profile of the respondents of this work.

A category “Others” was provided. Respondents provided extra data, which is captured in the table below for completeness. Respondents were also allowed to provide industry not catered for on the questionnaire. The questionnaire did not cater for all industries. In the result, 10 respondents filled in job titles other than the ones provided on the questionnaires. Table 4.1 shows the frequency and percentage of industries that constituted “other” in the responses received.

Table 4.1: Organisation's industry "other"

Industry	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	154	93.9	93.9	93.9
Construction	1	.6	.6	94.5
Education, government	1	.6	.6	95.1
Government	1	.6	.6	95.7
Govt.	4	2.4	2.4	98.2
Media	1	.6	.6	98.8
Real Estate	1	.6	.6	99.4
Warehouse/distribution	1	.6	.6	100.0
Total	164	100.0	100.0	

4.4 Descriptive Statistics

4.4.1 IT Governance section

Governance of Information Technology was asked. The questions were to obtain data with respect to adoption, training, governance frameworks used, reasons for governance and the effectiveness of IT governance in organisation.

In the survey, figure 5 indicate the percentage of organisations that use various frameworks and methodologies when respondents were asked the question: *What frameworks are used by your organisation?*

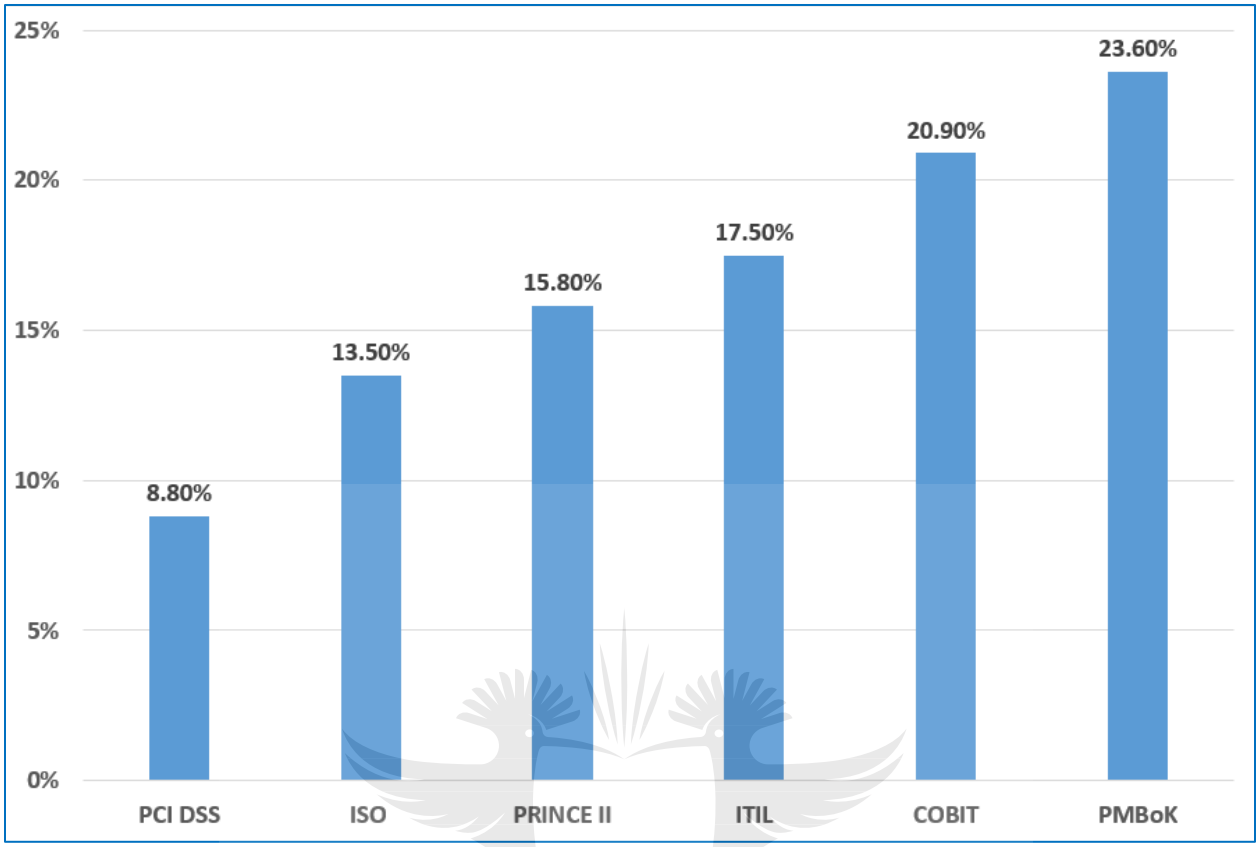

Figure 5: Standards, Frameworks and Methodologies in use

The results show that PMBok (23.6%) and COBIT (20.9%) are the most adopted IT governance and project management frameworks adopted by South African organisations. Understandably, PCIDSS (8.8%) is the least in use because it is applicable specifically to the financial industry or online transactions. This question is linked to research question 1.4.1 (f).

Question: *Which of these are the main reasons your organisation is pursuing good governance?*

In the survey, figure 4.10 indicates the percentage of response for the main reasons why organisations pursue good governance:

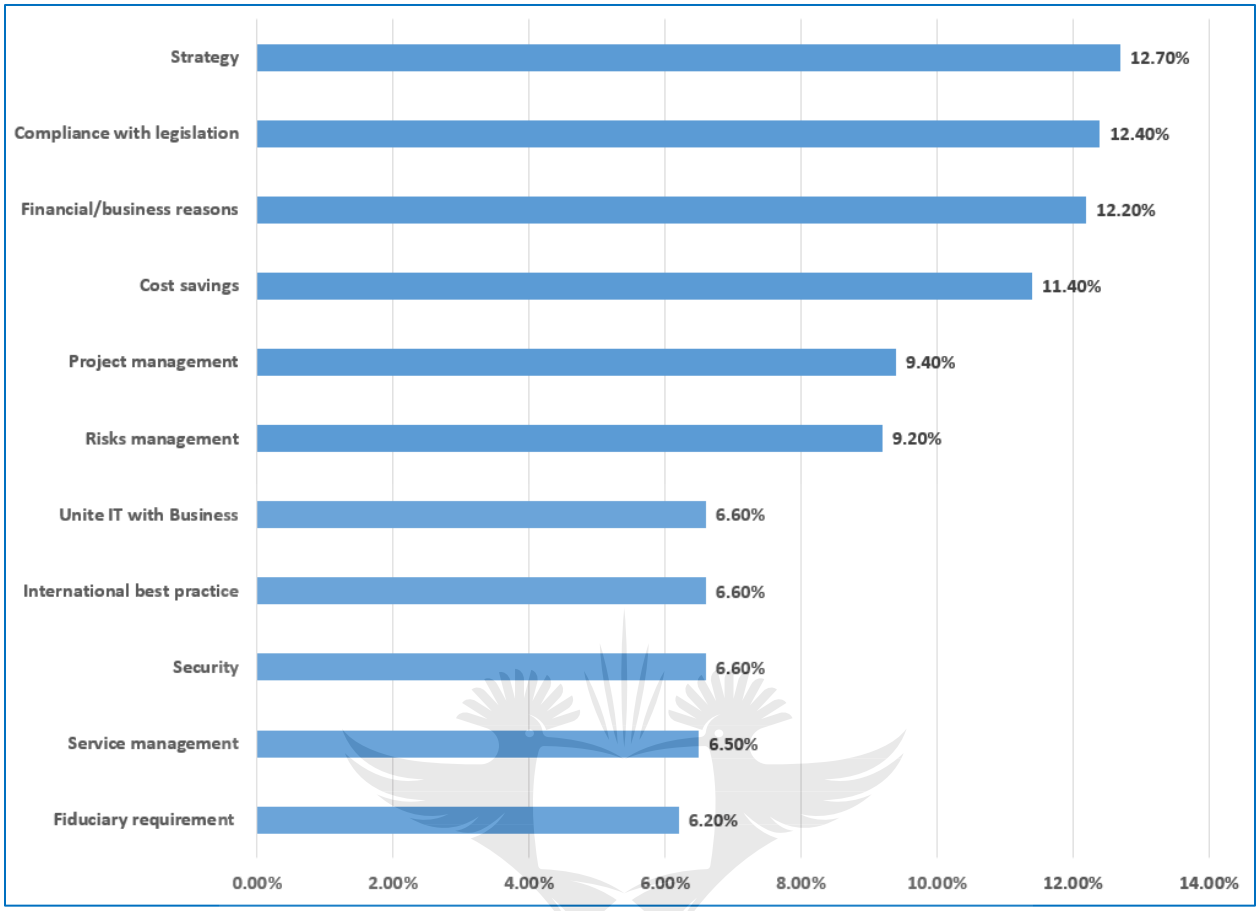

Figure 6: Reasons for adopting for good governance

The results in figure 6 shows the 3 top reasons for organisations pursing good governance are: “strategy” at 12.70%, ”compliance with legislation” at 12.40% and ”cost savings” at 11.40%. The 3 least reasons why organisations seem to be pursuing good governance include “fiduciary requirements” at 6.20%, “service management” at 6.50% and “security” at 6.60%.

Since over 20% of the organisations surveyed are financial institutions such as banks and insrance companies, shouldn’t “fiduciary requirement” be one of the key reasons for adopting good governance? The results also confirm that governance is also a means to “cost saving” in addition to “compliance with legislation”. This question was asked based on literature obtained on the reason why organisations adopt good governance and also based on the research sub-question 1.4.2 (f).

4.4.2 IT Governance and Outsourcing section

The application of governance in IT outsourcing contracts and relationship was asked. The objective was to collect data about adoption, application, and overall effectiveness as perceived by the respondents in their organisations.

Question: *What kinds of projects/services are outsourced?*

In this survey, figure 7 shows the percentage of outsourced functions:

Table 7: Outsourced functions

	Responses		Percent of Cases
	N	Percent	
Security	57	10.20%	36.50%
Legal compliance	68	12.10%	43.60%
IT Projects – Implementation	77	13.80%	49.40%
Auditing and Risk	80	14.30%	51.30%
IT Services – hardware	88	15.70%	56.40%
IT Services – software	91	16.30%	58.30%
Software development	99	17.70%	63.50%
Total	560	100.0%	359.0%

Table 7 shows the details of the count of responses indicating the functions outsourced, figure 7 shows a piechart of the percentages of these functions summarised.

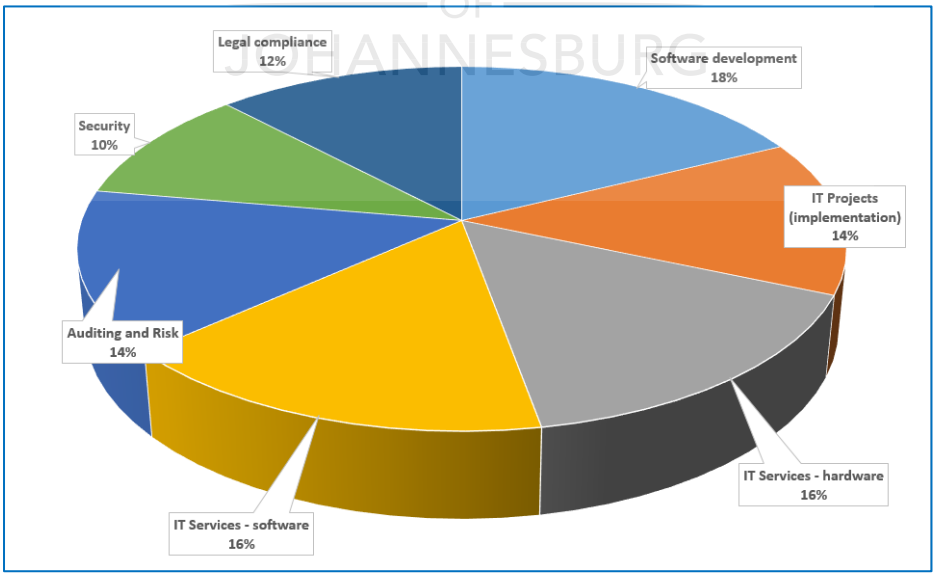

Figure 7: Outsourced functions

Part of the strategy to understand governance in outsourcing was to determine the nature of the services that are being outsourced to other organisations as indicated in research sub-question 1.4.2 (b). The nature of these services will determine the level of governance that is acceptable. It is also important in setting the expectations in the outsourcing relationship with respect to governance.

The survey results show that software development appears with the highest score in the percentage of cases with 18%. IT Services (software) 16%, Auditing and Risk 14%, respectively suggest the areas organisations are not operating themselves. The reason for this was not asked as it is out-of-scope of this study. However, it gives insight into what is being outsourced and the expectation in terms of governance adoption and applicability.

It is important to note that other services such as 'security' 10.2% is not clear because it may mean physical security, for example property security and not necessarily IT security even though IT security also involves physical security of IT equipment. There are also services that may be considered good to know in terms of what organisations are outsourcing.

Question: *In your opinion, what are the main reason(s) for out-sourcing in your organisation?*

In the survey, another important question regarding outsourcing that is important to know is why organisations are outsourcing. Research sub-question 1.4.2 (f) and as suggested in the literature review, some organisations outsource some of their work or services because they want to increase their speed to market. Respondents were given options to respond “yes” or “no” to each question related to the main reason why their organisation outsource some of their functions. Here the “yes” percentages are considered.

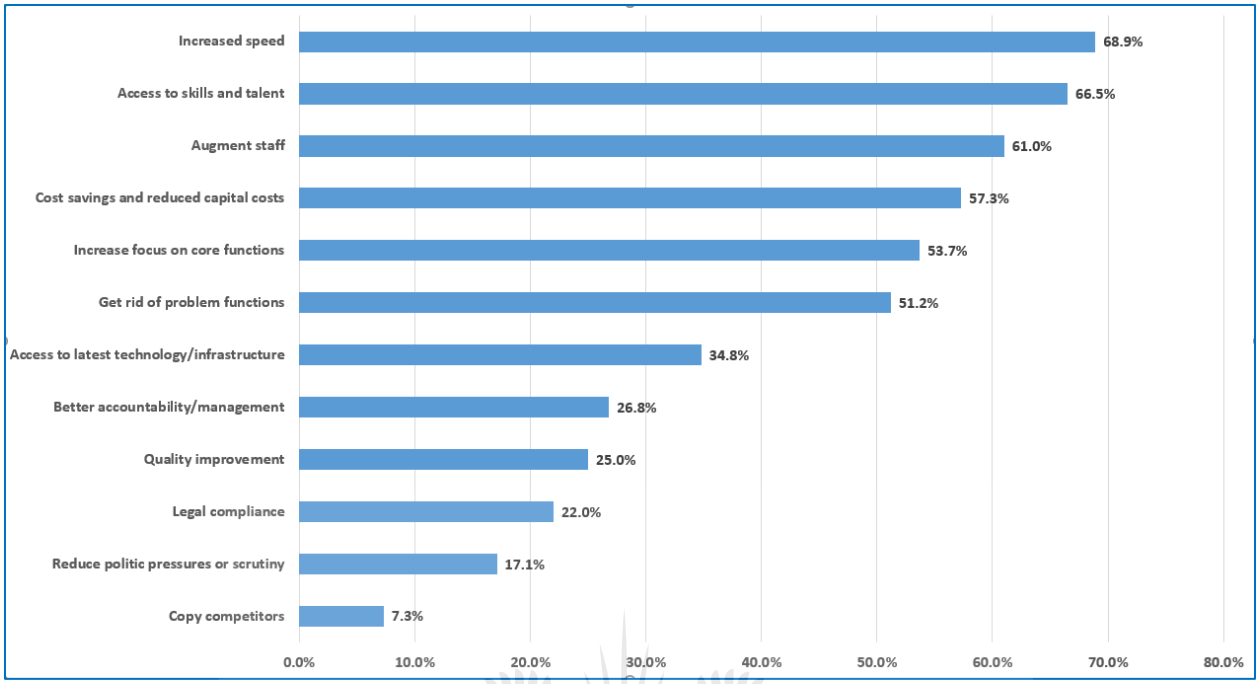

Figure 8: Reasons for outsourcing

In figure 8, the responses show that 68.9% of respondents responded “yes” to this option indicating that their organisations opted to use outsourcing to increase speed. Outsourcing provides opportunity for organisations to access skills and talent they would not have otherwise had. This is also found in literature. In this study, 66.5% responded to the fact that they outsourced because they needed to access skills and talents from elsewhere. In a similar way, 61.00% indicated that they outsourced to augment staff. The reason for their need to augment staff was not asked. Other reasons for outsourcing with high responses include 'cost savings and ‘reduce capital cost' 57.30%, 'increase focus on core functions' 53.70%, and 'getting rid of problem function' 51.20%. From the responses gathered from this study, the least reason why South African organisations outsource is to 'copy competitors' 7.30%.

There are other interesting reasons that can be explored for information purposes but not the focus of this study. For example, the results show that South African organisations outsource because they want to access skills and talents but not because they do not have the latest technology and there is little political pressure to outsource.

4.5 Mean and Standard Deviation

Averages or mean and Standard Deviations are methods of calculating central tendencies in data. Mean is calculated as the total sum of the total observations divided by the number of observations or the average distance of all observations to zero. The Standard Deviation is the average distance of all observations from mean. If the numbers in the mean are closer to each other or tighter, the Standard Deviation will also shrink even though the mean might remain the same.

4.5.1 IT Governance training and adoption

One of the objectives of this study is to measure IT Governance adoption in South African organisations. Research sub-questions 1.4.1 (b) and (e) were asked to assess the adoption of governance practices and management "buy-in". These motivated the need to ask the respondents this questions.

On the scale of 1 to 5 for strongly disagree, partially disagree, neutral, agree and strongly agree respectively. Respondents were asked the extent to which they agree with questions like:

- ITG1 Your organisation has governance certification
- ITG2 There is a department/roles for IT governance officers in your organisation
- ITG3 There is management support for IT Governance and organisation-wide "buy-in" for Governance
- ITG4 IT Governance is implemented in all IT projects

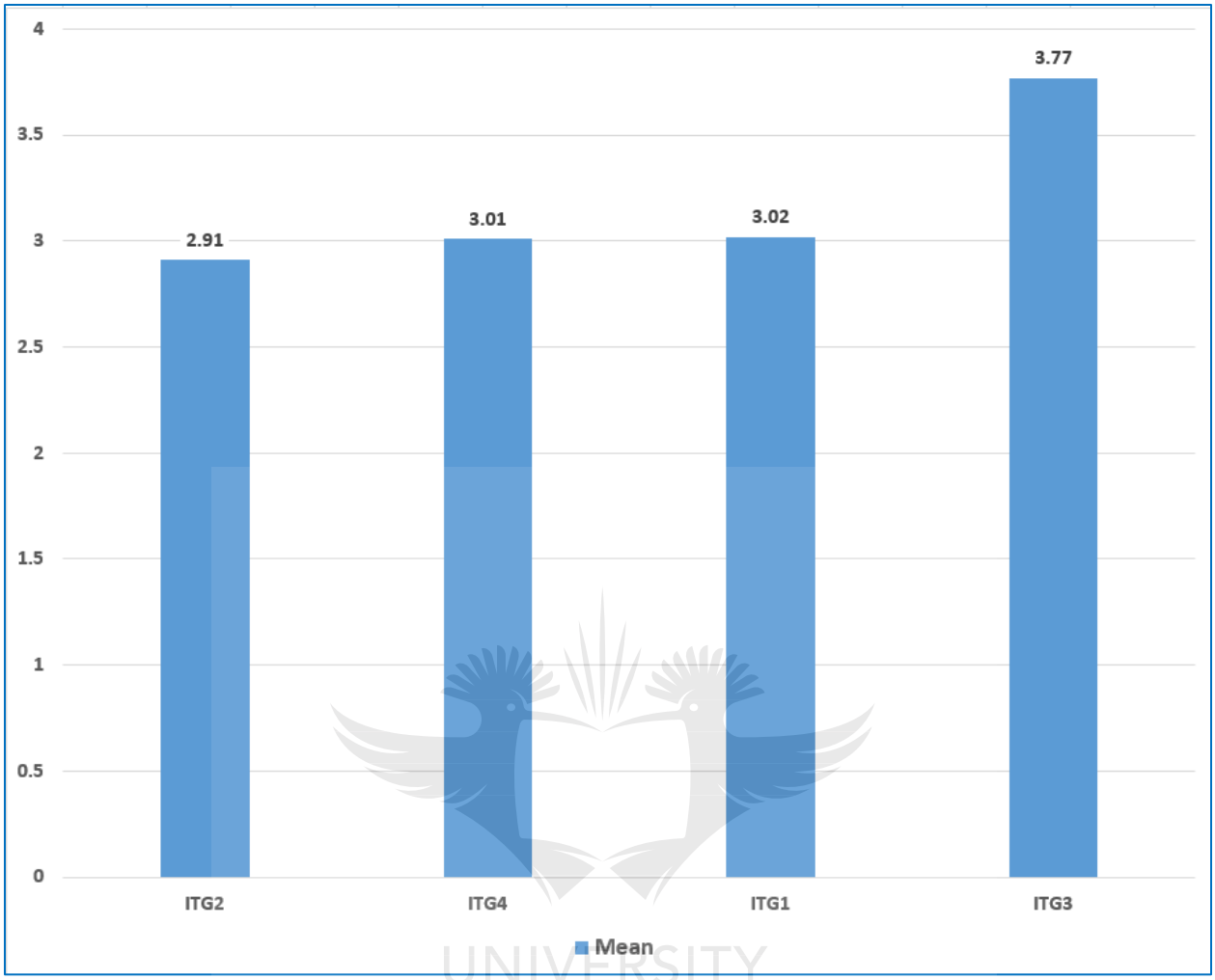

Figure 9: IT Governance training and adoption

From the data obtained from the survey in figure 9, the mean suggests there is a tendency towards 3 which is neutral and towards 'agree'. However, the data shows that these organisations do not have a department or dedicated governance officer or officers with a Mean of 2.91 for the question ITG2. The Mean of 3.77 and a low Standard Deviation of .860 indicating that most of the respondents agree that there is management "buy-in" for governance in their organisations.

4.5.2 Effectiveness of IT Governance

Part of the key objectives of this work is to investigate the effectiveness of Governance in South African organisations, specifically in the IT domain linking the questions to the literature (2.3.4) and research sub-questions 1.4.1 (a) and (c). On the scale of 1 to 5 for strongly disagree, partially disagree, neutral, agree and strongly agree respectively.

Respondents were asked about what they feel about the effectiveness of Governance in their environment by asking them the extent to which they agree with the following questions:

- EITG1 In your opinion there is value in IT governance practice
- EITG2 A measurement system is used to measure the impact of IT governance on projects
- EITG3 IT governance fosters better cooperation between business and IT
- EITG4 IT governance is instrumental to successful IT projects in your organisation
- EITG5 IT governance gives your organisation a chance at eliminating or reducing risks associated with IT projects
- EITG6 Adopting IT Governance also ensures compliance to regulations and legislation
- EITG7 IT governance ensures cost savings on account of proper analysis, evaluation, implementation and monitoring of joint decisions.

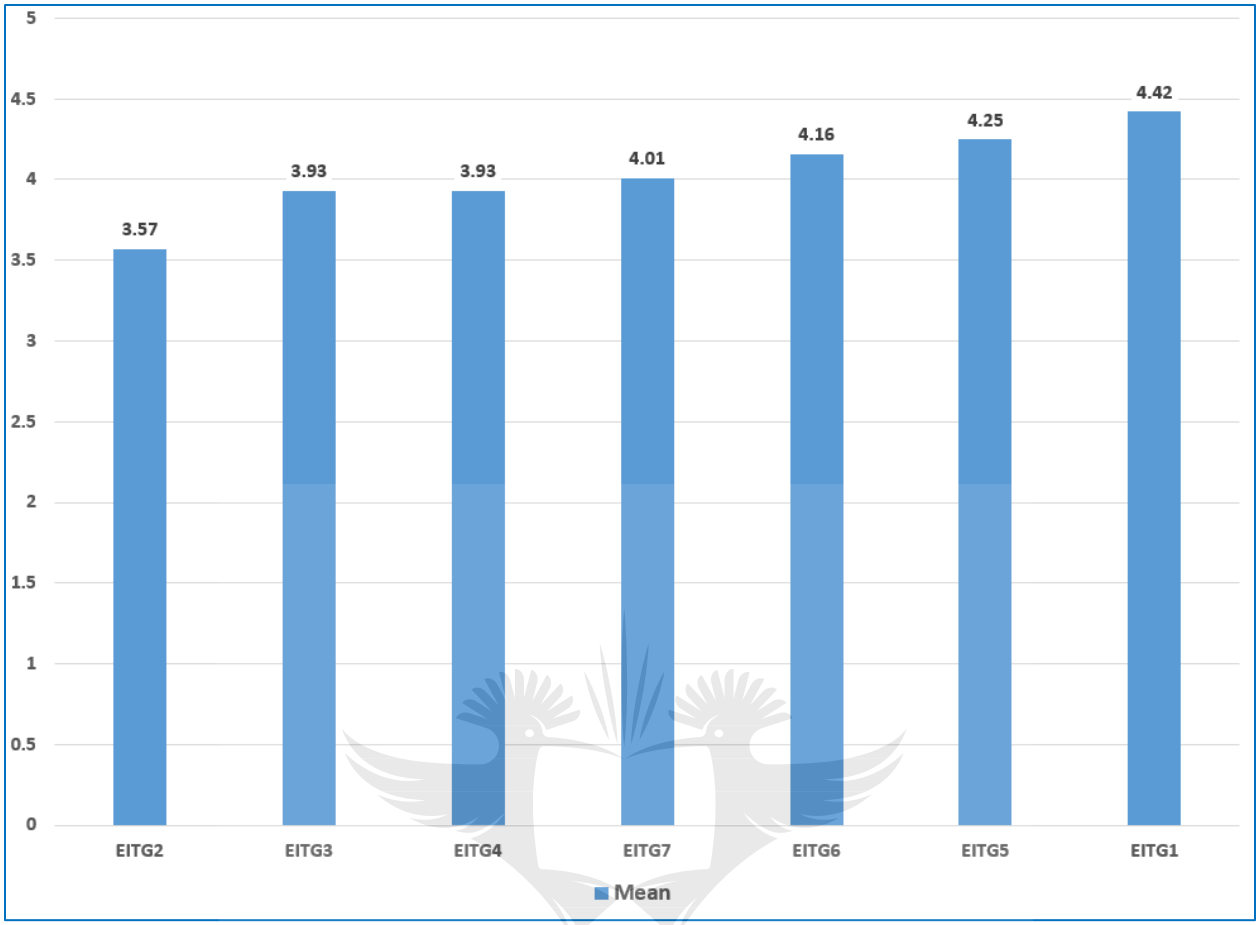

Figure 10: Effectiveness of IT Governance

The results in figure 10 show that of all the 7 questions asked, more than 50% answered on the affirmative for this construct. For the perceived value of Governance in their organisations, its ability to reduce risks and costs on IT projects as well as ensuring compliance, the Mean was above 4.000 indicating that the respondent chose 'agree' or better. As to whether there is a deliberate measuring of this impact on IT projects, most respondents replied with 'neutral' toward 'agree'. The Mean and Standard Deviation for EITG3 and EITG4 were close.

4.5.3 Adoption of IT Governance in Outsourcing

In this survey, figure 4.15 indicates the Mean and Standard Deviation (ordered by Mean values) on the following question:

- ITGOS1 Your organisation out-sourced some of its activities

- ITGOS2 There is an IT Governance officer/department in-charge of out-sourced IT projects
- ITGOS3 Internal and out-sourced IT projects are implemented using Governance/PM methodologies like COBIT, ITIL, PMBoK and PRINCE II or ISO 27001
- ITGOS4 In out-sourced projects, there is a systematic approach to incorporate governance in the relationship
- ITGOS5 There are no issues with confidential information handled between your organisation and the outsourcing partner, e.g. trade-secret, customer data, etc.
- ITGOS6 There are mechanisms implemented to ensure the effectiveness of IT governance in local and external projects
- ITGOS7 Your organisation is normally in charge in terms of Governance compliance on the projects
- ITGOS8 There is a deliberate measure of success/failure of Governance in out-sourced projects
- ITGOS9 There is value in IT out-sourcing

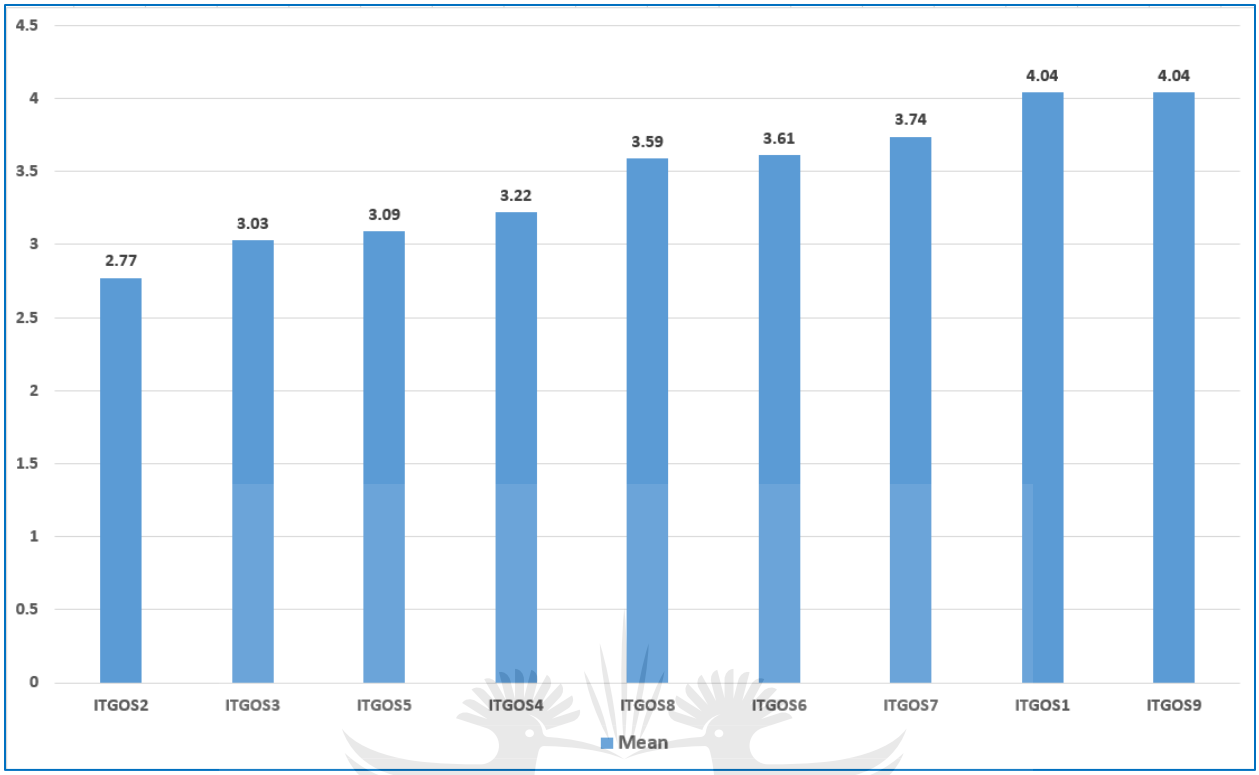

Figure 11: Adoption of IT Governance in Outsourcing

On this subject, the study was trying to measure a range of aspects of Governance adoption in outsourcing relationships. The research questions; sub-question 1.4.2 (d) and the objectives of the study, there is a need to understand if organisations extend their governance practices to their suppliers or business partners. Accordingly, respondents were asked questions. For these sets of questions, the focus will be on questions with higher Mean values and those that have low Mean values, as well as those with high Standard Deviation.

Firstly, there was a check to confirm that their organisations actually outsource some of its activities. Using the data presented in figure 11, the Mean is 4.04 with a Standard Deviation of .844. Secondly, respondents indicated that there is "value in IT outsourcing" with a Mean of 4.04 and .877 Standard Deviation. Thirdly, the other questions had Means of 3 and above.

Finally, similar to a question answered above, respondents seem to indicate that there is no governance department or delegated governance officers in charge of outsourced IT

projects with a Mean of 2.77 and a Standard Deviation of 1.191. The use of Governance and project management methodologies had a Mean of 3.03 even though a higher Standard Deviation of 1.027.

4.5.4 IT Governance compliance in remote team-work

Research question 3,"IT governance application in IT projects executed via virtual teams using 3rd-party resources" sub-questions (b), (c) and other sub-questions are linked to measuring compliance when remote teams are in use.

In the survey, figure 12 indicates the Mean and Standard Deviations of responses received for questions related to IT governance compliance in remote team work as follows:

- VT1 Virtual teams help the organisation in achieving it objectives
- VT2 Some out-sourced projects are carried out using remote workers and virtual teams
- VT3 You will recommend doing IT projects with virtual teams
- VT4 When engaged in a project with a 3rd-party, you still maintain physical contact consistently
- VT5 There is no confidentiality issues with working with 3rd-parties and virtual teams
- VT6 Governance is fully applied in virtual team work
- VT7 There are challenges applying governance when teams are remote and working virtually
- VT8 Governance is applied properly in projects executed by your outsourcing partners using virtual team work
- VT9 There is a formal agreement on how to handle confidential information, designs, projects, products and other sensitive data before commencement of the project with 3rd-party and virtual teams

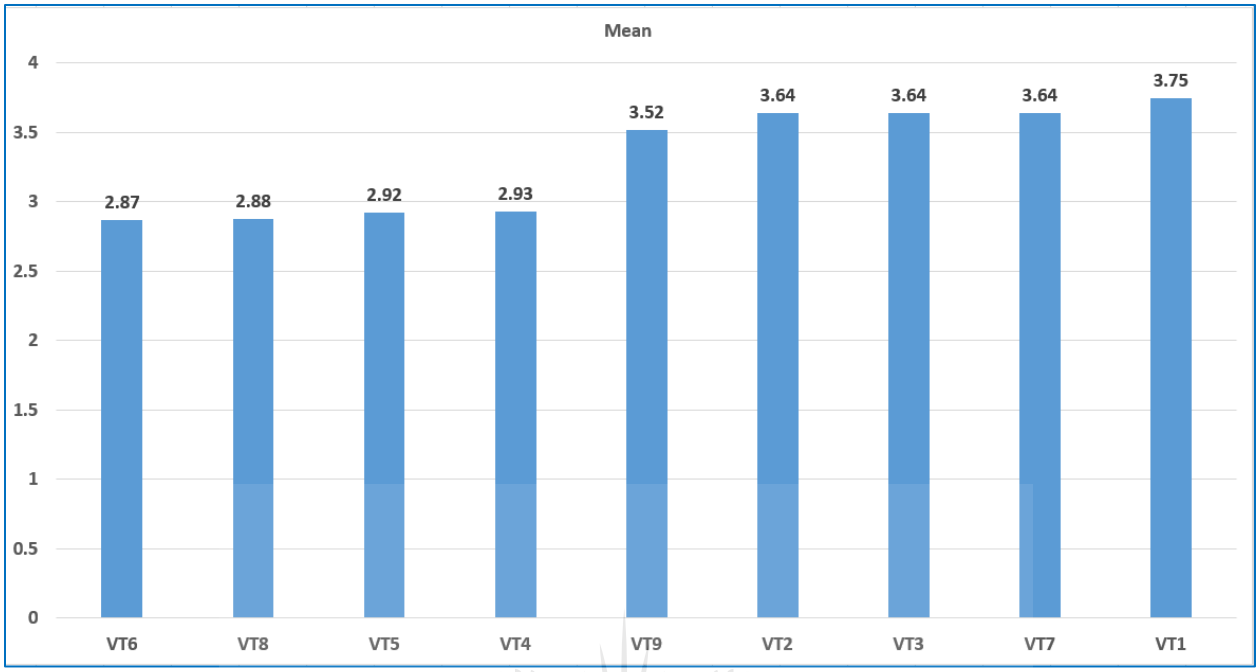

Figure 12: IT Governance compliance in remote team-work

Governance can be extended to work outside of an organisation. Most of these are carried out using teams based elsewhere. This study sought data from respondents to answer questions around the application of Governance when companies outsource or engage other teams that are not collocated for the purpose of doing their work.

In this case, questions of interest to the objectives of the study will be considered first, then those with interesting Mean and Standard Deviations. Figure 12 shows that respondents tend to generally agree that virtual teams were useful for achieving the objectives of their organisations. Of this construct, this has the highest *mean* tending towards 'agree' on the questionnaire. Similarly, on questions regarding the use of remote virtual workers, recommending working with virtual teams, if there are challenges applying governance in working with virtual teams, the Mean was above 3.500 with the Standard Deviation not moving a lot. On whether governance is fully applied and on projects that are executed by outsourcing to remote teams, the responses were not so positive with a Mean of 2.87 and 2.88, and Standard Deviation of .893 and .784 respectively. Question around maintaining confidentiality in these relationships for governance sake were not so positive.

4.6 Factor Analysis

Exploratory Factor Analysis was performed as a measure of construct validity. Construct validity is "the degree to which a test measures what it claims, or purports, to be measuring" (Brown, 1996).

A total of twenty nine questions related to IT governance in the areas of IT projects, outsourced IT projects and virtual team work were subjected to factor analysis using principal component analysis with varimax rotation. Varimax Rotation method is an orthogonal rotation method which minimises the number of variables that have high loadings on each factor, thus simplifying the interpretation of the factors (Atchley, 2007; IBM Knowledge Centre, 2018a).

In order to ensure that the factor analysis was appropriate, Kaiser-Meyer-Olkin (KMO) and Bartletts's test for sphericity were used. Kaiser-Meyer Olkin (KMO) is a measure of sampling adequacy index for comparing magnitudes of observed correlation coefficients to magnitudes of partial correlation coefficients. The KMO value greater than 0.60 is considered good (IBM Knowledge Centre, 2018b). Bartlett's test of sphericity is used to test if variables are related or not and if suitable for structure detection in a correlation matrix (IBM Knowledge Centre, 2018b).

Table 8: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.786
Bartlett's Test of Sphericity	Approx. Chi-Square	2200.487
	df	300
	Sig.	.000

Table 8 shows the KMO value of 0.786 exceeding the recommended value of 0.60 (IBM Knowledge Centre, 2018b). The Bartlett's test for sphericity was statistically significant since the p-value = 0.000 < 0.05 level of significance (IBM Knowledge Centre, 2018b).

Eigenvalues measure the amount of variation in the total sample accounted for by each factor. The ratio of eigenvalues is the ratio of explanatory importance of the factors with respect to the variables. If a factor has a low eigenvalue, then it is contributing little to the explanation of variances in the variables and may be ignored as redundant with more important factors (Atchley, 2007).

In 1960, Kaiser proposed a criterion used for the number of factors to rotate that is commonly used today and known as the eigenvalues-greater-than-one rule. This rule states that eigenvalues greater than one connote reliable factors, scores less than this would amount to negative reliability (Cliff, 1988). Using Kaiser's Eigen value criterion, six factors with a total variance explanation of 70.891% were extracted. Kaiser Eigen value criterion states that eigenvalues greater than one or more are retained for further investigation (Cliff, 1988).

Table 9: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.036	28.143	28.143	7.036	28.143	28.143	4.459	17.835	17.835
2	3.502	14.006	42.149	3.502	14.006	42.149	3.153	12.611	30.446
3	2.121	8.484	50.633	2.121	8.484	50.633	2.907	11.63	42.076
4	2.017	8.067	58.7	2.017	8.067	58.7	2.592	10.368	52.444
5	1.688	6.753	65.453	1.688	6.753	65.453	2.531	10.122	62.567
6	1.359	5.437	70.891	1.359	5.437	70.891	2.081	8.324	70.891
7	0.918	3.671	74.562						
8	0.796	3.182	77.744						
9	0.694	2.775	80.519						
10	0.568	2.272	82.791						
11	0.543	2.172	84.963						
12	0.456	1.823	86.786						
13	0.44	1.762	88.547						
14	0.403	1.613	90.16						
15	0.385	1.539	91.7						
16	0.346	1.384	93.083						
17	0.294	1.176	94.26						
18	0.267	1.069	95.328						
19	0.239	0.958	96.286						
20	0.224	0.897	97.183						

21	0.192	0.768	97.951						
22	0.168	0.671	98.622						
23	0.13	0.521	99.143						
24	0.119	0.475	99.618						
25	0.096	0.382	100						
Extraction Method: Principal Component Analysis.									

As indicated in table 9, component 1 accounted for 28.143% of the total variance, component 2 contributed 14.006%, component 3 explained 8.484%, component 4 accounted for 8.067%, component 5 explained 6.753% and component 6 contributed 5.437% respectively. In total these components accounted for a total variance of 70.891%

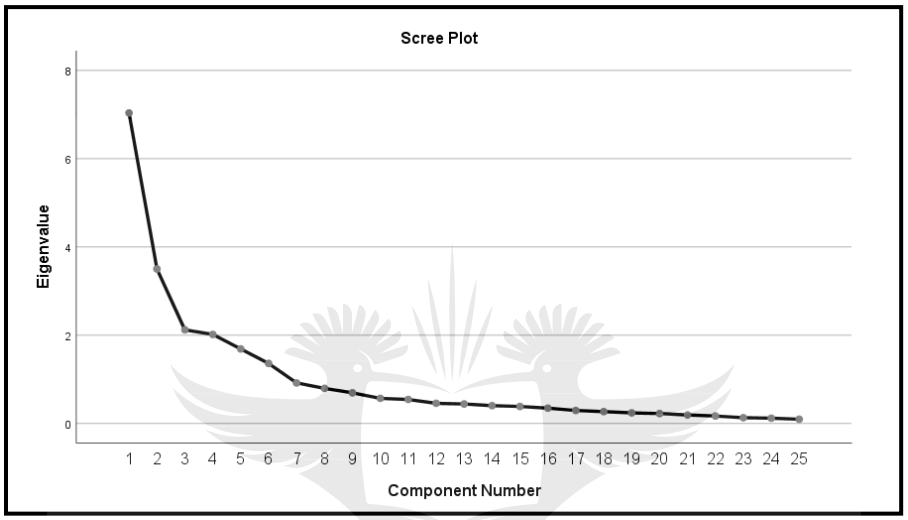

Figure 13: Scree Plot

Figure 13 reveals the presence of 6 factors. Thus, confirming the results indicated in the Total Variance Explained table.

As noted earlier, only six factors were extracted. Table 10 shows the rotated component matrix of all the factors and the factor loadings respectively.

Table 10: Rotated Component Matrix

	Component					
	1	2	3	4	5	6
EITG4	.850	.105	.140	.031	.146	.083
EITG3	.845	-.063	-.004	.235	.163	.069
EITG5	.813	.139	.085	-.033	-.147	.094
EITG7	.755	.150	-.091	.253	.052	.133
EITG6	.731	.336	.196	-.149	-.066	.045
EITG2	.644	.074	-.075	.227	.139	.150
EITG1	.636	.506	.009	-.066	-.049	.117
ITGOS1	.090	.789	.012	-.054	.120	.123
ITGOS9	.237	.776	.030	.139	-.135	.100
ITGOS8	.228	.708	.041	.386	.115	.105
ITGOS6	.168	.677	.325	.205	.132	-.029
ITG1	.070	-.047	.835	.264	.052	.185
ITG4	-.062	.077	.819	-.001	.278	-.013
ITG2	.085	-.018	.723	.569	.053	.021
ITG3	.092	.362	.695	.181	.045	-.065
ITGOS3	.031	.271	.278	.814	-.003	-.063
ITGOS4	.280	.166	.065	.778	.247	.049
ITGOS2	.066	.016	.320	.649	.143	.209
VT6	.078	.026	.213	.129	.825	-.082
VT8	.119	.096	.112	.111	.764	.222
VT5	-.171	.360	-.140	.076	.668	.032
VT4	.143	-.217	.200	.047	.642	-.175
VT1	.163	-.033	.009	.120	-.229	.845
VT3	.119	.121	-.029	-.032	.153	.844
VT2	.271	.306	.209	.107	.059	.604

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

Factor 1 was labelled "Effectiveness of IT governance" because of high loadings by the following items: IT governance is instrumental to successful IT projects in your organisation; IT governance fosters better cooperation between business and IT; IT governance gives your organisation a chance at eliminating or reducing risks associated with IT projects; IT governance ensures cost savings on account of proper analysis,

evaluation, implementation and monitoring of joint decisions; adopting IT governance also ensures compliance to regulations and legislation; a measurement system is used to measure the impact of IT governance on projects and in your opinion there is value in IT governance practice.

Factor 2 was labelled “IT governance in outsourcing implementation” because of high loadings by the following items: your organisation out-sourced some of its activities, there is value in IT out-sourcing, there is a deliberate measure of success/failure of Governance in out-sourced projects and there are mechanisms implemented to ensure the effectiveness of IT governance in local and external projects. As it can be noted, the last two questions can only be answered if there was: IT governance, outsourced (external) projects, and a mechanism to confirm success or effectiveness of IT governance in this respect.

Factor 3 was labelled “IT governance training and adoption” because of the high loadings by these statements: your organisation has governance certification; IT governance is implement in all IT projects; there is a department/roles for IT governance officers in your organisation and there is management support for IT governance and organisation-wide “buy-in” for governance. Together they address the interest of the organisation in IT governance.

Factor 4 was labelled “Adoption of IT governance in outsourcing” because of the high loadings by these statements: internal and outsourced IT projects are implemented using governance/PM methodologies like COBIT, ITIL, PMBoK and PRINCE II or ISO 27001; in outsourced projects, there is a systematic approach to incorporate governance in the relationship and there is an IT governance officer/department in-charge of out-sourced IT projects.

Factor 5 was labelled “Virtual team implementation” because of the high loadings by these statements: governance is fully applied in virtual team work; governance is applied properly in projects executed by your outsourcing partners using virtual team work; there is no confidentiality issues with working with 3rd-parties and virtual teams and when engaged in a project with a 3rd-party, you still maintain physical contact consistently.

Factor 6 was labelled “Virtual team adoption” because of the high loadings by these statements: virtual teams help the organisation in achieving its objectives; you will recommend doing IT projects with virtual teams and some out-sourced projects are carried out using remote workers and virtual teams. The researcher finds these questions are appropriate to measure the use and adoption of virtual teams or remote teams.

The factor loadings for all extracted factors were more than 0.5 threshold value (Costello & Osborne, 2005). The factor loadings range between 0.604 and 0.850. This further validates the fact that the items are strongly measuring the factors which they are intended to measure (Costello & Osborne, 2005).

Four items were eliminated from the factor solution. The reason for this is because of factor loadings below 0.5, and that some were not measuring the constructs which they were intended to measure.

4.7 Reliability

Cronbach’s Alpha (α) is a popular method of testing reliability (Laerd Statistics, 2018; IDRE, 2018; Harrison, 2015). Cronbach’s Alpha score of 0.7 or above confirm high internal consistency and considered reliable (Laerd Statistics, 2018; IDRE, 2018; Harrison, 2015).

Table 11: Cronbach's Alpha

N0.	Construct	Cronbach’s alpha	No.of items
1	Adoption of IT Governance in Outsourcing	.788	3
2	Effectiveness of IT Governance	.903	7
3	IT Governance in Outsourcing Implementation	.816	4
4	Virtual Team Adoption	.747	3
5	Virtual team implementation	.719	4
6	IT Governance Training and Adoption	.842	4

As shown in table 11, the Cronbach's Alpha values obtained were in the range of between 0.719 and 0.903 threshold value above 0.7 indicating that the above scales are sufficiently reliable.

4.8 Conclusion

In the preceding sections of this chapter, the data collected was analysed. To summarise, there are a few key things that were highlighted. Firstly, the demographic data collected was presented with numbers, graphs and charts. Important details about the demographic data collated were discussed. Descriptive statistics were presented with statistical methods such as means, standard deviation, correlations, etc. These help to show even on "face value" the direction of groups of responses. Using descriptive statistics, it is easier to see whether the general response to a question was negative, neutral or towards positive from the entire collection of responses.

Factor analysis was also discussed and conducted. The reason for conducting factor analysis and specifically exploratory factor analysis (EFA) was discussed and tests like KMO and Bartlett's tests for sphericity were used to justify the use-case. Finally, reliability tests and other validation techniques were discussed and applied to ensure that the right methods are applied to the right data and situation.

CHAPTER FIVE: ANALYSIS AND DISCUSSION

5.1 Introduction

In this chapter and the subsequent sections, there will be a discussion on each area of interest that the research objectives covered. In addition to the research objectives, the research primary questions and sub-questions will be discussed as these questions came about in the first chapter out of the need to fulfil the objectives of the study. The research objectives and questions are the primary subject discussion in this chapter.

In the previous chapter, the data collected was captured in a statistical computer software (SPSS) and analysed. Before then, the data collected was subjected to a series of tests to ensure that the data collected and captured are complete. All questionnaires administered and returned were scrutinized for incomplete data and removed. Invalid responses were also screened before data capture.

Statistical tests were conducted to determine the best statistical approach to apply to our data given the objective of the research and the type of research. Demographic data was analysed and descriptive statistics discussed extensively. Other tests such as reliability and validity tests were conducted using acceptable methods.

In this discussion section, there will be a brief discussion on the demographic data that was analysed as it relates to the research objectives and the key research questions. Then, the subsequent sections will cover areas that concern the objectives and research questions as mentioned earlier. The goal is to link the information extracted from the data collected to answer the research questions and fulfill the objectives of the research. As a reminder, the goal of the research is to understand governance in South African organisations as it is applied internally and externally in all their IT project endeavours.

5.2 Discussion of findings linked to research objectives and key questions

5.2.1 Discussion on demographic data

While most of the demographic data analysed for information may not be directly connected to the research objectives and questions in an obvious manner, some of the questions asked in the demographic data section of the questionnaire provided data that is useful to connect the research objectives and key questions. For demographic data, to ensure that respondents provided call the required data to maximise the questionnaires returned, the researcher excluded deliberately questions that could personally identify respondents. This is believed to be the reason why all the respondents provided all the data asked in the demographic section. So, out of a total of over three hundred questionnaires distributed, 164 valid questionnaires were returned. The high number of responses from the questionnaires indicated that the participants had genuine interests and understanding of the topic being researched. This also suggests that the results obtained were of high degree of authenticity.

Questions asked were: gender, age range, highest qualification, level of training and certification, employment level, position in the organisation or title, size of the organisation and the industry where the organisation operates. All these questions were answered by all respondents with no missing data. Of these questions, and in linking to the research objectives and key questions, industry where organisations operate, size of the organisation and training have a link to the key questions.

The information extracted from the data collected show that only 13 people had 'matric' as their highest qualification out of over 160 respondents. Over 80 people indicated that they have governance training or project management training at their organisation. 52 people indicated that they have a certification for governance or project management like ITIL, COBIT, etc. 70 people indicated that they have an IT certification. These numbers show that IT professionals in South Africa are mostly university-educated, have industry training on the job or on their own and also have international certifications.

The question on the size of the organisation is also important because this demographic information was used to compare the size of organisations and their ability to implement IT governance and other project management principles on their projects. Most organisations surveyed had over 100 employees in their establishment because 69% of South African organisations surveyed had over 100 employees. This is important because it points to the fact that the organisations surveyed cannot be considered as small organisations.

Finally, the industry where most of these organisations operate is in the South African financial industry (e.g Bank or Insurance) and Information Technology Services with a combined total of 39.6%. This ties in correctly with the data received on the size of the organisations. This information serves to give an understanding of the industry where the data collected came from while considering other facets of the investigation.

However, demographic data collected were reduced to fit the scope of this research work.

5.2.2 Is IT governance in practice in local organisations and to what extent is it applied?

It is important to establish the facts about IT governance practice in organisations, before the rest of the study becomes relevant. However, it is a difficult question to answer in a precise manner. It is possible however, to deduce this from respondents' answer to the question. Respondents were asked if "IT Governance is implemented in all IT projects", 36.6% answered "agree" and "strongly agree". 32.9% were neutral. However, only 30.5% answered "strongly disagree" and "partially disagree".

This data suggests that there is a high degree of organisations that apply IT governance. However, while the inclination is positive, the extent to which they apply this practice is not very clear. It is possible that respondents do not want to agree with the "all" part of the question "IT Governance is implemented in all IT projects". This may indicate that while most organisations have IT governance in practice, they may or may not be applying the principles on all their IT projects.

5.2.3 Effectiveness of the IT governance practice

To investigate the effectiveness of IT governance in organisations, one of the questions asked was "In your opinion there is value in IT governance practice". The respondents indicated as follows; strongly disagree: 0.60%, partially disagree: 2.50%, neutral:3.1%, agree: 41.7% and strongly agree: 52.10%. 93.8% either "agree" or "strongly agree" that there is value in IT governance. However, only 3.10% disagree and 3.10% of the responses were 'neutral'.

This is a clear indication that IT governance has value and a large number of organisations and their employees can see its benefits. This confirms the recommendation found in literature. Another question was asked in a similar manner to ascertain the effectiveness of IT governance. Respondents were asked if "IT governance is instrumental to successful IT projects in your organisation", the responses were as follows: strongly disagree: 1.80%, partially disagree: 3.10%, neutral: 18.4%, agree: 54.0% and strongly agree: 22.70%. In this case also, the responses were 76.7% in agreement with this statement. IT governance is effective in assisting organisations to achieve success in their IT projects.

Accordingly, a question was asked if there is a deliberate attempt to measure the success of failures of IT governance. In the question, “a measurement system is used to measure the impact of IT governance on projects", respondents answered as follows: indicated as follows: strongly disagree: 0.60%, partially disagree: 3.10%, neutral: 31.50%, agree: 48.80% and strongly agree: 10.50%. 59.3% agree that their organisation has a mechanism in place to measure the impact of IT governance on its business. The presence of this mechanism or system indicates their commitment as well as a confirmation to the responses received concerning the effectiveness of IT governance in organisations.

A total of 79.60% agree to the statement "IT governance fosters better cooperation between business and IT". On the Likert scale, the respondents provided the following data: strongly disagree: 2.50%, partially disagree: 4.30%, neutral: 13.60%, agree: 57.40% and strongly agree: 22.20%. These factors confirm the effectiveness of IT governance.

5.2.4 Organisational and management commitment to IT governance

To gauge the extent of the commitment to organisations and their employees to IT governance, questions were asked about training, employee and organisational certifications. The assumption is that, the organisations will provide training and obtain certifications on functions that they deem important to their businesses. 51.2% of the respondents indicated they had IT governance or project management training, 31.7% or respondents indicated that their organisation has an IT governance certification like COBIT and ITIL, and 42.6% of respondents had other IT certifications.

More than half of the respondents were provided with IT governance and project management training, this is an indication that organisations are keen to educate their employees in the practice of IT governance and other relevant certifications such as IT certifications. This can be seen as management "buy-in" of IT governance. There is a relatively high number of organisations that have obtained IT governance certification accreditation. 31.7% can be considered a high number because these accreditations have quite stringent requirements. It is also important to note that organisations may be compliant in terms of IT governance practices but not necessarily certified by an external body. Because these organisational accreditation for the enterprise are quite extensive, they tend to be done by few organisations that have the resources and time available. Note that 69.9% of all the organisations surveyed have 500 and above employees, these are mainly medium to large organisations.

On a Likert scale, respondents were asked if "there is a department/roles for IT governance officers in your organisation" and if "there is management support for IT Governance and organisation-wide "buy-in" for Governance". These questions were intended to measure the same attribute as above. On the Likert scale ranging from 1 to 5 for "Strongly disagree", "Partially disagree", "Neutral", "Agree" and "Strongly Agree" respectively. The mean was 2.91 and 3.77 for these questions. A similar pattern emerged when the percentage of respondents who "agree" or "strongly agree" (38.5%) that their organisation had "a department or roles for IT governance officers".

On the question of "management support for IT Governance and organisation-wide “buy-in” for Governance", on the same Likert scale, 63.4% indicated that they "agree" or "strongly agree". This further confirms the other finding, employees believe that their organisations are committed to governance.

5.2.5 Internal and external IT projects executed using IT governance principles

Organisations may have an established framework such as COBIT implemented and well-matured internally. However, when they engage other organisations in outsourcing partnership, is their adopted framework implemented on projects carried out externally by these partners? Secondly, whose governance principles (if any) are applied in an outsourcing situation? To answer these questions, respondents were asked if "Internal and out-sourced IT projects are implemented using Governance/PM methodologies like COBIT, ITIL, PMBoK and PRINCE II or ISO 27001". Half of the responses responded with 'neutral' (50.30%) while the responses of 28.30% agreed. 21.40% disagreed. This may indicate that organisations are not purposefully enforcing the governance principles on projects executed elsewhere. However, when asked "your organisation is normally in charge in terms of governance compliance on the projects", 67.20% agreed that their organisation was in-charge even though a large percentage indicated that IT governance principles may not have been followed in these circumstances. Only 3.80% of responses indicated that they disagreed that their organisation was in charge.

This question was asked with the intention of establishing whose IT principles are applied in an outsourcing contract as part of the research questions which stemmed from the objectives of the research project. Given the data received, the question arises, how come these organisations are in-charge of managing the projects executed outside their domain yet their core governance principles are not adhered to? Perhaps the questions to ask in future is why this is the case. In this study, we are not able to obtain this data. Therefore, it is not clear if the external party executes the project with their principles or if they ignore to use any governance principles. Additionally, it will be desirable to

understand if outsourcing contracts are drawn to include which governance methodologies or project management principles to adhere to.

5.2.6 IT governance and other frameworks in use

In the literature review section, there was a discussion on governance and project management frameworks. There was a distinction between the frameworks for IT governance and those of project management. However, due to the fact that IT projects are also executed with project management frameworks, it became necessary to include them in this study. Accordingly, since part of the objectives of this study is to determine if organisations are using these frameworks, the questionnaire provided options for common frameworks beyond known IT governance frameworks. The intention is to have an idea of which frameworks are used and to what degree.

Respondents were asked to tick "yes" or "no" against each framework in the list on the questionnaire. In the responses received, below are the respective count for "yes" for COBIT (62), ITIL (52), PRINCE II (47), ISO (40), PCI DSS (26) and PMBoK (70) see figure 4.9. The picture that emerges confirmed the suspicion of the researcher. IT governance frameworks possibly work hand-in-hand with project management frameworks. The frameworks that recorded the highest count are for IT governance (COBIT: 62) and project management (PMBoK: 70). ITIL an IT governance framework is the third highest (52). In the literature available, it is not clear which framework was the most widely used for IT governance. From the data collected for this study, COBIT seem to be the preferred framework to ITIL. Even though it is important to note that ITIL is also common.

At the bottom of this list in terms of count is Payment Card Industry Data Security Standard (PCI DSS) which is majorly used in the financial industry for online transactions. Secondly, PCI DSS is a standard that organisations that handle major credit cards must adhere to.

The possible reason why COBIT is used by most organisations may be because of one of its main principles of "covering the enterprise end-to-end", perhaps most organisations require a framework that is holistic and has organisation-wide coverage instead of

applying bits and pieces. Secondly, from the literature, there is the fact that "Enterprises of all sizes, whether commercial, not-for- profit or in the public sector, can benefit from COBIT 5 based on its 5 principles (ISACA, 2016b; IT Governance Institute, 2005)". This makes it easy for most organisations to go with COBIT.

5.2.7 Confirmation of Information Technology outsourcing

Confirming that organisations outsource some of their functions is relevant to the question of IT governance in outsourcing. Organisations have a choice of applying IT governance principles to their internal projects and not on external projects such as those conducted by third-party organisations on their behalf. Nonetheless, there is a need to verify that some functions are outsourced and whether their governance principles are applicable in such cases.

Accordingly, respondents were asked "your organisation out-sources some of its activities" as a means to ascertain that subsequent questions on outsourcing will be valid. The responses received were as follows: "strongly disagree: 3.10%", "partially disagree: 3.10%", "neutral: 5.60%", "agree: 63.00%" and "strongly agree: 25.30%". 88.30% are in agreement that their organisation outsources some of its functions or activities.

5.2.8 Why do South African organisations outsource some of their functions?

The data collected provided an insight into why organisations outsource some of their functions. In the questionnaires, respondents were provided with a list of reasons why organisations outsource and asked to select from a list of options reasons for outsourcing. There were twelve possible reasons as extracted from available literature. In the responses received, the top six that scored a combine 72.9% will be listed. The main reason why organisations outsource seem to be to 'increase speed'. This can be interpreted as "speed to market" or "speed to do more". This option had the highest percentage of 14.02%.

The next reason with the second highest score is "access to skills and talent" at 13.5%. In the same questionnaire, respondents were asked about functions that were outsourced, the top two were "software development" at 17.6% and "IT services - software" at 16.25% (Table 4.5). Considering that the most outsourced function is software development and software related IT services, it begins to become apparent that there is a gap in the local skills for software development and explains why the second highest reason for outsourcing is to get access to skills and talents.

The fourth, fifth and sixth highest reasons were "cost savings and reduced capital cost", "increase focus on core functions" and "get rid of problem functions". These scored 11.66%, 10.92% and 10.42% respectively. These high scores confirm what was noted in the literature as part of the many reasons why organisations outsource some of their functions. As discussed in literature, outsourcing some functions that are core functions of another organisation to them will result in that function being performed cheaper, hence cost saving. This is also tightly connected to the fifth reason why organisations outsource, which is to "increase focus on core business". As organisations focus on their main business, they become better and more efficient towards achieving their business goals. Non-core functions can be a distraction to achieving this goal and can introduce inefficiency. Some functions may be core or non-core but may simply be functions that are problematic to the organisations. Functions they have difficulty fulfilling. These functions can also be a distraction and reduce efficiency. Organisations tend to "get rid" of those functions by outsourcing them to other organisations that have the necessary skills as gathered from various authors like Fan (2000), Stacey, Steffen & Barrett (1997), Barac & Motubatse (2009) and Gonzalez, Gasco & Llopis (2010).

Finally, the bottom three reasons why organisations outsource. The least reason was "copy competitors" followed by "reduce political pressure or scrutiny" and "legal compliance". These had scores from 1.49%, 3.47% and 4.46%% respectively. What seem to stand out from these scores is that organisations are not outsourcing because of external reasons such as legal or political reasons. This might indicate that organisations are outsourcing for reasons that meet their circumstances and strategy to survive.

5.2.9 Value in IT Outsourcing

If there is value in IT outsourcing, it will be worth implementing the relationship with a contract and strict governance methodologies which parties intend to follow during the lifetime of the project. In the literature review, it was noted that mutual understanding and cooperation for every stage of their relationship is important in outsourcing relationships (Gewald & Helbig, 2006). On this premise, respondents were asked if "there was value in IT outsourcing" to which 80.20% agreed, 16.00% were neutral and a mere 3.7% disagree. In the same vein, respondents were asked if "in out-sourced projects, there is a systematic approach to incorporate governance in the relationship". This question was intended to draw out data as to if organisations are implementing outsourcing contracts with IT governance in mind and moving towards full implementation. The result was not conclusive because half (50%) of the responses were 'neutral' even though those that agreed we 35.8%.

The assumption here is that once organisations perceive something as important, they will begin to develop it and dedicate resources to it. Consequently, respondents were asked additional questions like if "there are mechanisms implemented to ensure the effectiveness of IT governance in local and external projects", the outcome is positive as 59.90% agreed that their organisation was doing something to ensure the effectiveness of IT governance on both internal and external projects.

In addition, respondents were asked if "there is a deliberate measure of success/failure of Governance in out-sourced projects". This question also highlights the organisations interest in IT governance as it deliberately wants to measure and monitor its success or failure. Respondents were 54.90% in agreement, 39.50% indicated they were 'neutral' on the question while 5.60% disagreed.

5.2.10 Working with remote teams virtually

The second part of the objectives of this study is to investigate how IT governance is applied when dealing with external parties and how IT governance influences IT project executed externally by South Africa organisations. IT governance principles or methodologies like COBIT are implemented to cover the enterprise "end-to-end". Is this in the context of the local organisation only or does it cover their engagement with external

parties? When enterprises or organisations contract some of their functions, contracts are created, and protocols established for how the relationship and the contract will be fulfilled. However, since these contracts are an extension of the organisation's operation, there was no sure way of knowing if IT governance principles will cover external projects.

For IT projects like software development which has the highest score for functions that organisations are outsourcing based on this study, virtual teams are created to manage and execute these types of projects. Because the necessary skills and talents are not available locally at least the organisation, the team members are not collocated therefore the need for virtual teams.

To find out about the IT governance in virtual teams, the adoption of virtual teams was investigated by asking questions like: "virtual teams help the organisation in achieving its objectives, "some outsourced projects are carried out using remote workers and virtual teams" and "you will recommend doing IT projects with virtual teams". These questions were to first establish the use of virtual teams, confirm the usefulness of virtual teams for organisations and understand what employees think about virtual teams.

A large percentage (65.50%) of respondents agreed that virtual teams help the organisation in achieving it objectives. However, 7.40% disagreed while 27% were neutral. This result indicates that virtual teams are in use and they help organisations achieve their objectives. This may be the reason for the high success rate of outsourcing software development work by South African organisations. The second question for confirming the adoption of virtual teams had a similar result further validating the adoption and usefulness of virtual teams. For the question "some out-sourced projects are carried out using remote workers and virtual teams", 66.90% agreed to this question, only 8.10% disagreed and 25.00% were neutral.

Finally, respondents were asked "you will recommend doing IT projects with virtual teams", this question was intended to gather data about the impression organisations have of using virtual teams or engaging with other teams over the internet or other communication media. Similar to the positive responses received in the preceding questions, more than half of the responses agreed (57.20%). Only 5.40% disagreed.

5.2.11 Challenges of working with virtual teams with respect to IT governance

As part of a means to assess the use of virtual teams, the acceptance of working with other people in a virtual environment, a question was asked if there are challenges in such an environment. To assess whether there are challenges when implementing governance principles and methodologies in a virtual team environment, the question "there are challenges applying governance when teams are remote and working virtually". The responses were as follows: "strongly disagree: 4.10%", "disagree: 4.80%", "neutral: 29.90%", "agree: 45.60%" and "strongly agree: 15.60%". Most of the respondents agree to this question. The questions did not go as far as asking what the challenges were or why. However, it is important to point out that there is a problem that needs to be addressed, perhaps urgently.

However, another question was asked regarding whether respondents will recommend or use virtual teams as seen earlier. Most of the respondents had a positive response to the question. The question "there is no confidentiality issues with working with 3rd-parties and virtual teams" was asked, the responses were as follows: "strongly disagree: 12.20%", "disagree: 17.00%", "neutral: 42.20%", "agree: 23.80%" and "strongly agree: 4.80%". While 28.6% agreed that there were no issues, a high percentage preferred to stay neutral on the question, perhaps for confidentiality reasons. Similarly, a large number (45.60%) answered "neutral" to the question "governance is fully applied in virtual team work", and over 20% agreed (agree: 8.40% and strongly agree: 3.40%). Also, majority of respondents (56.20%) chose to remain "neutral" on the question “governance is applied properly in projects executed by your outsourcing partners using virtual team work". The rest of the responses were strongly disagree (5.50%), disagree (19.90%), agree (17.80%) and strongly agree (0.70%). While the "neutral" responses are high, the "disagree" is higher than the "agree" responses.

Using the data shown above, this could be an indication that the scale may be tilted in favour of the applicability of IT governance in virtual team work and working with virtual teams in general. This goes back to agree with the other data collected showing that

South African organisations are outsourcing and working a lot with virtual teams. This may also be a rising trend or a new way of working that is established already in the South African environment.

5.2.12 Deleted Items

In the survey, table 12 shows a collection of the items that were deleted:

Table 12: Deleted items

	Strongly Disagree	Partially Disagree	Neutral	Agree	Strongly Agree
ITGOS 5	7.40%	17.30%	37.00%	35.20%	3.10%
ITGOS 7	1.90%	1.90%	29.00%	54.90%	12.30%
VT7	4.10%	4.80%	29.90%	45.60%	15.60%
VT9	4.10%	1.40%	42.20%	42.90%	9.50%

Factor analysis led to the removal of some items in order to achieve a factor solution as shown in table 2.6. The main reasons for these items being eliminated was that the analysis showed that they had factor loadings below the recommended 0.5 threshold value (Costello & Osborne, 2005) and some were not measuring the constructs which they were intended to measure.

In this section, each of these items will be discussed based on the data gathered from the study and important aspects highlighted nonetheless.

The item labelled VT9 in table 2.6 is a question on the questionnaire that asked respondents if "There a formal agreement on how to handle confidential information, designs, projects, products and other sensitive data before commencement of the project with 3rd-party and virtual teams". Part of IT governance requires organisations to protect confidential information, data retention and disaster recovery, among others (Lindros, 2017) but the question in this context is regarding a virtual team situation. Whether the project is outsourced or not, in alignment with the objectives of the study, there is a need to probe how business is conducted with this in mind. As the results show, over half of

the responses indicated that there is a formal agreement regarding confidentiality and data protection. 42.9% answered "agree" while 9.5% answered "strongly agree". It is important to note that even though 42.2% were "neutral", a mere 5.5% disagreed. This indicates that organisations are taking caution and preparing formal confidential contracts before engaging with partners externally.

The item labelled VT7 in table 2.6 asked the question "There are challenges applying governance when teams are remote and working virtually?" The purpose of this question was to understand if organisations generally have challenges or difficulty implementing virtual teams and conforming to governance standards. This could potentially give an indication as to what to expect in terms of governance adoption. If organisations indicate that it is difficult, what aspects, what can be done and how can this be measured? These are areas that maybe further investigated. The results show that 61.2% agree that they have challenges implementing governance while working with virtual teams, 29.9% were neutral on the question and only 8.9% disagreed indicating that they do not have the challenges indicated.

In table 2.6, the item labelled ITGOS5 (There are no issues with confidential information handled between your organisation and the outsourcing partner, e.g. trade-secret, customer data, etc.) was a question similar to the item VT9 (There a formal agreement on how to handle confidential information, designs, projects, products and other sensitive data before commencement of the project with 3rd-party and virtual teams) regarding confidentiality (Lindros, 2017). However, this was targeted at governance in outsourcing environments. Respondents were asked "There are no issues with confidential information handled between your organisation and the outsourcing partner, e.g. trade-secret, customer data, etc.?" The number of respondents that were neutral (37.0%) on this question were almost the same number as those who "agree" and those who "strongly agree" with a combined total of 38.3%. 24.7% of respondents indicated that there are confidentiality issues. This number can be considered significant as it could indicate the potential breaches in implementing governance in 2 of every 10 outsourcing partnerships.

The item labelled ITGOS7 (Your organisation is normally in charge in terms of Governance compliance on the projects) in table 4.14 is a direct question from the primary research questions. The premise is that in an outsourcing partnership, one of the parties will enforce IT governance principles. The implication is that different organisations follow different governance rules. There is a likelihood that the organisation in charge will apply its governance rules. Accordingly, respondents were asked "Your organisation is normally in charge in terms of Governance compliance on the projects". A combined 67.2% indicated that they "agree" or "strongly agree" that their organisation was in-charge when engaged with a third-party in an outsourcing partnership. 29.0% were neutral about the question while 3.8% indicated that their organisation are not in-charge in an outsourcing partnership.

Conclusion

In the preceding section, the research questions and the research objectives were linked together and discussed. Inferences were made from the analysis of data obtained from respondents.

The results of this study sufficiently answered the key questions posed by the research. In alignment with the objectives of the study, each question and sub questions were addressed. In order to ensure the success of the study, appropriate methods were used to collect, prepare, analyse, interpret and document the findings as found below.

To answer the first key question, this study was able to:

- Establish that IT governance is in practice in local organisations.
- There is a positive attitude towards IT governance by management as results show high ratings for management "buy-in".
- IT governance is extended to IT projects executed outside of the organisation. For example, an outsourced IT project like software development.

- Organisations have methods of monitoring and measuring the success and failures of the IT governance practice in their domain.
- The study shows the prominent frameworks and methodologies used by South African organisations to be COBIT for IT governance and PMBoK for project management.

The second key question was answered by the study as well. The study found answers to questions on the application of IT governance on outsourced projects. With regards to this question, the study found the following:

- Local organisations are applying IT governance principles and methods on projects executed locally or through outsourcing.
- Local organisations are outsourcing some of their functions. The most outsourced functions include software development, IT Projects (implementation) and IT Services - hardware. The least outsourced functions in this case are security and legal compliance. Organisations indicated that they do have challenges implementing governance principles in outsourcing relationships, this could be linked to the nature of software development and management.
- The results of the study show that local organisations are usually in-charge when engaged in outsourcing. This means that their adopted IT governance principles will apply even though there is no data to show the extent to which the contractor's rules apply. In other words, the governance principles of the local organisation applies and not that of the outsourcing partner, and there is a deliberate effort to ensure governance is complied with in topics such as confidentiality.
- Finally, the study showed the main reasons for outsourcing among others to be compliance with legislation, financial/business reasons, business strategy and cost saving.

The third key area the study investigated was on the application of governance in virtual team work for projects executed internally or externally (outsourced). For this, the study found the following answers to the sub questions:

- Virtual team work is in common use by most organisations for IT project purposes.
- IT governance principles and methods are applied to a large extent.
- There are challenges working with virtual teams and implementing IT governance rules, however, respondents still indicate a high acceptance and use of virtual team work despite challenges.

CHAPTER SIX: CONCLUSION

6.1 Introduction

In this conclusion chapter, a summary of all the important findings are provided. The findings that must conform to the objectives of the study are provided in summary form. There are recommendations made based on the data collected that organisations might find useful. During the course of the study, certain aspects of importance though not part of the objectives of the study are highlighted for further investigation.

6.2 Summary of the Study and Recommendation

This study concludes with a summary of the study and recommendations.

6.2.1 Summary of the study

At the beginning of this research work titled "The adoption of IT governance for outsourcing and virtual team management in IT projects", an introduction was provided into the research area for context and brevity. The problem statement highlighted the issue at hand, which led to the formulation of the research objectives. To achieve the objectives, key questions were raised along with relevant sub questions. The key questions were broad and to answer these questions properly, they needed to be broken down into sub questions. Finally, there was evidence of the use of IT governance principles as well as IT outsourcing and virtual team work. Yet a search for such documented information provided little results. Hence, the need to conduct this research and add to the body of knowledge became part of the rationale for the study.

In the literature review chapter, various resources and materials were examined to capture the relevant information available in the area of IT governance. Firstly, governance in general was introduced as an umbrella concept, and then corporate governance and popular corporate governance reports were briefly described. IT governance falls under corporate governance and understanding IT governance from the view point of corporate governance makes it easier to follow.

The rest of the sections of chapter two discussed IT governance, outsourcing and virtual team work. The importance of IT governance and why it is required or recommended on IT projects was discussed thoroughly covering its value, effectiveness in organisations, and use-cases.

IT governance is applied on projects that are sometimes executed hand-in-hand with other methodologies like those of project management. Research and literature has shown that organisations can apply governance through project management. Therefore, the leading IT governance principles and methodologies like COBIT and PMBoK respectively were discussed and recommendations made.

As organisations engage external organisations in processes such as IT outsourcing, there was a need to discuss outsourcing in general, the reasons why organisations outsource, the challenges faced by these organisations as well as risks involved. From the literature obtained, a link was made between governance and outsourcing and its effectiveness. Information researched revealed the main types of outsourcing available and how they affect governance and the relationships between outsourcing partners.

The final part of chapter two discussed IT governance in the context of another externally conducted IT project using virtual teams. The concept of virtual teams was discussed, the purpose of it, the advantages of using virtual teams and the challenges thereafter, and the areas that are affected by IT governance principles and recommendations.

There is evidence from literature that IT governance is in practice in local organisations. However, there is little information documented on the subject. Governance is a critical factor for the survival of most organisations. In the context of IT, IT governance is a major factor that has positive influence on IT projects.

As organisations are conducting their day-to-day IT activities, the expectation is that they are doing this based on IT best practices such as IT governance principles and project management principles. Both of these can be randomly found to be used in organisations. However, the extent to which they are used or adopted is not clear. Literature has shown the advantages of engaging in these practices as a standard in organisations. It is clear that IT governance and other relevant governances and

principles are not easy to implement and to adhere to, despite their benefits. Organisations seem to be using these principles and methodologies. However, the way to implement, monitor and measure is a question this study sets out to answer.

Consequently, to investigate the extent of the adoption of IT governance in local South African organisations, an exploratory study was adopted because there was nothing to start with. An exploratory research design is appropriate to help us understand the subject matter in the local South African context.

Having chosen an interpretivist approach, the research method used was quantitative research method because of its suitability as mentioned earlier. Questionnaire was chosen as a survey instrument to enable the collection of data from a large number of respondents.

This study defined the parameters of the population to be people from IT background or working in an IT capacity able to understand the context of the research and the nature of data that is being requested. Sample was drawn from South African organisations of various sizes especially those with IT projects. The sample covered private and public organisations mostly within the provinces of Western Cape and Gauteng. However, it is important to point out that most of these organisations had branches in other large cities as well.

Sample size is an important requirement to determine suitability of data for factor analysis in addition to the strength of relationship between the variables (Pallant, 2016). Literature did not reveal what sample sizes are considered large or small, however, it is generally recommended that large sizes are better. This is because it is easier to generalise to a population with larger samples and the correlation coefficient among the variables become less reliable with smaller samples (Pallant, 2016). According to Tabachnick and Fidell (1983), it will be nicer to have 300 cases for factor analysis, however, the authors still agree that 150 cases which may be considered small in this case, is acceptable.

The initial questionnaire was pre-tested and corrected to ensure that the questions align with the objectives of the research. After the first trial and backed with sufficient ethical clearance, the questionnaires were administered to respondents that fit the sample

profile. Only 164 questionnaires were fully completed, incomplete questionnaires were discarded.

The returned data was manually captured by the researcher into a statistical software application IBM SPSS for analysis. Demographic data was extracted, and exploratory factor analysis was done to identify constructs that will emerge from the questions asked. This process highlighted six factors with high loadings using the Total Variance Explained and the Scree plot. Four items were eliminated from the factor solution because they had low factor loadings, and some were not measuring the constructs which they were intended to measure. Each of the six factors were re-labelled appropriately to align with the theme and objectives pursued by the study. The factors accurately capture the areas where the key questions of this research sought answers and addressed related questions as well as exposed other statistics that are of relevance but not necessarily linked to this study.

In chapter five, there was a discussion on the information gleaned from the data collected. Each of these questions were designed to capture the objective of the research work and answering the research questions and sub-questions as well. The data collected after analysis presented insight into the questions that were originally asked.

6.2.2 Recommendation

This study found that there is still possibly a relatively good percentage of organisations where IT governance adoption is not fully embraced. The benefits of adoption and fully applying IT governance are numerous as found in this study.

It can be deduced that some organisations are confidently applying IT governance principles locally at their organisational level, however, it was found that applying governance on IT projects that are outsourced is not reliable or at least they are not confident. The study shows that there are challenges adopting IT governance principles on projects executed by third-party organisation via outsourcing, and IT projects that use virtual teams. However, considering the benefits and the number of organisations

successful in these implementations, organisations should look for methods of imbibing the same or seek consultants to help with the implementation.

6.3 Further research

This study found certain areas that may be subject for further study or investigation. These are grouped under subheadings below.

Governance adoption

The study found that while IT governance adoption can be considered relatively high, there is a good percentage of organisations where IT governance is not fully embraced. The study has shown that most organisation pursued good governance practices for many benefits such as strategy, compliance with legislation, financial and business reasons, and cost savings (figure 4.10). These reasons might be considered attractive to most organisations. So, could it be that organisations are not fully aware of the importance of governance in general or do they have a wrong appreciation of governance principles. A study in this area will be beneficial to local organisations, and as information about IT governance and governance become commonplace, it will become easier for organisations to fully embrace it. Further studies should research the adoption of IT governance principles for those organisations who have not fully embraced the principles.

Barriers to IT governance adoption

This study did not focus on the barriers of adopting IT governance in organisations in general. However, results obtained from the study suggests that there could be barriers to the practice of IT governance. These possible barriers can be investigated by future studies on the subject.

Does the size of organisation matter?

In this study, the percentage of organisations labelled as "small" due to their size (figure 4.7) or number of employees is not that high compared to the ones labelled as medium and large organisations (figure 4.7). However, there seem to be a link between the size

of the organisation and the adoption of IT governance. Does this suggest that the medium to large organisations embrace governance more than the small organisations? Is this a question of affordability in terms of resources and finance? Further research can reveal valuable information in this regard. For example, if the issue is the cost of the adoption, what is the implication is terms of cost to the smaller organisations? Are they aware that they can tailor the governance methodology of their choice to their size? Are they aware of the substantial cost savings IT governance and other governance methods tend to realise?

Does the industry matter?

This study found that the organisations operating in the financial industry and the IT services sector seem to comply with governance requirements and its adoption more than the others (figure 4.8). The financial industry is possibly exposed to higher scrutiny than most industries, and IT services have the advantage of it being in their domain. This could be the possible motivation for the high adoption for these two. However, how does the other industries, agencies and government encourage or educate organisations on IT governance and other critical principles like corporate governance such as the King IV Report.

6.4 Research limitations and recommendation

This study was conducted to investigate the adoption of IT governance for outsourcing and virtual team management in IT projects. The study focused on South African organisations. It would have added even more value if it was conducted beyond South Africa as the phenomenon under investigation is a world-wide issue.

The data drawn from the study was from one hundred and sixty four valid questionnaires. Since this investigation was scaled down to South African organisations, it would have had more impact and improved the ability to generalise if it covered more than the number of responses obtained considering the number of organisations in South Africa. The respondents were mostly from organisations in the largest cities of the three largest provinces in South Africa; Gauteng, Western Cape and Kwazulu-Natal as against all the other provinces.

Obtaining fully completed questionnaires from respondents was a challenge and accessing organisation for data was similarly difficult. From experience, if there was more time, there was a chance that more data could have been collected. However, time was a constraint. For these and other reasons, a similar study may be conducted to expand the reach of the study to accommodate larger pool of respondents and organisations that are more representative of the country. Going further, other researchers may extend the study to other countries or regions.

Finally, based on the results of the Exploratory Factor Analysis, researchers may review the constructs that were used in this study and remove certain items beforehand. There were the items identified by the factor analysis as they had factor loadings below the recommended 0.5 threshold value and some were not measuring the constructs which they were intended to measure.

6.5 Conclusion

In conclusion of this chapter, in the preceding sections, the findings of this study were summarized, recommendations were made based on the outcomes of this studies. Other important information discovered in the course of the study that were not part of this work were highlighted.

Finally, the researcher recommended workshops and other activities that will draw interest and education in the area of governance within organisations. Suggestions were made for further research interest as well.

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APPENDICES

Appendix 1: Research Questionnaire

QUESTIONNAIRE

Instruction: open file, type "X" in your choices, save file, send back to me. When no answer, select 'neutral'

SECTION ONE: Demographic Data

1. Gender? ***Single response.***

Male	0	Female	1

2. Your age-group? ***Single response.***

20-30	1
31-40	2
41-50	3
51-60	4

3. Your highest qualification? ***Single response.***

Matric/High School	1
Degree	2
Honours Degree	3
Master's Degree	4
Doctorate Degree	5

4. Your training and certifications? ***Multiple responses.***

		No	**Yes**
4.1	Governance or Project Management training	0	1
4.2	Governance or Project Management certification, e.g. ITIL, COBIT, Etc.	0	1
4.3	IT certification(s), please specify	0	1

5. Your employment Level? ***Single response.***

Entry-level (1 – 2 years)	1
Experienced (3 years and above)	2
Mid-Management	3
Senior Management	4

6. Position/Title? ***Single response.***

Project Manager/Coordinator	1
Developer	2
Analyst	3
IT Engineer	4
Other, specify:	5

7. Organisation size? ***Single response.***

1 – 100	1
101 – 500	2
501 – 1000+	3

8. In which industry is your organisation conducting business? ***Single response.***

Finance (e.g. Bank/Insurance)	1	Telecommunication	6
Information Technology Services	2	Software Development	7
Health/Medical	3	Manufacturer	8
Academic institution	4	IT Contractor/Vendor	9

Project Management	5	Retail	10
Other, specify			11

SECTON TWO: IT Governance

9. To what extent do you agree with the following statements with respect to IT Governance? ***Record one response per line.***

	IT Governance training and adoption	Strongly disagree	Partially disagree	Neutral	Agree	Strongly Agree
ITG1	Your organisation has governance certification	1	2	3	4	5
ITG2	There is a department/roles for IT governance officers in your organisation	1	2	3	4	5
ITG3	There is management support for IT Governance and organisation-wide "buy-in" for Governance	1	2	3	4	5
ITG4	IT Governance is implement in all IT projects	1	2	3	4	5

10. In your opinion, what are the main reason(s) for out-sourcing in your organisation? ***Multiple responses.***

	Reasons for Out-sourcing	No	Yes
10.1	Increased speed	0	1
10.2	Quality improvement	0	1
10.3	Augment staff	0	1
10.4	Copy competitors	0	1
10.5	Legal compliance	0	1
10.6	Get rid of problem functions	0	1
10.7	Reduce politic pressures or scrutiny	0	1
10.8	Cost savings and reduced capital costs	0	1
10.9	Increase focus on core functions	0	1
10.10	Access to skills and talent	0	1
10.11	Access to latest technology/infrastructure	0	1
10.12	Better accountability/management	0	1

11. Which of these are the main reasons your organisation is pursuing good governance? ***Multiple Responses.***

	Reasons for good governance	No	Yes
11.1	Compliance with legislation	0	1
11.2	Fiduciary requirement	0	1
11.3	Financial/business reasons	0	1
11.4	Risks management	0	1
11.5	Project management	0	1
11.6	Service management	0	1
11.7	Security	0	1
11.8	International best practice	0	1
11.9	Strategy	0	1
11.10	Unite IT with Business	0	1
11.11	Cost savings	0	1
11.12	Other, specify		

12. To what extent do you agree with the following statements about your organisation with respect to the effectiveness IT Governance? ***Record one response per line.***

	Effectiveness of IT Governance	Strongly disagree	Partially disagree	Neutral	Agree	Strongly Agree
EITG1	In your opinion there is value in IT governance practice	1	2	3	4	5
EITG2	A measurement system is used to measure the impact of IT governance on projects	1	2	3	4	5
EITG3	IT governance fosters better cooperation between business and IT	1	2	3	4	5
EITG4	IT governance is instrumental to successful IT projects in your organisation	1	2	3	4	5
EITG5	IT governance gives your organisation a chance at eliminating or reducing risks associated with IT projects	1	2	3	4	5

EITG6	Adopting IT Governance also ensures compliance to regulations and legislation	1	2	3	4	5
EITG7	IT governance ensures cost savings on account of proper analysis, evaluation, implementation and monitoring of joint decisions.	1	2	3	4	5

SECTON THREE: IT Governance and Out-Sourcing

13. To what extent do you **agree** with the following statements about your organisation with respect to the practice of out-sourcing? ***Record one response per line.***

	Adoption of IT Governance in Out-Sourcing	Strongly disagree	Partially disagree	Neutral	Agree	Strongly Agree
ITGOS1	Your organisation out-sourced some of its activities	1	2	3	4	5
ITGOS2	There is an IT Governance officer/department in-charge of out-sourced IT projects	1	2	3	4	5
ITGOS3	Internal and out-sourced IT projects are implemented using Governance/PM methodologies like COBIT, ITIL, PMBoK and PRINCE II or ISO 27001	1	2	3	4	5
ITGOS4	In out-sourced projects, there is a systematic approach to incorporate governance in the relationship	1	2	3	4	5
ITGOS5	There are no issues with confidential information handled between your organisation and the outsourcing partner, e.g. trade-secret, customer data, etc.	1	2	3	4	5
ITGOS6	There are mechanisms are implemented to ensure the effectiveness of IT governance in local and external projects	1	2	3	4	5
ITGOS7	Your organisation is normally in charge in terms of Governance compliance on the projects	1	2	3	4	5
ITGOS8	There is a deliberate measure of success/failure of Governance in out-sourced projects	1	2	3	4	5
ITGOS9	There is value in IT out-sourcing	1	2	3	4	5

14. What kinds of projects/services are outsourced? ***Multiple responses.***

	Out-sourced functions	**No**	**Yes**
14.1	Software development	0	1
14.2	IT Projects (implementation)	0	1
14.3	IT Services - hardware	0	1
14.4	IT Services - software	0	1
14.5	Auditing and Risk	0	1
14.6	Security	0	1
14.7	Legal compliance	0	1

15. What frameworks are used by your organisation? ***Multiple responses.***

	Frameworks	No	Yes
15.1	COBIT	0	1
15.2	ITIL	0	1
15.3	PRINCE II	0	1
15.4	ISO	0	1
15.5	PCI DSS	0	1
15.6	PMBoK	0	1

SECTON FOUR: Virtual Teams:

16. To what extent to you agree to the following? ***Record one response per line.***

	IT Governance compliance in remote team-work	Strongly disagree	Partially disagree	Neutral	Agree	Strongly Agree
VT1	Virtual teams help the organisation in achieving it objectives	1	2	3	4	5
VT2	Some out-sourced projects are carried out using remote workers and virtual teams	1	2	3	4	5
VT3	You will recommend doing IT projects with virtual teams	1	2	3	4	5
VT4	When engaged in a project with a 3rd-party, you still maintain physical contact consistently	1	2	3	4	5
VT5	There is no confidentiality issues with working with 3rd-parties and virtual teams	1	2	3	4	5
VT6	Governance is fully applied in virtual team work	1	2	3	4	5
VT7	There are challenges applying governance when teams are remote and working virtually	1	2	3	4	5
VT8	Governance is applied properly in projects executed by your outsourcing partners using virtual team work	1	2	3	4	5
VT9	There a formal agreement on how to handle confidential information, designs, projects, products and other sensitive data before commencement of the project with 3rd-party and virtual teams	1	2	3	4	5

Thank you for your time.

Appendix 2: Ethical clearance confirmation

CBE RESEARCH ETHICS COMMITTEE

Dear S Kachi

ETHICAL CLEARANCE GRANTED FOR RESEARCH PROJECT

This letter serves to confirm that the proposed research project has been granted ethical clearance by the School of Consumer Intelligence and Information Systems Ethics committee at the University of Johannesburg. Please refer to the report below for the ethical clearance number and specified conditions of approval.

ETHICAL CLEARANCE REPORT

Applicant	S Kachi
Supervisor	Mr W Erasmus
Student/staff number	201477138
Title	IT Project governance in Outsourcing and Virtual Teams
Decision date at meeting **Decision at Department / School** **Decision at College Meeting** **Decision at CBE REC**	27/09/2018
Reviewers	CiiS committee
Ethical clearance code	2018CiiS04
Rating of most recent application	CODE 01

CODE 01 - Approved
CODE 02 - Approved with suggestions without re-submission
CODE 03 - Not approved, may re-submit
CODE 04 - Not approved, no re-submission allowed

RESEARCH COMPLIES WITH	COMPLIANCE	NON-COMPLIANCE / DETAILS / RECOMMENDATIONS / CONDITIONS OF APPROVAL
The right to privacy, confidentiality and anonymity	Yes	

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The right to equality, justice, human dignity/life and protection against harm	Yes	
The right to freedom of choice, expression and access to information	Yes	
Right of the community and science community	Yes	
The researcher will not experience any harm in conducting the research	Yes	
Informed consent/letters of request	Yes