



**Underlining Reasons and Challenges for Low IT Governance in
Banking Sector of Ethiopia: Towards Developing IT
Governance Implementation Strategy**

**By
Kalid Ahmed Kereta**

Addis Ababa University

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June, 2018

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College of Natural and Computational Sciences
School of Information Sciences

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Implementation Strategy**

**A Thesis Submitted to the Department of Information Science in Partial
Fulfillment of the Requirements for the Degree of Master of Science in
Information Science**

By
Kalid Ahmed Kereta

Advisor
Tibebe Beshah (PhD.)

Addis Ababa University
Addis Ababa, Ethiopia

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By
Kalid Ahmed Kereta

Name and Signature of Members of the Examining Board

Tibebe Beshah (PhD.)
(Advisor)

(Signature)

(Date)

(Examiner)

(Signature)

(Date)

(Examiner)

(Signature)

(Date)

Dedication

*This work is dedicated to
My well respected and beloved Wife, Aysha Dino
and Our kids, Hayat and Harun Kalid
Who are with me in every moment of my life !*

Acknowledgments

First and foremost, I would like to thank my advisor Dr. Tibebe Beshah for his availability, responsiveness, kindness and optimism. He was always available to answer my questions, provide me comments and giving me a constructive suggestion throughout the study. I really thank you very much again!

I would like to extend my Special thank and gratitude to my beloved wife Aysha Dino for here patience and give me energy during this study, and also my Kids Hayat and Harun who deserve to have time with me unfortunately not during this study.

I would like also to thank employees and management of Wegagen Bank, Commercial bank of Ethiopia, Dashen Bank, Birhan International Bank, Debub Global Bank, and Cooperative Bank of Oromia for their willingness to participate in the survey and duly filled the questionnaires.

Abstract

In today's competitive business environment an organization requires more from IT in achieving their objectives. In order to attain this, they are required to make their IT process effective and efficient. One way or the other, this can be achieved by emplacing structure, process or relational mechanisms that ensure effective and efficient IT process. This brings in to attention the importance of IT governance. According to the previous study IT governance in baking sector of Ethiopia is reported to be at low stage that need investigation for the underlining reasons and the challenges in its implementation.

The purpose of this study is to identify the underlining reasons for low IT governance and implementation challenges in Ethiopian banking sector towards developing IT governance implementation strategy.

In this study both quantitative and qualitative research approaches have been used. Conceptual research model has been developed comprising of twelve underlining reason for low ITG performance and six implementation related challenge constructs. Based on the model questionnaires and interview instruments have been developed. These instrument have been used for data collection. The quantitative and qualitative data has been collected from 131 and 5 respondent randomly and purposively selected form six selected banks respectively. Quantitative data has been analyzed using frequency distribution and mean values using statistical tools SPSS version 25. Qualitative data collected through interview has been analyzed using open coding with two forms narrative and main concept extraction.

The finding of the study shows that among twelve underlining reason for low ITG related constructs Corporate Communication Mechanisms, Corporate Performance Measurement System, IT Strategy Committee, Involvement Of Senior Management, Culture Of Compliance, IT Performance Management, IT Steering Committee, and IT Resource Management requires improvement and from six challenges related constructs top management support, Complexity, Cost, and External Pressure considered to be improvement areas.

Based on this study findings it has been concluded that banks in relation to ITG governance mechanisms i.e. structure, process relational mechanism they are performing below average. In relation to ITG implementation top management support, complexity, cost and external pressure impede ITG implementations.

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List of Acronyms

CBE - Commercial Bank of Ethiopia

CCM - Corporate Communication Mechanisms

CIO - Chief Information Officer

CMMI - Capability Maturity Model Integration

COBIT - Control Objectives for Information and related Technology

CPMS - Corporate performance management system

ISO - International organization for standard

IT - Information Technology

ITG - Information Technology Governance

ITIL - Information Ichnology Infrastructure Library

SWOT - Strength weakness opportunity threats

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CHAPTER ONE

INTRODUCTION

1.1. Background

IT governance is processes that ensure the effective and efficient use of IT in enabling an organization to achieve its goals. It assists the enterprise to take full advantage of its information, there by maximizing benefits and capitalizing on opportunities thus take benefit on competitive advantage (Boonen, 2004).

The other aspect of IT governance is about decision making right. According to Weill & Ross (2004) it is specifying the decision right and accountability framework to encourage desirable behavior in the use of IT. Hence, effective IT governance in this context answers what decisions must be made to ensure effective management and use of IT, who should make these decisions and how these decisions will be made and monitored.

The main goals of IT Governance are to assure that the investments in IT generate business value, and to mitigate the risks that are associated with IT. This goal can be achieved by focusing on IT systems, their performance and risk management. According to Brisebois, Boyd, & Shadid (2008) this can be done by implementing an organizational structure with well-defined roles for the responsibility of information, business processes, applications and infrastructure.

In the current information age most organizations private or public are dependent on information technology infrastructure and services. Effective and efficient use of IT resources contribute for the company to attain its strategic objective. As stated in the first paragraph, use of IT governance has contribution to organizational success. This answers why we need IT governance, Weill & Ross (2004) states that use of IT governance is important because: it provides tangible result for the company in terms of profit, IT investment is fifty percent of the company annual total capital investment, IT is pervasive in every aspect of the organization, information technology are changing creating opportunities, and carefully designed IT governance provides a clear, transparent IT decision making process given most decision made in an organization related to IT investment involves senior management.

As indicated in the literature and research paper implementing or using IT governance has impact on organization success. However to this research scope i.e. IT governance in the banking sector

of Ethiopia, as per previous study such as Mekonnen (2016), Berihu (2011), and Bogale (2016), and discussion as well as physical visit made on some banks including where the researcher works, is hardly owned, practices and get implemented. In consideration of this the research assess the challenge and underling reason for low IT governance performance in banking sector of Ethiopia.

1.2. Statement of the Research Problem

In this era of information, businesses are becoming more and more dependent on information technology. Hence, IT for operational and management support is becoming key for existence of the business (Mupfiga, 2015). For many organizations, IT becomes very crucial for sustainable growth of the business and creates critical dependency that calls for IT Governance (De Haes & Van Grembergen, 2008).

According to Ali & Nisar (2006) IT Governance is a structure and process through which organizations make right IT investment to ensure that the resulting activities (programs, projects & operations) are performed properly and organization strategic objectives are achieved. But the implementation of IT governance is challenging as stated by (Othman, Iskandar, & Chan, 2013). The adoption and diffusion of formal IT Governance practice is a complex process and there are different barriers.

For the company to efficiently and effectively utilize its ICT resource, they may implement different frame work among several. But these Frameworks and Best Practices exist to help organizations in IT Governance implementation. However, most of the Frameworks and Best Practices share the idea that each case is a different case considering organizations context (Lunardi, Becker, & Maçada, 2009). This indicates IT governance performance in relation to structure, relational mechanism and process maturity, or through the adoption of formal IT governance framework has challenges since the governance practice varies in context (Lunardi, Becker, & Maçada, 2009).

In research regarding the implementation of IT governance in Brazilian organizations it is found out that 57% of organizations are in the earlier stages of developing IT governance practices and it is verified that the implementation and achievement of IT governance results still present major challenges (Lunardi, Becker, & Maçada, 2009).

Among the literature some referred in the above indicates that, there are challenges in IT governance performance success i.e. IT governance maturity reaching to maximum or industry standards. The underline reason for low maturity of IT governance should be covered so that knowing the reason helps in achieving the desired maturity level. Since achieving Better IT governance has direct relation with organizational performance (Bogale, 2016).

In her research Berihu (2011) discuss on the maturity of IT governance on one of the prominent government bank i.e. Commercial bank of Ethiopia. In this study the maturity of IT governance is measured using Control Objectives for Information and Related Technologies (COBIT) framework. The finding was the maturity of IT governance is very low stage, given it is subject to measurement scale, as it is pointed out by Mekonnen (2016) on his research paper as well. However, the lower stage of maturity of IT governance and the underlining reason for this not presented in the research.

In addition, local research on IT governance performance has been explored by Bogale (2016) on the dissertation titled “Auditing IT and IT governance”. In his research the author approaches factors affecting IT governance performance. In his research model for the purpose of analysis he considered organizational factors such as firm size, age and role of IT(philosophy of top management towards IT); IT competency such as Top management IT know how, IT governance process, structure and relational mechanism , and IT audit.

On findings of the research firm size and role of IT in organization has relationship with IT governance, and age do not have relationship with IT governance performance. All IT competency related factor has positive relationship with IT governance performance. Internal audit as well as IT audit practices are strongly related with IT Governance performance. In this study the researcher did not disclose challenges in implementation of IT governance and underling reason for low IT governance performance instead he has done only the analysis of which factor has relationship with IT governance performance.

Tailoring of IT governance framework was conducted by Asnake (2017) for national bank of Ethiopia. The study focus on tailoring COBIT 5 IT governance frame work for the national bank of Ethiopia. In his research he states that national bank moving the way forward on those new technology implementations but fail in dynamic IT administration that need a fit in governance framework framed to NBE context. In the research as indicated the existing IT governance fail to

manage the dynamicity of the technology and recommend national bank to have tailored governance frame work. In this research the underlining reason related to failure of IT governance in managing the dynamic technology so as to tailor the IT governance framework is disregarded.

In addition, Mekonnen (2016) presented the maturity level of ITG by comparing banking and insurance industry. On his work it is presented that almost all respondent agrees that the practice of it governance is important. The average rate based on the scale (0) strongly disagree and (5) strongly agree is 4.2 this rating is for both in banking and insurance sector. Even if the respondent agrees that the practice of IT governance is important however the maturity level was not as perceived importance as IT governance has.

On his work Mekonnen (2016) presented the maturity of IT governance in financial sector of Ethiopia is at lower level. He has measured the maturity with generic maturity scale of zero to five indicating initial and optimized stage respectively. Capability Maturity Model Integration (CMMI) is used in measuring process improvement. The maturity level of IT governance in the sector is 1.2 which is between initial stage and repeatable. In this research maturity IT governance measured based on CMMI parameters considering whether the company meets those parameters or not. Therefore the reasons why those CMMI measurement parameters and other unmeet IT governance related issues was not discussed in the research.

In related work the average IT Governance maturity public sectors organization in Tanzania is in initial stage on the research conducted by Nfuka & Rusu (2010) with title IT Governance Maturity in the Public Sector Organizations in a Developing Country: The Case of Tanzania. In this researched the maturity is measured based on the generic maturity scale same used by (Mekonnen, 2016). As Nfuka & Rusu (2010) research findings indicates the maturity is in its initial stage but did not expose the underlining reason behind for low maturity of IT governance.

In addition to local study, in selected Africa country Qassimi & Rusu (2015) presented on their study about IT governance performance on title “IT Governance in a Public Organization in a Developing Country: A Case Study of a Governmental Organization”. In this study the researchers measured IT governance performance based on IT governance structure, process and relational mechanisms. The finding of the study shows, there is unintentional implementation. Moreover, the research findings, has revealed that there is Lower level of knowledge regarding IT governance and the performance of IT governance is to certain extent. In this research the maturity and the

implementation the governance discussed but the researchers do not state the reason behind for unintentional and unplanned IT governance practice.

The research conducted on developing country, on some African country, local study and researcher recent survey in banking sector indicates that there are challenges in implementation of IT governance and low maturity of IT governance based on the maturity scale measurement available in the literature. However, up to the researcher knowledge these researches do not addresses why the maturity is low, what are the underlining reasons for low maturity, what has to be done to make IT Governance to the desired stage so that it will benefit organization (Bogale, 2016) and results in gained profits 25% higher than those with insufficient governance, given similar strategic objectives (Weill & Ross, 2004).

In light of the above discussion regarding IT governance performance the research answer the following research questions:

- What are the underlining reason for low IT governance performance in banking sector of Ethiopia?
- What are the challenges for applying IT governance in banking sector of Ethiopia?
- What should be the implementation strategy in its fullest sense for IT governance in banking sector of Ethiopia?

1.3. Objectives of the Study

1.3.1. General Objective of the Study

The general objective of the study is to identify underlining reason for low IT governance performance /maturity, challenges, and based on findings to produce IT governance implementation strategy that is adoptable to the banking sector of Ethiopia.

1.3.2. Specific Objective of the Study

The specific objectives of the study are:

- To identify the underlining reason for low IT governance maturity
- To Identify challenges in implementation of IT governance
- To develop IT governance implementation strategy adoptable to the banking sector

1.4. Scope and Limitation of the Study

The scope of this research is to identify the underlining reasons low IT governance performance and its implementation challenges in banking sector of Ethiopia. The scope of banking sector in this study deduced to commercial banks that are private and government owned excluding central bank since its banking operation is different from commercial banks.

There are eighteen banks in Ethiopia but in this study only proportionately stratified selected respondents from sample banks of government and private domain are considered. Due to time and cost limitation, financial sectors other than banks such as insurance and micro finance were not included in this research scope.

In identifying the underlining reasons and implementation challenges for low ITG, the constructs used are those from different literature that are tested as well as evaluated, and have relationship with effectiveness of IT governance. Hence, by measuring the extent to which activities within each constructs are exercised helps in identification of improvement areas for enhanced ITG.

IT governance implementation strategy in this study considers the findings of the research as an input for SWOT analysis, action to be taken and measurement component the strategy. As a strategy has broader scope, and the researcher time and resources limitation the suggested ITG implementation strategy focuses on the aspects of IT governance implementation challenges and list of tasks that needs improvement from the research findings.

The target population of this study is limited to IT professionals starting from officer level. Hence business teams were not considered in this study.

1.5. Significance of the Study

IT Governance is increasingly important subject in the banking industry. As the banks becoming more customer oriented across retail, corporate, and institutional banking the implementation and use of IT governance is critical because its importance directly related to the benefits it provides such as reduced costs, reduced exposure to legal risk and improved performance (Faria, Maçada, & Kumar, 2013).

This study assesses underlining reason for low IT governance performance and challenge in banking sector of Ethiopia considering the benefit it renders if the problem is known and IT governance performance reached to the desired level.

Hence, at state level the finding of this research help the national bank of Ethiopia, to make SWOT analysis, in preparing a directive to enforce to use formal IT governance by banking, insurance and microfinance sector like other country as an example Central Bank of Jordan (Arab Bank, 2017) and Nigeria Central bank (Central Bank of Nigeria, 2015) who included in the directive for banks to use IT governance framework such as Control Objectives for Information and Related Technologies(COBIT) for improved performance of the sector since the banking sector is highly dependent on information technology.

To the banking sector, the research clearly present challenge, the underlining reason for low IT governance performance and the output of the research i.e. Identified reason, challenges for lower IT governance performance and IT governance implementation strategy will be used as an input for better and effective implementation or post implementation or actual practicing of IT governance by banking sector in Ethiopia.

In addition the finding of this research can be used by study that focuses on tailoring or contextualizing the IT governance framework for banking sector of Ethiopia considering challenges and factors specific to the banking sector.

1.6. Organization of the Thesis Document

This research report is structured in to five sections. The first chapter discuss and presents background of the study i.e. about commercial banks and the industry in Ethiopia and introductory concepts on IT governance ; statement of the research problem, objective of the study: both general and specific, scope and limitation of the study; and significance of the study. Chapter two presents review of related literature on key concepts of IT governance and empirical literature in the related works sub section of the chapter. In chapter three research design and methodology, approaches, target population, sampling techniques, method of data collection and analysis, validity and reliability checking used in the research are discussed. Analysis on collected data, findings and discussion are presented in chapter four. Finally, Chapter five presents the conclusion and recommendation of the research that bases on the findings of the research.

CHAPTER TWO

LITERATURE REVIEW

2.1. Overview

This chapter presents review of conceptual and empirical literature that are pertinent to the research domain i.e.IT governance. In this section of the study report, reviewed literature has been grouped in to related concept that undergo with the topic of the research.

The first part discusses about IT governance. It describes the definition and concepts related to it. Hence, the evolution of IT governance from IT infrastructure management then IT services management to IT Governance has been discussed. Since IT governance is an element of corporate governance, their relationship considered as a point of discussion. The concept of IT governance and IT management has been also covered. Further the importance IT governance, focus area or pillars of IT governance i.e. business IT alignment, value delivery, risk management, resource and performance management, and element of IT governance i.e. structure process and relational mechanism has been presented.

Frame work related to IT governance presented next to different concept on IT governance. Among different IT Governance frameworks that are tested, acknowledged and implemented in many enterprises IT Governance frameworks such as COBIT, ITIL and ISO 17799 are discussed briefly.

This study concerned with Low IT governance performance in the banking sector of Ethiopia. So as to assess the underlining reason it is necessary to discuss about IT governance maturity. The concept of IT governance maturity and the parameters that has been used in measuring IT governance performance in different literature is presented. The measurement criteria taken from previous work such as focus area of IT governance, element of IT governance and COBIT process also discoursed.

As a final point, in this chapter related works on IT governance maturity and/or research on low it governance performance has been discussed.

2.2. Information Technology Governance (IT Governance)

In current financial environment dependency on IT and IT infrastructure is indisputable. Hence De Haes & Van Grembergen (2017) stated it is crucial in the support, sustainability and growth of the businesses. This calls for IT governance to get specific focus. IT governance refers to the strategic alignment of IT with business, aiming to produce maximum business value through the development and maintenance of effective IT which is accountable and having maximized performance and well managed risk (Webb, Pollard, & Ridley, 2006).

IT governance focuses on the structure of company, relationships and process so as to develop, direct and control the company IT resources. In this context IT governance aims to add value to the organization in achieving the goal through balancing risk involved and maximized return of IT resources and process. (Korac-Kakabadse & Kakabadse, 2001)

The capacity of organization to control the formulation and implementation of IT strategy and guide to proper direction helps in achieving competitive advantages over the organization contenders. This is exercised by the Board, executive management and IT management to control the formulation and implementation of IT strategy so as to ensure fusion of business and IT. (De Haes & Van Grembergen, 2004)

Decision making is day today task of management of an organization. Related to IT governance this is also one aspect of it as Peterson (2004) presented, IT governance describes the distribution of IT decision-making rights and responsibilities among different stakeholders in the enterprise, and defines the procedures and mechanisms for making and monitoring strategic IT decisions.

IT governance requires the ability to deal with interdependencies that arise between the business and the IS function. According to van der Heijden (2000) IT governance is capability to integrate business purpose and activity with IT resources and effort in order to attain the organization objective. As a management capability it is maintained between IT manager or CIO and the general manager or CEO, but also between the CIO and the management of the other business departments that are in the core management level as well as at the middle. The capability of management member regarding IT governance includes quality of the executive relationship, arriving at shared objective, Fostering an appropriate culture and incorporating best practices.

2.2.1. Evolution of IT Governance

In this dynamically changing world and business environment the role of information technology become crucial. It is helping the business to perform more effectively and efficiently. Through time IT not only contribute for increasing efficiency of the organization but also it become an integral part of the organization by which it would be impossible for many to function without it (Van Grembergen, 2004). Because of its increasing role in an organization IT function is changing.

The role of IT changed from technology provider to strategic partner. In this changing role IT governance evaluation passed through three states. According to Salle (2004) IT infrastructure management (ITIM), IT service management (ITSM), and IT Governance (IT business value management) are the three evolutionary stages of IT Governance.

In IT infrastructure management stage, IT organizations focus on improving the effective management of the enterprise infrastructure by maximizing the return on investment of IT asset, taking control of the devices it contains, and the data it generates. In IT service management, at this stage IT organization identify customers demand driven services and work on planning and delivering the services to meet customer’s requirement. Evolving to IT governance stage, IT organization transformed in to business partner enabling new business opportunity through integrating IT in complete lifecycle of business process, improving service quality and business responsiveness.

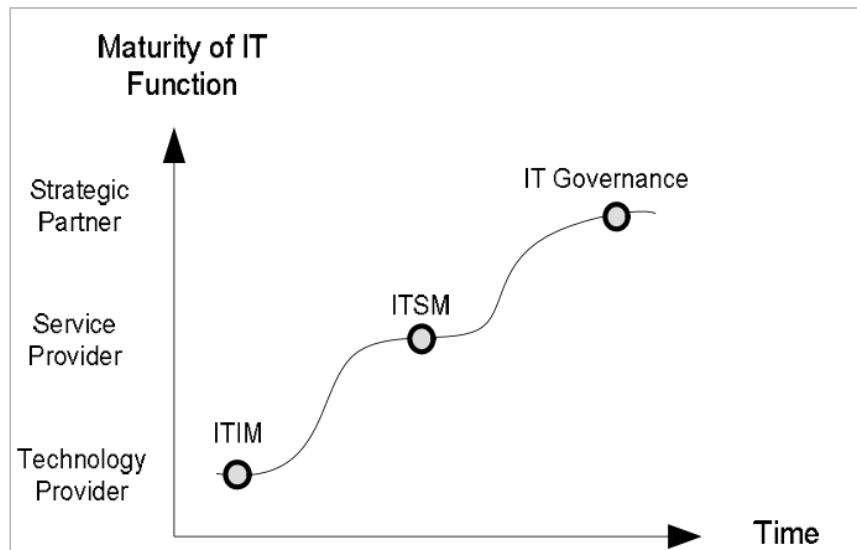


Figure 1: Evolution stage of IT Governance from Sallé (2004)

Through the evolution of IT governance, IT transforms from services providers to strategic partner. According to Venkatraman (1999) the contribution of IT during service provider and strategic partner is presented in below table.

Service Provider	Strategic Partner
IT is for efficiency	IT for business growth
Budgets are driven by external benchmarks	Budgets are driven by business strategy
IT is separable from the business	IT is inseparable from the business
IT is seen as an expense to control	IT is seen as an investment to manage
IT managers are technical experts	IT managers are business problem solvers

Table 1: IT as Service Provider or as Strategic Partner from (Venkatraman, 1999)

2.2.2. Corporate Governance and IT Governance

Corporate governance is broader in its scope than IT governance. Corporate governance refers to the way in which companies are governed and running to what purpose; in such a way that the practices and procedures are applied to achieves its objectives. It is also a process for monitoring and control to ensure that management runs the company in the interests of the shareholders so that the profit of the company is maximized (ICSA, 2006).

According to Fernando (2012) corporate governance covers what would be the internal structure and rules of the board of directors, the structure of independent audit committee, rules for disclosure of information to shareholders and creditor, and control of the management.

Corporate governance is a system of authoritative or governance by which the shareholders elect directors as their representative to manage the affairs of the business. The directors, who as a group referred to as the board of directors, then delegate responsibility for actual operations to the chief executive officer (CEO) , whom they hire. The CEO is accountable to the board of directors, which collectively and individually is accountable to the shareholders. In addition to its role in selecting the CEO, the board also advice on and consents to the selection of business and strategies of the firm as well as oversees results in sum (Colley, stettinius, doyle, & Logan, 2005). This entire selection, assignment, established accountability and responsibility matrix in return, that enable the shareholder control and balance of power from board of director to lower level management so as to achieve the organization objective.

As compared to corporate governance IT governance is an integral part of corporate governance which is less in its scope focus area. According to Van Grembergen (2004) the scope that the IT governance and corporate governance presented in the below table.

Corporate Governance Questions	IT Governance Questions
<ul style="list-style-type: none"> • How do suppliers of finance (investors) get managers to return some of the profits to them? • How do suppliers of finance (investors) make sure that managers do not steal the capital they supply or invest it in bad projects? • How do suppliers of finance (investors) control managers? 	<ul style="list-style-type: none"> • How does top management get their CIO and IT organization to return some business value to them? • How does top management make sure that their CIO and IT organizations do not steal the capital they supply or invest in bad projects? • How does top management control their CIO and IT organization?

Table 2: IT Governance and Corporate Governance Questions, from (Van Grembergen, 2004)

2.2.3. IT Governance and IT Management

The distinction between IT governance and IT management is not clearly presented (Van Grembergen, 2004). According to van Grembergen (2007) governance determines who should make what decision(s) whereas management is the process of making the actual decision. IT Management is focused on the provision of effective IT services to internal IT users of the organization and the management of the current IT operation. In addition IT Governance concentrates on performing and transforming IT to meet present and future demands of the business (internal focus) and the business' customers (external focus) of both present and future requirement (van Grembergen, 2007).

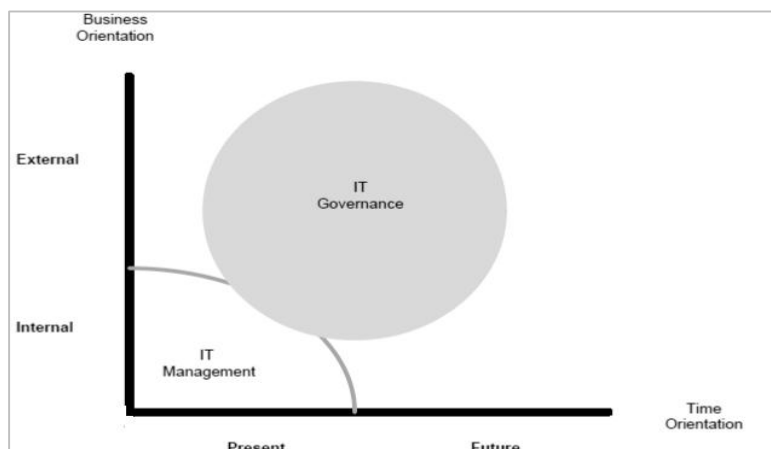


Figure 2: IT Governance vs. IT Management from (van Grembergen, 2007)

As depicted in the above figure in terms of time orientation, IT governance deals with both current and future demands of the business while IT management is on current. Regarding business orientation IT governance deals with both with internal and external customer but IT management only focus on providing for internal IT services demand.

Another distinction between IT management and IT Governance is, an elements of IT management and the supply of IT product and service can be outsourced to an external IT services provider, whereas IT Governance is organization specific, and directions and controls over IT cannot be outsourced (Van Grembergen, 2004).

2.2.4. Importance of IT Governance

Good IT governance aligns an enterprise strategically to support the evolution of an IT architecture that delivers consistent and scalable business value. IT governance helps measure a business growth and success including financial health by aligning the goal and objectives of the business with effective utilization of its IT resources (Moeller, 2013).

For effective IT governance it is necessary to give significant amount of management time and attention. Good governance results in harmonized decision on management and use of IT, with the desired behavior and business objective. If company fails to carefully designed and implement governance structure the harmony will be at jeopardy. Hence, it is necessary for the company to have proper IT governance. In line with this Weill & Ross (2004) listed some of the reasons why IT Governance should be given enough management time and attention:

Good IT Governance Pays Off

Firms with above industry average IT governance performance have more than 20% higher profits than firms with poor governance given the same strategic objectives.

IT is Expensive

Enterprises spend more than 4.2% of their annual revenue, which exceeds 50% of their annual total capital investment spends on IT. Due to this many enterprises are prioritizing their IT spending on strategic areas. Because of this it is necessary to have good IT governance Hence good governance of IT results in efficient utilization of IT resources.

IT is Pervasive

IT is everywhere in the enterprise. A well designed IT Governance arrangements distribute IT decision making to those responsible for the result since centrally managing IT is no longer a choice.

IT Governance is Critical to Organizational Learning about IT Value

Due to technological change company uses different approach which is out of the standard practice. Effective IT governance make learning from exception by formalizing exception process and share any new practices if appropriate.

New Information Technology Brings Enterprise with Opportunity

As technology rapidly changes it creates strategic threats and opportunity. To respond to these threats or opportunity it requires flexible IT infrastructure. Foresight in establishing right infrastructure at the right time enable the company to respond to these changes. This is more likely if an enterprise has formalized IT governance.

IT Value Depends on More Than Good Technology

One aspect of IT governance is about decision making. Acquiring new technology doesn't mean ensured IT value. It requires the organization to adopt new operational and decision making process that applies to the new technologies effectively. This will be operative when there is well established IT governance.

2.2.5. Focus Area of IT Governance

According to Saull (2006) there are five focus areas of IT governance. These are Value delivery, strategic alignment, risk management, performance measurement and resource management. Among them two important elements of IT governance are value delivery (which is the end goal) and strategic alignment (which is the means).

Among focus area IT Governance value delivery and risk mitigation are outcomes while strategic alignment and performance measurement are drivers. The below table show diagrammatically the focus area of IT Governance.

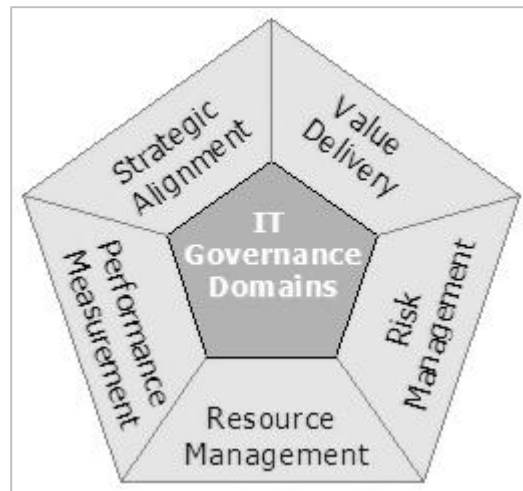


Figure 3: focus area of IT Governance from (Saul, 2006)

Strategic Alignment

It is linking of business and IT plan by defining, maintaining and validating the IT value proposition. It refers to aligning IT operation with Enterprise operations. In this focus area provision of collaborative solution that add value to the enterprise product and service to be in a position to be competitive in the market, is the concern.

Value Delivery

It is executing the value proposition throughout the delivery cycle, ensuring that IT delivers the promised benefit against strategy, concentrate on reducing cost by providing value and control project and operational process that increase the probability of success.

Risk Management

It is concerned with creation of risk awareness on senior officers, appetite for risk and significance of the risk to the organization by embedding risk management responsibility in the enterprise. In addition it covers safeguard of IT asset, disaster recovery and continuity of operation.

Resource Management

It is concerned with optimal investment, use and allocation of IT resource and capabilities (people, application, infrastructure and data). Not only optimizing investment but also concerned with maximizing efficiency of the infrastructure and optimizing the knowledge of the staffs.

Performance Management

It is measuring the performance using balanced scorecards that translate strategy in action to achieve goals measurable beyond conventional accounting. Tracking project delivery and monitoring IT services is also in the scope of performance management.

2.2.6. Element of IT Governance

IT governance can be set up using a variety of structures, processes and relational mechanisms. Structure aspect of IT governance depicts connection between decision making parties, process represents coordination between different units in an organization and relational mechanisms for collaboration on the day today operation between parties in an organization (De Haes & Van Grembergen, 2008)

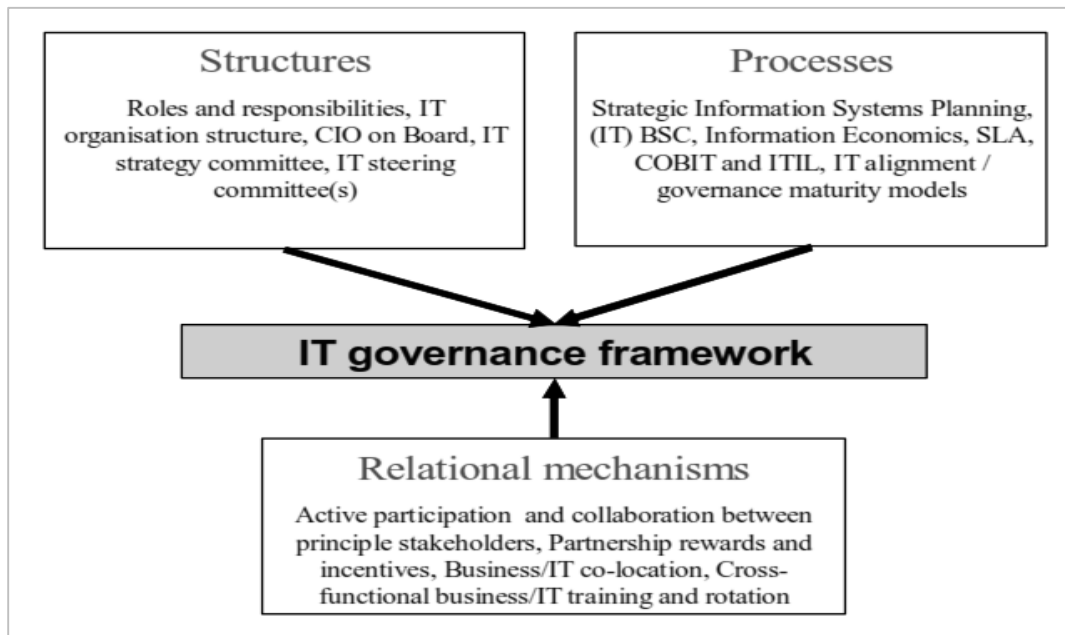


Figure 4: Necessary Element of IT Governance from (De Haes & Van Grembergen, 2006)

2.2.6.1. IT Governance Structure

IT Governance structure represent structure dimension of formal and informal mechanisms that encourage contacts and socialization between stake holder groups in the organization. Structure element of IT governance concerned with the existence of clearly defend roles and responsibilities and the establishment of steering committee, and IT strategy committees , Clear IT organizational structure with the necessary archetypes and CIO on board (Clohessy, Morgan, & Acton, 2014).

In the context IT governance, according to ISACA (2012) IT steering committee situated at the executive or management level and has the specific responsibility for overseeing major projects or managing IT priorities, IT costs IT resource allocation. IT strategy committees devise on strategic direction and review major investments on behalf of the full board.

2.2.6.2. IT Governance Process

It is a formal process to ensure the daily operation of the company are consistent with the IT policy and providing input for the decision to be made (Clohessy, Morgan, & Acton, 2014). IT governance process include Strategic information planning, Balanced score card, information economics, Service level agreement, use of IT governance like COBIT and ITIL and IT alignment (De Haes & Van Grembergen, 2006).

According to Almeida, Pereira, & Da Silva (2013) in IT governance process the performance of IT regarding its alignment with business is measured using balanced score card. Service level agreement also used in this process, which refers a contract agreement between services provider and customer.

2.2.6.3. IT Governance Relational Mechanisms

Relational mechanisms are important for attaining and sustaining business/IT alignment. According to Almeida, Pereira, & Da Silva (2013) it is about corporate internal communication addressing on a regular basis on general IT issues. Relational mechanism involves IT governance awareness campaigns to explain to business and IT people the need for IT governance. IT leadership is also another aspects of Relational mechanisms which refers the ability of the CIO or similar role to articulate a vision for its role in the company and ensure that this vision is clearly understood by managers throughout the organization. In addition it involves Informal meetings between business and IT executive/senior management with no agenda, where business and IT senior management talk about general activities and directions. In relational mechanism executive/senior management of business and IT act as partners for common goal.

2.3. IT Governance Frameworks

As ISACA (2012) IT governance framework is a framework that target linking of IT objective with business goal. As its component also provides metrics and models of maturity for measuring

the alignment of IT and business objectives. Regarding decision making and communication IT governance framework provides associated responsibility of business and IT process owners.

IT governance framework is of framework which is basically defines methods and approaches through which organization can emplace, practice, manage and monitor IT governance. It is a framework that clearly defines the principles, rules and processes that enable effective decision-making by presenting how decision are made and communicated, and who has the authority to make decision (CIO-WIKI, 2017).

There are a number of IT governance frameworks in the market that can be used to formally implement and monitor of IT governance process. Most of the existing frameworks are complementary. Among them for the purpose of this study COBIT, ITIL and ISO are discussed.

2.3.1. Control Objective for Information and Related Technologies (COBIT)

Control Objectives for Information and related Technologies (COBIT) was developed in 1996 by the Information Systems Audit and Control Association (ISACA) and is now issued and maintained by the IT Governance Institute (ITGI) as a framework for providing control mechanisms over then now in its fifth edition.

COBIT (Control Objectives for Information and Related Technology) is an IT governance control framework that helps organizations meet today's business challenges in the areas of regulatory compliance, risk management and the alignment of IT strategy with organizational goals (ISACA, 2012).

COBIT primary focuses on the use of IT in alignment with business operation in achieving organizational goal (Ridley, Young, & Carroll, 2004). This frame work divides Information Technology governance into four process domain: planning and organization, acquisition and implementation, delivery and support, and monitor and evaluate (Ridley, Young, & Carroll, 2004). These four process domains hierarchically detailed in to 34 process or control objective. Each of these 34 process or control objectives again divided into a set of Detailed Control Objectives (DCOs), which specify the way the high level control objectives must be managed, in more detail a total of three hundred sixteen detail control objectives are defined for each of the 34 process (Von Solms, 2005).

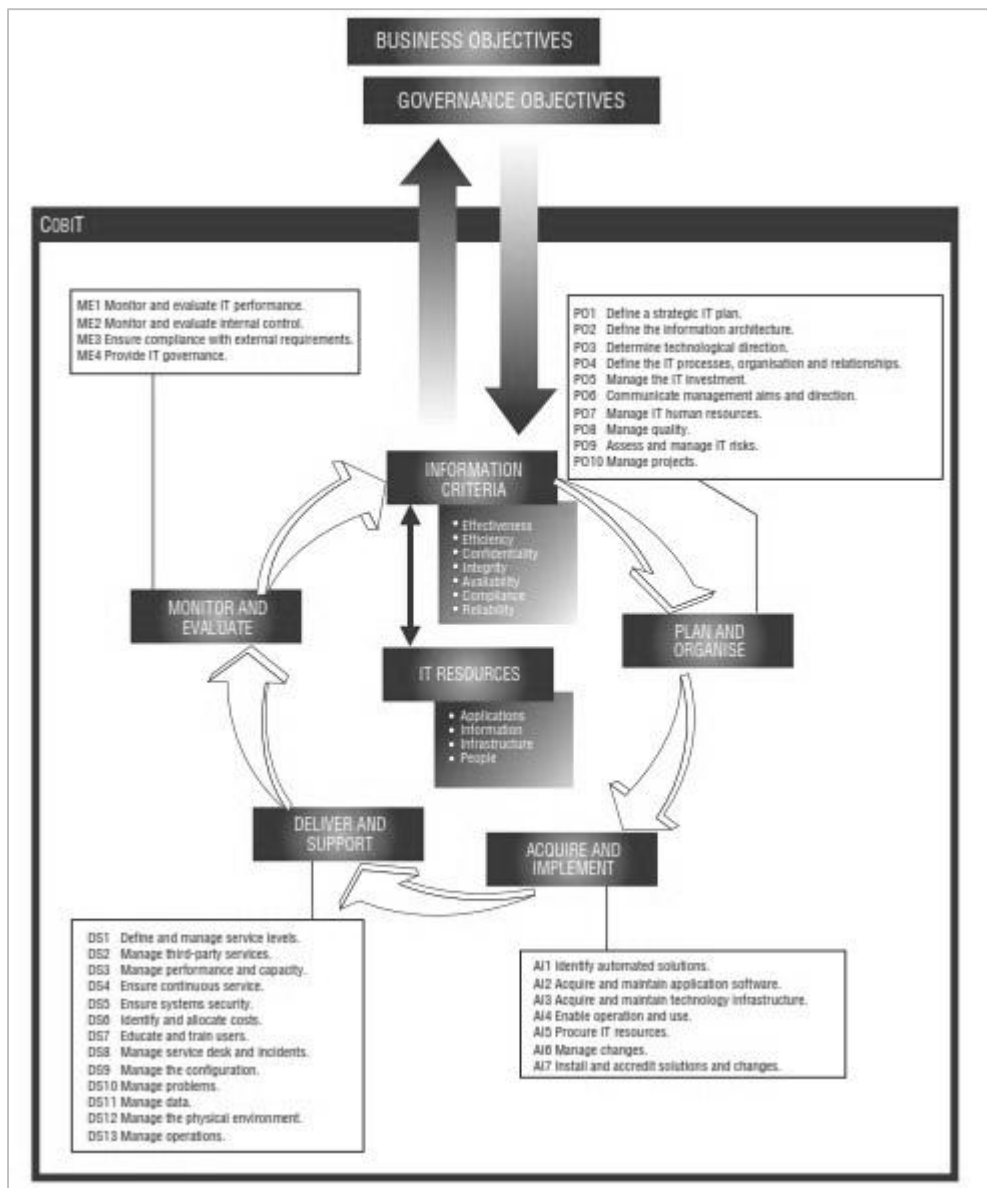


Figure 5: COBIT - IT Governance Framework from (ITGI, 2007)

2.3.2. The IT Infrastructure Library (ITIL)

ITIL like other framework focuses on aligning IT services with the business need. It is IT services management practice to deliver quality of IT Services. This framework presents comprehensive best practices of how to plan, design and implement effective service management capabilities (van Bon & etal, 2007).

According to van Bon & etal (2007) the five stages ITIL framework are Service Strategy, Design, transition, operation and continual service improvement. Service strategy is the phase of defining the guideline for creating business value and achieving and maintain a strategic advantage. Service design is the phase of designing developing appropriate Services. Service transition incorporate

planning and managing the realization of new and modified service according to customer satisfaction. Service operation of this framework refers to do the necessary task to provide and support services that give value to customer. Continual service improvement is the stage where effectiveness and efficiency of IT services are continually improved against business requirement.

In each stage there are function and process to be undertaken so that a given life cycle of the service to proceed to the next stage. The details of the sub process with in each component of ITIL framework is depicted in the below ITIL framework diagram.

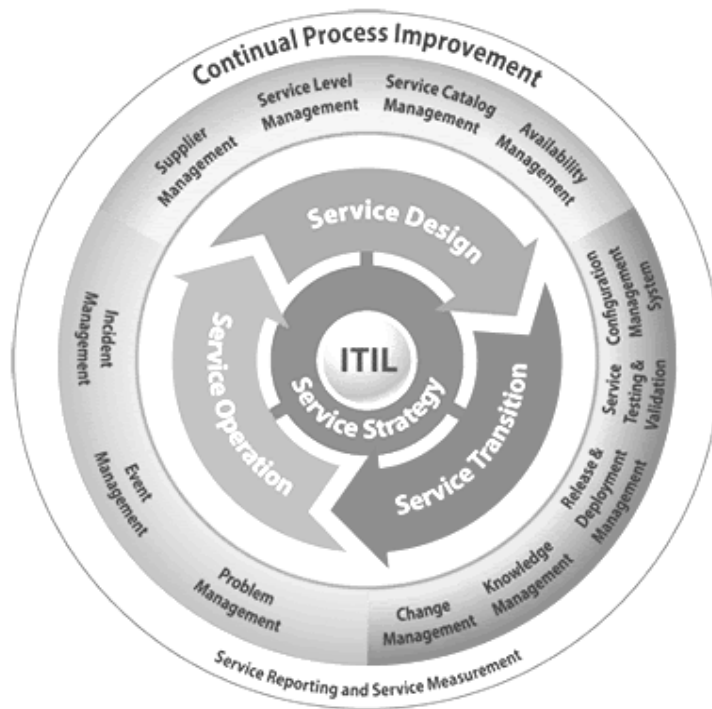


Figure 6: ITIL Framework from (van Bon & etal, 2007)

2.3.3. ISO17799

It is an internationally recognized Information Security Management Standard. As Carlson (2001) presented this framework take information as an asset that may exist in many forms and has value to an organization. The goal of information security through the application of this standard is to suitably protect this asset in order to ensure business continuity, minimize business damage, and maximize return on investments (Saint-Germain, 2005).

This ISO/IEC 17799 comprises ten security domains and seeks to address security compliance at all levels: managerial, organizational, legal, operational, and technical. The ten security domain are Security policy, organization security, asset classification and control, personnel security,

physical and environmental security, communication and operation management, access control, system development and maintenance, business continuity management and compliance. For each of the ten domain the standard has 36 control objectives, consisting of general statements. The standard also includes 127 controls that identify specific means for meeting the control objectives.

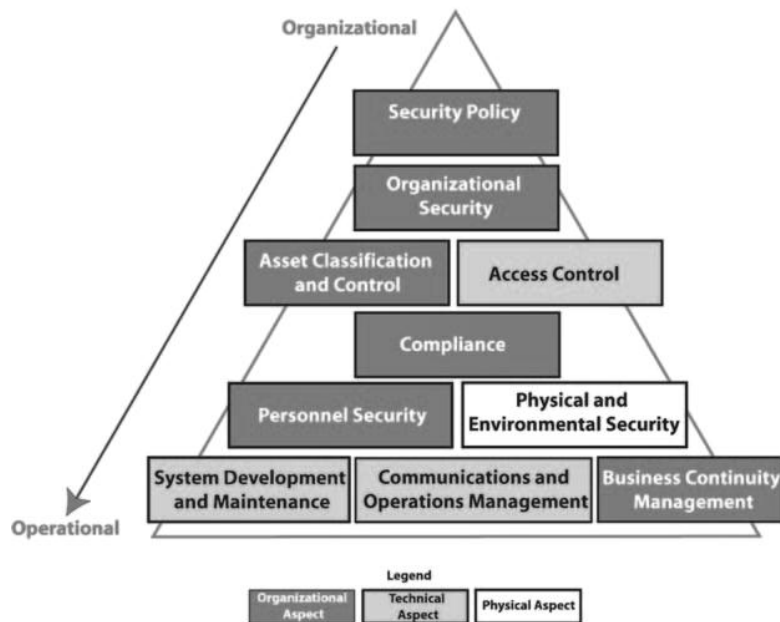


Figure 7: ISO17799 Standard Domains from (Saint-Germain, 2005)

2.4. IT Governance Performance

IT governance practice in an organization relates to the leadership, organizational structure and process that ensure the organization's IT works to enable the organization in attaining its objectives. The governance process of IT in an organization should be to the level desired so as to optimize the benefit gained from the process. In order to determine to what extent IT is enabling business in achieving the goal define the concept of IT governance maturity come in to picture.

2.4.1. IT Governance Maturity

Explicitly or implicitly IT governance practice dealing with IT in an organization exists. The level to which it is practice and aligned with business objective may differ between enterprises. According to Simonsson & et.al (2010) the quality of the organization's IT may differ between enterprises, depending on issues such as whether decision making rights and responsibilities are

distributed over the appropriate people, formalized processes for important tasks are implemented, and appropriate documentation exists.

Organization with maturely governed IT found where the IT process are efficiently aligned with business and well practices framework. IT governance maturity determined by different metrics that are included in well-practiced frame work and models. This framework and model helps in identifying the IT governance maturity a given enterprise.

2.4.2. Measuring IT Governance Maturity

Enterprises this days might has IT governance emplaced in the form of structures, processes and relational mechanisms. The issue is whether the emplaced IT governance is serving the business need or not. In order to answer this question it is necessary to measure the maturity of IT Governance.

There are different framework, model and metric used in measuring IT governance maturity. COBIT is one of the well-known framework that enable to obtain the It governance maturity level. For measuring IT governance maturity COBIT primarily divides the process in to four domain planning and organization, acquisition and implementation, delivery and support, and monitor and evaluate. As depicted in figure 5 those four mainly groped process domain measured by 34 control objectives. Accordingly, the maturity of IT governance is determined. The 34 control objectives and maturity scale presented below. To level the maturity, after doing the assessment on the controlled objective in COBIT, five generic maturity scale used.

Maturity Levels	Process Maturity
0-Non-existent	Complete lack of any recognizable processes. The enterprise has not even recognized that there is an issue to be addressed.
1-Initial/Ad Hoc	There is evidence that the enterprise has recognized that the issues exist and need to be addressed. There are, however, no standardized processes; instead, there are ad hoc approaches that tend to be applied on an individual or case-by-case basis. The overall approach to management is disorganized.
2-Repeatable	Processes have developed to the stage where similar procedures are followed by different people undertaking the same task. There is no formal training or communication of standard procedures, and responsibility is left to the individual. There is a high degree of reliance on the knowledge of individuals and, therefore, errors are likely.

3-Defined Process	Procedures have been standardized and documented, and communicated through training. It is mandated that these processes should be followed; however, it is unlikely that deviations will be detected. The procedures themselves are not sophisticated but are the formalization of existing practices
4-Managed and Measurable	Management monitors and measures compliance with procedures and takes action where processes appear not to be working effectively. Processes are under constant improvement and provide good practice. Automation and tools are used in a limited or fragmented way.
5-Optimised	Processes have been refined to a level of good practice, based on the results of continuous improvement and maturity modelling with other enterprises. IT is used in an integrated way to automate the workflow, providing tools to improve quality and effectiveness, making the enterprise quick to adapt.

Table 3a: IT Governance Maturity Scale from (ITGI, 2007)

In addition to COBIT researchers were using domains of IT governance as measuring the maturity level. The domain areas variables used are the strategic alignment of IT with business, the contribution of IT in value delivery, Risk, resources and performance management. (Berihu, 2011) On her research in determining the IT governance status of commercial bank of Ethiopia she has used these domain areas of IT governance and find out the maturity level is low. In addition to this different researcher used this domain of IT governance as measuring maturity of IT governance among (Spremic & Spremic, 2001), and (Yeshane, 2015) are some that used the focus area to measure TI Governance maturity and using the Generic maturity measure from 0-Non-existent to 5- optimized, and their findings were repeatable and low level respectively.

The other variable used in measuring IT governance maturity is based on the element of IT governance i.e. structure, process and relational mechanisms. (Mekonnen, 2016) Measure IT Governance maturity base on these variable and his finding on maturity of IT governance based on generic scale is 1.4(Initial state) and 0.7(Non-existence) for banking and insurance sector respectively. On their journal article (De Haes & Van Grembergen, 2008) has also used elements of IT governance for measuring IT governance maturity.

2.5. Related Works

A study is conducted with the objective of solving practical as well research problem. In this section of the thesis report related works to this research are discussed. The approaches used in presenting and discussing related work tries to align related research with problem domain and context of the research.

Accordingly, first related research paper on IT governance maturity preferably in financial sector of developing country Identified and discussed. This enables in doing further investigation, on the specific variable majorly contributed for low IT governance maturity and identifying the underlining reasons, in answering the research question since it is can facilitate the applicability in the Ethiopia context. Those related woks that uses IT Governance maturity measurement on the base of element, focus area of IT governance and thirty four COBIT process are presented.

IT governance maturity in banking and insurance sector of Ethiopia with a comparative study has been conducted by (Mekonnen, 2016). For measuring the maturity of IT governance he used a variables structure, process and relational mechanism of IT governance. The scale used is generic scale form 0 Non-Existence to 5 Optimized. IT governance structure measurement sixteen variable has been considered and the finding shows that 75% i.e. twelve variables score maturity of initial stage. IT governance process twelve variables has been considered and the finding shows that 83.33 % i.e. ten variable scores a maturity of initial stage. IT governance relational mechanism takes twelve variable for measurement and 60% of the variable scores initial stage. According to his work the researcher shows the how the maturity of IT governance is low in banking sector but the researchers didn't show the underlining reason for the low score of those variables that measure IT governance.

Local research on IT governance performance has been explored by Bogale (2016) on the dissertation titled "Auditing IT and IT governance". On findings of the research firm size and role of IT in organization has relationship with IT governance, and age do not have relationship with IT governance performance. All IT competency related factor has positive relationship with IT governance performance. Internal audit as well as IT audit practices are strongly related with IT Governance performance. In this study the researcher did not disclose challenges in implementation of IT governance and underling reason for low IT governance performance instead he has done the analysis of which factor has relationship with IT governance performance.

According to Nfuka & Rusu (2010) conducted research on IT governance maturity, in public sectors organization of developing country such as Tanzania, is in its initial stage. The researcher measure ITG maturity based on generic maturity scale measure i.e. 0- Non-existence to 5 – Optimized (Table 3a). However the researcher did not disclose the underlining reasons for this initial maturity of ITG in public sector organization and what the challenges in its fullest sense implementation are.

On their conference proceeding Safari & Zhen Yu (2014) states in many developing countries such as Iran, have limited the utilization new technology and IT Governance process, Even if it has been shown that companies that adopted IT governance structure for effective decision making have been able to obtain higher return from investment than their competitors who did not. The authors conducted the study on IT governance maturity in Iranian banking sector considering both public and privately owned banks. In measuring IT governance maturity they have used 34 COBIT process.

On the findings of the research IT governance maturity for privately owned banks is 2.09 which is just exceeds initial stage. Among the 34 COBIT process 59% of them measured at their initial stage. Regarding public banks the same variable has been taken accordingly the average maturity of IT governance is 1.71 which is at initial stage. From those COBIT process on publicly owned banks 94% of them are at their initial stage. Cumulative IT governance for both privately and publicly owned bank is 1.9 indicating at initial stage. According to the researchers they measure the maturity of IT governance in the banking sector of this developing country but the researcher didn't investigate the underlining reason for this less maturity of IT governance.

Commercial bank of Ethiopia, where it has nearly fifty percent of the total number of bank branches in the Ethiopia, is sustainably providing services to the community (Abdu, 2015). Studying issues that might have impact on its performance is worth assessing since the effect directly affect the society. Berihu (2011) has conducted a study titled IT Governance in Ethiopian Financial Sector: A Case Analysis of Commercial Bank of Ethiopia.

In measuring IT governance the variables considered were focus area of IT governance i.e. Strategic Alignment, IT resource Management, Performance Measurement, and Risk Management. For these four area the researcher has taken twenty five measuring variable and found out that the maturity of IT governance is low stage but she didn't go for underlining reason and challenges for this maturity.

The breakdown of the finding shows among those IT governance maturity measuring variable 44% of them scores Non-existence stage in terms of maturity scale. Among those Non-Existence scores 73% of them fall in to resource management and performance management focus area of IT governance. This requires further research for the reason behind for the score of those focus area of IT governance since it was not discussed in the research.

Table 3b: Summary of Related Works

Author and Year	Research Title	Objectives	Key Findings	Remark
Mekonnen, T. (2016)	Maturity of Information Technology Governance in the Financial Sector of Ethiopia: A comparative study	To Investigate the perceived importance and maturity of IT Governance practices in financial sector of Ethiopia in terms of IT Governance Structure, Processes and Relational Mechanisms.	<ul style="list-style-type: none"> • ITG maturity of private and government bank is at initial/lower stage • Being at initial stage, ITG maturity of Banking sector is better than insurance • The average perceived importance of IT Governance practices in the financial sector of Ethiopia Was rated 4.2 based on a scale from 0(strongly disagree) to 5(strongly agree) 	On his study researcher Identified the maturity level of ITG in banking and insurance sector as low and compare each other. However the underlining reason for low ITG and the challenges on ITG on its fullest sense Implementation for effective ITG not identified and discussed.
Safari, M., & Zhen Yu, L. (2014)	Assessment of IT Governance and Process Maturity: Evidence from banking Industry	To evaluate and compare the IT governance maturity of Iran’s banking Industry and inform managers, who possess business knowledge and who may also be knowledgeable on the main aspects of COBIT	Cumulative IT governance for both privately and publicly owned bank is 1.9 indicating at initial/lower stage	According to the researcher study findings it is presented that ITG maturity of both privately and publicly owned banks has low/initial stage maturity but the researcher did not identify what are the underlining reasons and challenges for ITG implementation that results in this low maturity
Nfuka, E. N., & Rusu, L. (2010)	It Governance Maturity in the Public Sector Organizations in a Developing Country: The Case of Tanzania	To investigate maturity of IT Governance in developing country environment	<p>The research output indicates</p> <ul style="list-style-type: none"> • Some IT processes to have scored relatively lower. • The maturity to be relatively lower in the organizations with less established IT governance mechanisms. 	Nafuka and Rusu discussed about the level of maturity of ITG for public sector in Tanzania. On their findings it is not discussed about the reason for low ITG maturity in the sector under investigation. In addition the challenges related to ITG implementation were not discussed

Berihu, S. (2011)	IT Governance in Ethiopian Financial Sector: A Case Analysis of Commercial Bank of Ethiopia	To examine the status of IT governance at commercial bank of Ethiopia with regard to strategic alignment ,risk management, IT resources management and performance measurement by looking at the gaps that exist on these areas of IT governance issues.	IT governance status at commercial bank of Ethiopia is very low even though there is awareness about the concept, in practical term there is no standardized way of governing the IT system and process.	The researcher investigated maturity of IT governance based on the focus area(Figure 3) of ITG excluding value delivery and her finding only explain low maturity of ITG in commercial bank but what is behind this low IT governance maturity were not discussed.
Bogale, M. (2016)	Auditing IT and IT Governance in Ethiopia	To investigate IT governance performance (maturity level) of Ethiopian Business Organizations and the contribution of IT auditing to this	<ul style="list-style-type: none"> • IT governance performance is not well developed in banking sector. • The different predictors of IT governance performance such as organizational factors, IT governance mechanisms, IT auditing practices were not well designed and implemented. • Firm performance (both operational and financial) was constrained due to poorly designed or nonexistent IT governance mechanisms and weak IT governance performance. 	In this study the researcher did not disclose challenges in implementation of IT governance and underling reason for low IT governance performance instead he has done the analysis of which factor (firm size, age and role of IT (philosophy of top management towards IT); IT competency such as Top management IT know how, IT governance process, structure and relational mechanism, and IT audit.) has relationship with IT governance performance.

2.6. Summary

Enterprises now a days are highly dependent on information technology. For on time service delivery and meeting customer demand, the technology contributes a major role. But the existence of these IT infrastructure within the enterprise does not guarantee customers are provided a better services or product in response to their demand, and organizations achievement their goal. In addressing this a mechanism need due consideration on how to use and manage these IT resources so that there is the attainment of these goal and strategy.

IT governance is a process that warrant how these IT resources are effectively and efficiently utilized in aligning IT with business goal and objectives. It is about how IT decision are made, by defining who has the authority in make IT decision , the accountability and responsibility, and monitoring of these decision. IT governance also concerned with the relation and communication of IT with other business unit.

The use IT governance best practice and standards such as ITIL, COBIT, ISO17799 and related help in facilitating IT Services in achieving the organization objectives. IT governance has structure, process and relational mechanisms elements. Those element when properly design and implemented in addressing focus areas of IT governance such as strategic alignment, value delivery, risk management, resources management and performance measurement effective IT governance can be realized. To the end the main goal of IT governance is to assure that the investment made generate business value to the enterprise.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Overview

The researcher determines the methodology to use for conducting research. According to Dawson (2002) the overall principles and philosophy that guides the researcher in conducting research is research methodology. Researchers need to know research methodology since it is not only enough to know how to collect data, subsequently find the mean, mode, median or standard deviation, but also it is required to know which of the method or techniques are relevant or not (Cothari, 2004).

The next section presents what research approach to follow, the population where the research is conducted, the sampling techniques used, data collection and analysis method and validity checking for the research problem of underlining reason and challenge for low IT governance in banking sector of Ethiopia.

3.2. General Approaches and Methods

3.2.1. Research Approaches

Information System (IS) research involves behavioral science and design science research. Behavioral science try to find to develop and justify theories that explain or predict organizational and human phenomena regarding information system but when we come to design science it try to develop innovative artifacts (Hevner, March, Park, & Ram, 2004). This research uses behavioral science model since the objective of the study is assessing underlining reason and challenges for low IT governance performance in banking sector of Ethiopia.

Basically there are two types of research approaches: quantitative and qualitative (Cothari, 2004). The quantitative approaches involves the generation of data in quantitative form which can be subjected to rigorous quantitative analysis in a formal and rigid fashion but qualitative approaches is concerned with subjective assessment of attitudes, opinions and behavior.

The approaches used in this study are both quantitative and qualitative approach. In addition to quantitative, qualitative approach is used because there are numeric interpretation and variable that might not be known to the researcher regarding the challenges and underlining reason for low IT governance performance.

3.2.2. Conceptual Research Model

In previous related research and as it is also indicated by the researcher in this study IT Governance performance is at initial stage in developing country and Ethiopian banking sector. Initial stage of IT Governance according to ITGI (2007) explained as no standardized processes exists instead there are ad hoc and the management of the process is disorganized. IT governance at this stage is ineffective (Charantimath, 2011) even if it delivery what the business expects however it exceed the budget and schedule.

Organizations with ineffective IT governance, on Vaswani and Weill study (as cited in (Ali & Green, 2012)), their performance directly affected; because inaccurate information, insufficient operating cost, over budget IT projects, and loss competitiveness.

As this study indicates in literature organization with low level maturity of IT governance implies ineffective IT governance. According to related works and reviewed literature for this particular study target population share this IT governance ineffectiveness.

The conceptual research model prepared for this study is from the perspective of effective IT governance to deal with the research problem as low IT governance performance implies ineffective IT governance performance and for challenges in ITG implementation from as is perspective. Hence, books, research journal articles, different IT governance related reports, conferences proceeding and scientific websites has been intensively reviewed for consistency in preparing the conceptual research model and yet major constituents are research journal articles.

Accordingly, for this conceptual research model the researcher extensively reviewed literature in the area of IT Governance bring together IT governance mechanism that are pertinent to this research in addressing the research problem i.e. underlining reason for low ITG. IT governance mechanism such as IT strategy committee and Involvement of senior management (Borja, 2017), (Ali S. , 2006), (Ferguson, Green, Vaswani, & Wu, 2013), (Ali & Green, 2005); Ethics/Culture of compliance and corporate communication mechanisms (Ali S. , 2006), (Borja, 2017), (Ali & Green, 2005); IT steering committee (Ali & Green, 2005), (Borja, 2017), (Ferguson, Green, Vaswani, & Wu, 2013); IT intensity (Borja, 2017), (Ferguson, Green, Vaswani, & Wu, 2013), (Bogale, 2016); corporate performance Measurement system (Ferguson, Green, Vaswani, & Wu, 2013), (Lunardi, Macada, & Becker, 2014), (Nfuka & Rusu, 2011); and the domains of IT governance i.e. strategic alignment, value delivery, risk management, performance management

and resources management (Lunardi, Macada, & Becker, 2014), (Nfuka & Rusu, 2011) are considered for the development of the conceptual research model in related to underlining reasons for low IT governance. Those IT governance mechanism are hypothesized and tested they have positive relations with effective IT governance.

Organizations can formulate their own IT governance framework, or they can decide between some pre-established IT governance frameworks that are in use, In order to effectively implement IT governance (IT Governance Institute, 2008). In this study implementation refers ITG framework or standard of both developed and practiced internally by the firm itself, and acquired from third party.

Hence, this study explores challenges in implementation of IT governance. Othman M. F. (2016) discussed use of standardized ITG framework or practices facilitate effectiveness of ITG performance; hence, identifying and measuring those inhibitors is indisputable in answering the research problem of low ITG performance in banking sector of Ethiopia. Regarding the challenges the researcher extensively go through literature that discuss on the issue. Subsequently, the researcher considers challenges that are related the research problem.

Accordingly, the constructs with regard to challenges for IT governance implementation are adopted from (Othman M. F., 2016) model. In the model Organizational, Innovation and Environmental context major category has been taken to deal with implementation challenge research problem. Top management support is a factor in organizational context. Innovation variable includes: Complexity, compatibility, and Costs. Consultant and external pressure are considered regarding environmental context. Othman model is selected, as part of conceptual research model, for this study because more research give little attention to challenges in implementation and practicing of IT governance (Bhattacharjee & Hikmet, 2008) instead they focuses on how to do it and its improvement. Hence, well tested and validated model is in jeopardy since using the model and identifying the gap helps in addressing the problem at hand. In addition the author Othman M. F. (2016) of the conceptual model critically did its data collection, by participating scholars and accredited professional bodies such as IT governance institute (ISACA), and analysis in developing, selecting and validating the constructs of the model by which this study adopted for the purposes of construct development of IT governance implementation challenge.

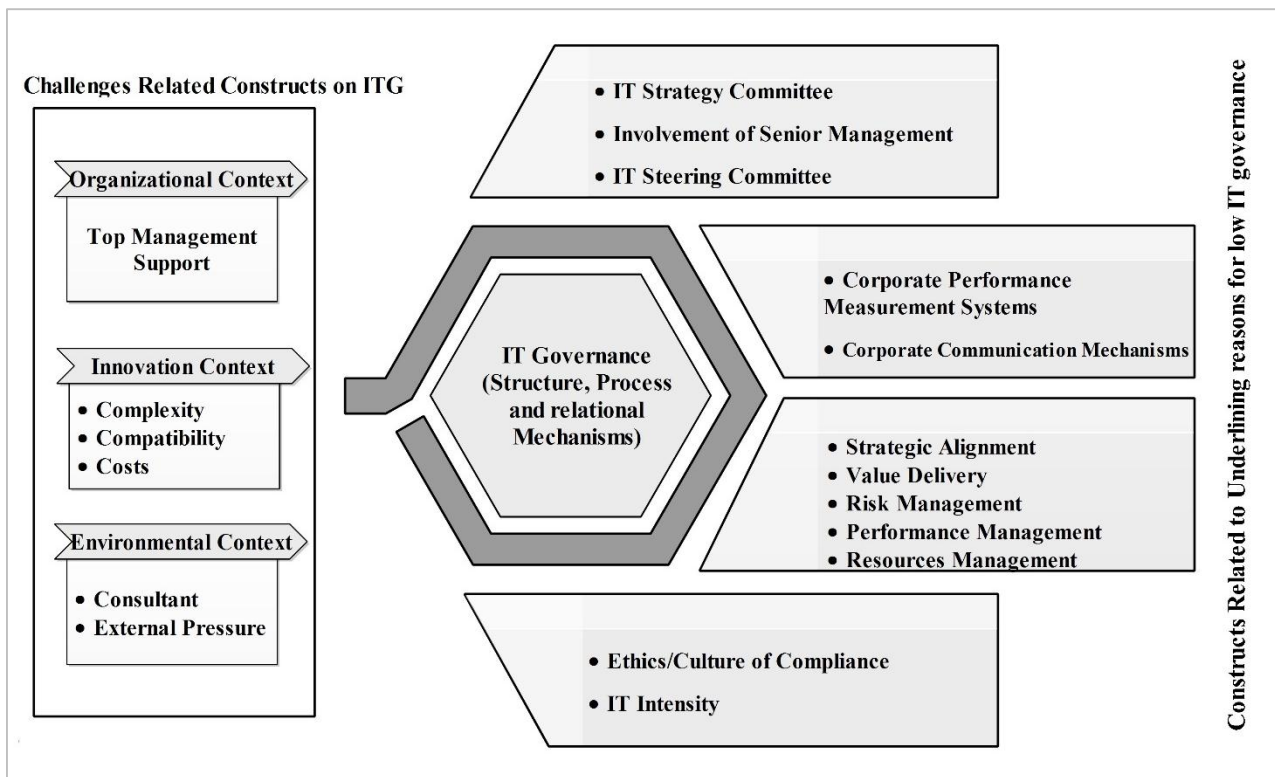


Figure 8: Conceptual Research Model (This study, 2018)

As depicted in the above the conceptual research model in answering the research question has two major construct i.e. those grouped related to low or in effectiveness of ITG performance and Challenges in its implementation or practice. Hence, based on these well tested and validated constructs the above conceptual research model has been developed so that this study’s questionnaires and interview questions derived.

3.3. Study Population and Sampling

3.3.1. Study Population

According to the Central Bank of Ethiopia (National Bank of Ethiopia, 2017) there are around nineteen banks in Ethiopia. Excluding construction and business bank, merger with commercial bank of Ethiopia a year and ten moth ago, the number of banks are eighteen.

Among these banks in Table 4 sixteen banks are privately owned where as two of them are government. The target population of this research are IT professionals in those eighteen banks. The geographical coverage of this research was on those banks headquarter that are located in Addis Ababa. The reason for selecting this study setting is the target respondent i.e. senior

executive officers or CIO, Directors, Division Managers, section heads and IT officer are located in headquarters of the bank except commercial bank of Ethiopia some of them dispersed in district offices.

	Bank Name	Year Established	Ownership
1	Abay Bank S.C	2010	Private
2	Addis International Bank S.C	2011	Private
3	Awash International Bank	1994	Private
4	Bank of Abyssinia	1996	Private
5	Berhan International Bank	2009	Private
6	Bunna International Bank	2009	Private
7	Commercial Bank of Ethiopia	1963	Government
8	Cooperative Bank of Oromia	2004	Private
9	Dashen Bank	1995	Private
10	Debut Global Bank S.C	2012	Private
11	Development Bank of Ethiopia	1901	Government
12	Enat Bank S.C	2013	Private
13	Lion International Bank	2006	Private
14	Nib International Bank	1999	Private
15	Oromia International Bank	2008	Private
16	United Bank	1998	Private
17	Wegagen Bank	1997	Private
18	Zemen Bank	2008	Private

Table 4: List of Banks in Ethiopia (Sources: (National Bank of Ethiopia, 2017))

3.3.2. Sampling Procedure and Sampling Size

In order to estimate about the whole population we may take some part of the population as sample (Thompson, 2012). Sampling has advantage over complete population study because it has greater economy, shorter time-lag, and greater scope, higher quality of work and actual appraisal of reliability (Som, 1995). The sampling techniques used in this research is probability sampling and non-probability sampling.

3.3.2.1. Sampling Banks

The sampling selection starts first by selecting representative banks from the entire banks. Accordingly the banks population divided in two; Government and privately owned commercial banks. The banks are divided in to these major group because their culture, their internal operation

differ (Sethibe & etal., 2007). Between government commercial banks i.e. Development bank of Ethiopia and commercial bank of Ethiopia, CBE is selected since its mission, the product and services it provides resembles with the private commercial banks unlike development bank.

In selecting the banks from privately owned they are grouped based service year in the market for the purpose creating homogeneity, equal distribution and taking representative banks from each group for the reason that taking all banks is not economical for the researcher to conduct the study. Accordingly five stratum has been created based on service year through creating group that has relatively similar services year by applying statistical formula i.e. groups with minimum variance. The variance value for all five groups is similar which implies balanced distribution of the group.

The first group with average service year between zero to five are Enat, Dehub Global, and Addis International banks. Banks in the second group with average service year from six to ten are Abay, Berhan, Bunna, Oromia international, and Zemen bank. Third groups are Lion and Cooperative bank of Oromia having average services year from ten to fifteen. Wegagen, united and Nib bank are forth group with average service year between sixteen to twenty years. The last groups formed; Abyssinia, Dashen and awash bank having average service year of greater than twenty.

Banks that are grouped based on services year are homogenous in nature as presented in the previous section have minimum standard deviation of service year, less than or equal to one, between their groups. A representative sample bank is taken from each group by using simple random sampling. This sampling is used for population in homogenous in nature (Stern, 2004) and in addition as stated by (Bogale, 2016) bank industry are homogenous in nature as they are highly controlled and regulated by the central bank through the implementation of different directive regarding the banks operation, structure, business process etc. that is applicable to all banks in the country. Hence, a representative bank from each group such as Wegagen Bank, Commercial Bank of Ethiopia, Dehub Global Bank S.C, Berhan International Bank, Cooperative Bank of Oromia, and Dashen Bank has been selected.

3.3.2.2. Sampling Respondents (Sample size)

Sampling of respondent from representative banks, which has been selected in the process of sampling bank in the previous section, is undertaken using proportionate stratified sampling to minimize bias and improve the accuracy of the study result. In support of this Dudovskiy (2016) states stratified sampling reduces sampling error and ensures a greater level of representation.

For the purpose of this study sampling size is determined using (Cochran, 1977) formula for finite population size as this formula used to determine sample size for proportion of a population that are relevant for the study (Banks IT professionals). Hence, 95 % confidence level, 5% precision, and 50% proportion is used in determining the sample size. The population proportion taking maximum degree of variability since the researcher hardly measure the degree of variability of the target population. Due to time gap and it is better to take 50% the researcher not sure about the degree of variability of population proportion. Then the sample size is determine for infinite population and refined for finite population using correction formula that consider population size. The two step calculation of sample size determination is shown below.

Sample size determination used formula;

$$n_0 = \frac{z^2 pq}{e^2} \quad \text{Sample size with infinite population (1)}$$

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}} \quad \text{Sample size of finite population size under study for correction (2)}$$

Where,

n_0 , The sample size

n , Final sample size

z , The selected critical value of desired confidence level (95%, equals to z -score 1.96)

p , The estimated proportion of an attribute that is present in the population ($p=0.5$)

q , Is equals to $(p - 1)$

e , The desired level of precision ($e=0.05$)

N , Target population of the study

Using the above (Cochran, 1977) formula sample size is determined. The representative banks staffs considered for sampling, the proportionate stratified sample size is depicted in the below table.

	Representative Banks	Total Respondent	Proportion	Proportional Sample
1	Berhan International Bank	14	0.06	9
2	Commercial Bank of Ethiopia	92	0.40	58
2	Cooperative Bank of Oromia	20	0.09	13
4	Dashen Bank	53	0.23	33
5	Debub Global Bank S.C	8	0.03	5
6	Wegagen Bank	42	0.18	26
	Total	229	1.00	144

Table 5: Stratified proportionate sample size (Researcher Survey)

Accordingly, after the determination of sample size for quantitative data analysis from each representative banks, i.e. Wegagen Bank, Commercial Bank of Ethiopia, Debub Global Bank S.C, Berhan International Bank, Cooperative Bank of Oromia, and Dashen Bank, proportional stratified sample is selected from total number of respondent in each bank. While counting the population of the respondent the researcher take in to consideration the equivalent job position that differ only by name but having same duties and responsibilities. Regarding, this the researcher contacted banks staffs and find out that job post having duties and responsibility same but title name differs such as manager and team leader. For stratified proportion sample selection respondent other than vice president /CIO and directors are randomly selected.

For qualitative data analysis purposive sampling is used in selecting Vice president/CIO and directors. A total of 8 respondents are selected i.e. 2 vice president IT and 6 IT Directors. Among those selected six banks two of them doesn't have vice president/CIO from the rest of the banks purposively Wegagen bank and one form the other bank based on availability was considered. Regarding director, one director is selected from each bank with a total of six for interview questions. In selecting purposively those vice president and director's difficulty of accessing, willingness in providing information and assuming that those individuals are proficient and well informed of the study subject taken in to consideration (Etikan, Musa, & Alkassim, 2016).

3.4. Data Collection Methods and Instrument

3.4.1. Data collection methods

In deciding data collection method the researcher should identify first which type of data to be collected. For a given research the type of data to be collected might be primary, secondary data

or both (Cothari, 2004). For this particular study types of data collected was primary data. For primary data collection questionnaires and interview were used.

3.4.2. Data Collection Instrument

Data collection instrument are tools by which the research collects information in conducting the research that helps to answer the research questions. Accordingly questionnaires (self-administered) and interview is used as data collection instrument.

3.4.2.1. Questionnaires

In preparation of the questionnaires the researcher considers the conceptual research model that has been developed based on the reviewed literature. In the conceptual research model IT governance mechanisms that have relations to effectiveness of IT governance performance and challenges related to IT governance implementation are included.

In the process of questionnaires development the researcher grouped the construct for IT governance performance and implementation challenge. For each construct, list of questions has been extracted and prepared from those literature where constructs has been considered in the development of conceptual research model. The extracted questions for each construct is reconciled with the research objectives, those that match are selected and those do not dropped.

Hence, with regard to IT governance performance related questions adopted for, IT strategy committee and corporate communication mechanisms constructs are from (Ali S. , 2006), Involvement of senior management and Corporate performance measurement system constructs are from (Ferguson, Green, Vaswani, & Wu, 2013), for IT steering committee, Ethics/Culture of compliance, and IT intensity constructs are from (Ali & Green, 2005). In addition for construct such as IT value delivery questions are adopted from (Nfuka & Rusu, 2010), for IT resources management the questions are adopted from (Lunardi, Macada, & Becker, 2014) and (Nfuka & Rusu, 2010) and for IT strategic alignment, IT risk management and IT performance management all questions are adopted from (Lunardi, Macada, & Becker, 2014). Finally, for challenges in IT governance implementation construct all question are adopted from (Othman M. F., 2016).

Subsequently the measuring scale for each construct is selected and included in the questionnaires. For measuring the extent of IT governance performance or effectiveness a five point Likert scale

is used i.e. 1=Not At All, 2=Small Extent, 3=Moderate Extent, 4=Great Extent and 5=Very Great Extent. For measuring level of challenge in IT governance implementation a five point Likert scale used i.e. 1=Not a Challenge, 2=Somewhat a Challenge, 3=Moderate Challenge, 4=Very Challenge, and 5=Extreme Challenge.

In the case of questionnaires development it is not only enough to preparing the questions and put the measuring scale. But it is necessary to take in to consideration respondent, keeping the question clear and easy to understand (Brace, 2008) because it makes the respondent continue answering and help the researcher to get genuine response. Hence, as part of the questionnaire at the beginning of the section some definition has been provided for simplification and creating familiarity on some terminologies used in the body of the questionnaires for respondents.

In the starting section of the questionnaire even if there are many definition in different literature for IT governance the one provided by (Gerrard, 2010) i.e. “ITG is the process that ensures the effective and efficient use of IT in enabling an organization to achieve its goals ” is used. The other terminology presented is formal IT governance performance as Othman M. F. (2016) discussed it is a practice of IT governance through the use of standards or framework, that are formulated in house or acquired from third party, for effective IT governance. In addition for the purpose of clarity the definition for standard and frame work is provided as adopted from (Othman M. F., 2016).

3.4.2.2. Interview

The interview question preparation focus on the main construct in the conceptual research model. These questions in the interview are derived from the questionnaires. Like that of questionnaires it is divided in to three parts firs part present list of question related to IT governance performance. Second part interview question about challenges of IT governance implementation. Finally general interview questions are presented for respondents to express their view about the overall IT governance performance in banking sector of Ethiopia and what has to be done for effective IT governance.

3.5. Data Analysis Method

According to Cothari (2004) data analysis refers the computation of certain indices or measures along with searching for patterns of relationship that exist among the data groups. Data analysis in

case of survey data involves estimating the values of unknown parameters of the population and testing of hypotheses for drawing inferences.

Data collected from IT professionals, Senior IT professional and IT managers after edited and organized it is prepared for analysis. These data are analyzed using statistical tool i.e. SPSS Version 25. In summarizing and analyzing quantitative data descriptive statistics, open coding considered for qualitative data analysis, used such as frequency distribution, mean calculation and graphical representation was used.

The qualitative data which were collected from CIO and Directors through interview was coded and analyzed using open coding with two forms in narrative and driving main concept from respondent statement (Corbin, Strauss, & etal., 2008) .In this analysis the main idea from the respondent response regarding each, the underlining reason for low IT governance and Implementation challenges, constructs raised during interview responses are extracted, summarized, brought together, triangulated and presented.

3.6. Validity and Reliability Checking

The extent to which an instrument measures what it is supposed to measure is validity. As a process, validation involves collecting and analyzing data to assess the accuracy of an instrument whereas reliability measures does the instrument consistently measure what it is intended to measure (Heale & Twycross, 2015).

A pilot study was conducted on sample of eight individuals from Wegagen bank staffs, considering homogeneity of banks population and researchers ease of access, among two of them are directors, three managers and three senior's staffs. The questionnaire was distributed and after the respondent fill the questionnaire it was collected. Based on their feedback the necessary amendments has been done regarding terms used in the questionnaires and statements rearrangement. In addition to this their feedback indicates construct and questions are relevant for answering the research problem. Regarding interview question a discussion has been made in person with Wegagen bank Vice president and the necessary feedback has been taken and the needful amendment has been made.

To measure the internal consistency of the questionnaire, reliability test was conducted on sample for twenty respondent. Coefficient alpha (Cronbach's alpha) was used as a reliability checking. For the instrument to be considered reliable the Cronbach's alpha value should

greater than 0.7. As indicated below, output from statistical tool i.e. SPSS version 25, the reliability statistics obtained is 0.87 which is greater than the minimum threshold.

Reliability Statistics	
Cronbach's Alpha	N of Items
0.869	46

Table 6: Reliability Tests Based on Pilot Sample Respondent (This study, 2018)

3.7. Summary

This section of the research presented the methodology of the research. With this regard the design of the research are discussed. In conducting the study the researcher should clearly present the approach that has been followed in the due course of the research. In this research the approach followed was quantitative and qualitative approaches. Qualitative for collecting and analyzing data collected from higher executives i.e. CIO and Directors of the selected banks in sample selection. Quantitative used for analyzing data collected from officers and senior IT staff of the bank.

In order to address the research problem the researcher required to identify which variables to take in to account in doing the research. With this regard the researcher developed a conceptual research model with constructs that are extracted from different literature, after reading, analyzing rigorously and doing reconciliation between them for consistency.

Subsequently, studying the whole population might not be economical if the population size large i.e. the same is true for this research. Hence, the researcher determined the sample size based on number of the target population. In summary, this section present about data collection method, instrument development, validity and reliability checking of those instrument.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSIONS

4.1. Overview

As analysis is searching of patterns of relationships that exists among the data group (Cothari, 2004), in this chapter data collected from sources are presented, analyzed and discussed in answering the study research question by describing and identifying relationships in data and reconciling with existing literature.

In the first section demographic data related to the respondents are presented and discussed. In the second part of this chapter both qualitative and quantitative data collected on constructs in determining underlining reason for low IT governance performance are discussed, analyzed and presented with their findings. The third part of this section discuss, analyze and present findings on data collected on constructs that enable the study in answering research question of IT governance implementation related challenges. The last part of this section discusses and present about development of strategy for IT Governance implementation.

4.2. Quantitative Data Presentation, Analysis and Discussion

In this study a total of one hundred forty four self-administered questionnaires were distributed to six commercial banks, IT professional, that includes private and government. Among the distributed questionnaire thirteen was not returned. This indicates response rate of 90 % achieved. This is achieved because the researcher change strategy on the occurrence of unexpected response provided by some respondents. During data collection it is observed that respondent are circling Likert scale in the instruction section of the questionnaires. When this observed the researcher changed the plan to check the questionnaires immediately upon return and when there is problem i.e. page empty and Likert scale selected in the instruction part, questionnaires was re-distributed again to another randomly selected respondent. Even this strategy is employed there are some missing data in the collected data.

4.2.1. Demographic Data of the Respondent

In this study demographic data are collected about respondent. In these data element that might have relationship with underlining reason for low IT governance and challenges in its implementation are considered. The demographic data includes gender, age, education, position, department, experience and Training taken or not on IT Governance. In this sub section of the chapter those characteristics of the respondent are described and discussed.

4.2.1.1. Gender Distribution of the Respondents

The data related to the gender is presented in figure 9. As depicted in the figure below among the total number of 131 respondent one hundred and five that constitute 80.15 % are male and the rest twenty six of them having 19.85 % are female. This study target groups are IT professionals in banking sector whose current position are higher or equal to officer level. The data in this study indicates that the participation of females in IT cluster in banking sector is much lower than that of male, as indicated by (Barnes, 2006) although the demand for IT jobs continues to grow the percentage of women in IT-related fields continues to decline.

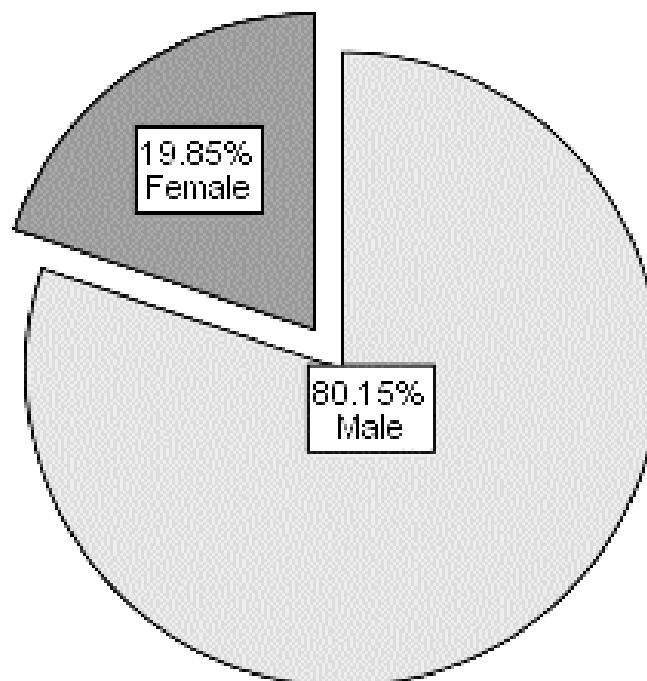


Figure 9: Distribution of respondent by Gender (This Study, 2018)

4.2.1.2. Age Distribution of the Respondents

The respondent data in relation to age is depicted in the figure 10 below. As in the figure below the respondent age are grouped in two four age category. Among the total respondent 50.4% are in age range of thirty one and forty , 35.1 % of the respondent are in twenty six and thirty age interval, and the reset 9.2 % and 5.3 % of the respondent are in age interval of between forty one and fifty and eighteen to twenty five respectively. The study tell us the distribution of peoples regarding to age in IT cluster in banking sector lead by middle aged people and very young and elder peoples take less share.

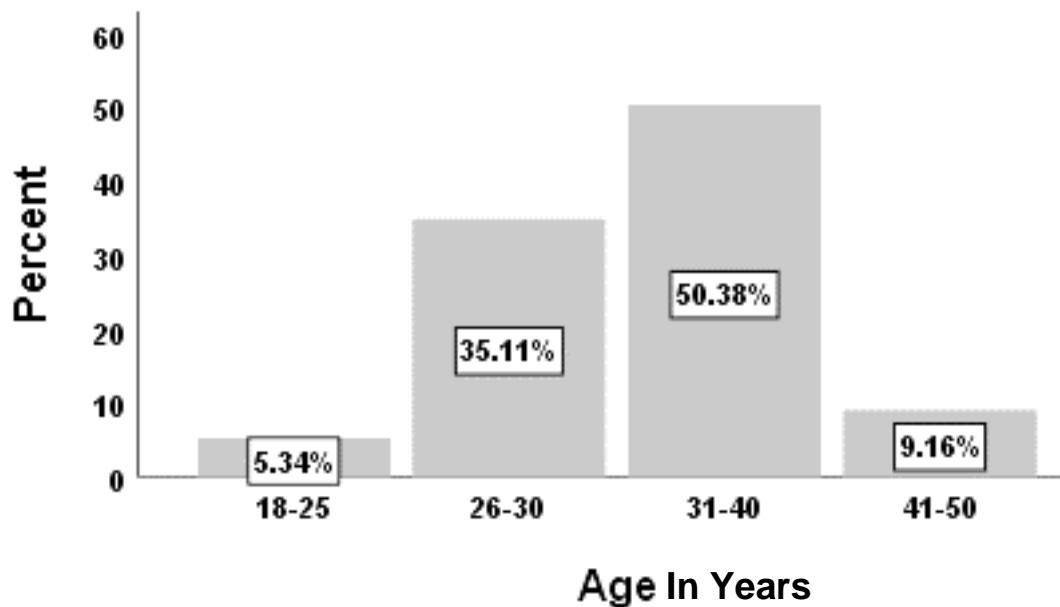


Figure 10: Distribution of respondent by Age (This Study, 2018)

4.2.1.3. Level of Education Distribution of the Respondent

The data in relation to the respondent's higher level of education achievement is presented in the figure 11, below. As it can be seen from the figure the total respondent, IT professional in banking sector, 75 % of them have higher level of educational achievement of bachelor degree and the remaining respondent are with master's degree.

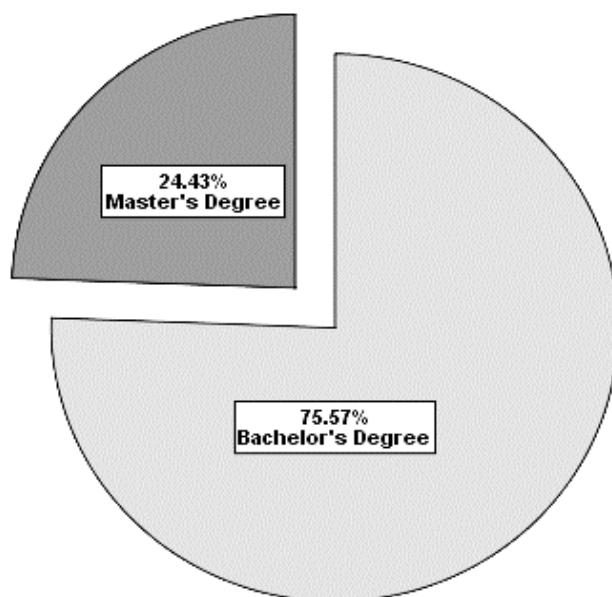


Figure 11: Distribution of the Respondent by Level of Education (This study, 2018)

In the questionnaire instrument of this study regarding education level, college diploma was include as a choice but according to the survey it is found out that no respondent with college diploma. This indicates that the target groups considered having position greater or equal to officer level, all of them have bachelor or master degree. Banks to make employment for the position greater or equal to officer level require bachelor or above degree. In support of this survey result, the practice of bank that the researcher work has been taken as a reference and it is found out that for job position of officer and above level it is mandatory to have bachelor degree or above (Wegagen Bank SC, 2015).

4.2.1.4. Job Position Distribution of the Respondents

As the study target respondent are IT professionals with a position higher or equal to officer level the data for this characteristics of the respondent are collected and presented. As depicted in the figure below among the total respondent 49.62% of the respondent are senior professional taking about fifty percent of the respondent. IT professional that is also equivalent to officer level takes 31.3 percent of the respondent. IT manager takes 12.21 % of the total responded. IT Team leader is position that is available in one of banks among the selected sample ones and as per discussion made with the bank's IT director the position is equivalent to manager. This position type of the respondent have 6.87% of the total respondents.

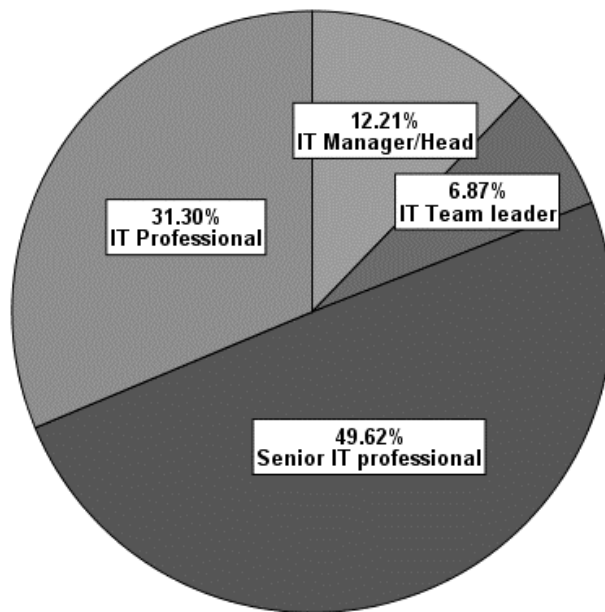


Figure 12: Distribution of the Respondent by Job Position (This study, 2018)

4.2.1.5. Respondent Distribution by Their Department

Respondent asked the department, division or section that they are currently working in. Regarding to this question a summary of response is shown in figure 13. In the questionnaire respondent also asked to fill their department in blank space, if there is any department which is different from the provided alternative, around fifteen respondent replied E-banking Support. These respondent were included in the application support category as the major activities of current IT services in banking sector is supporting and facilitating business operation.

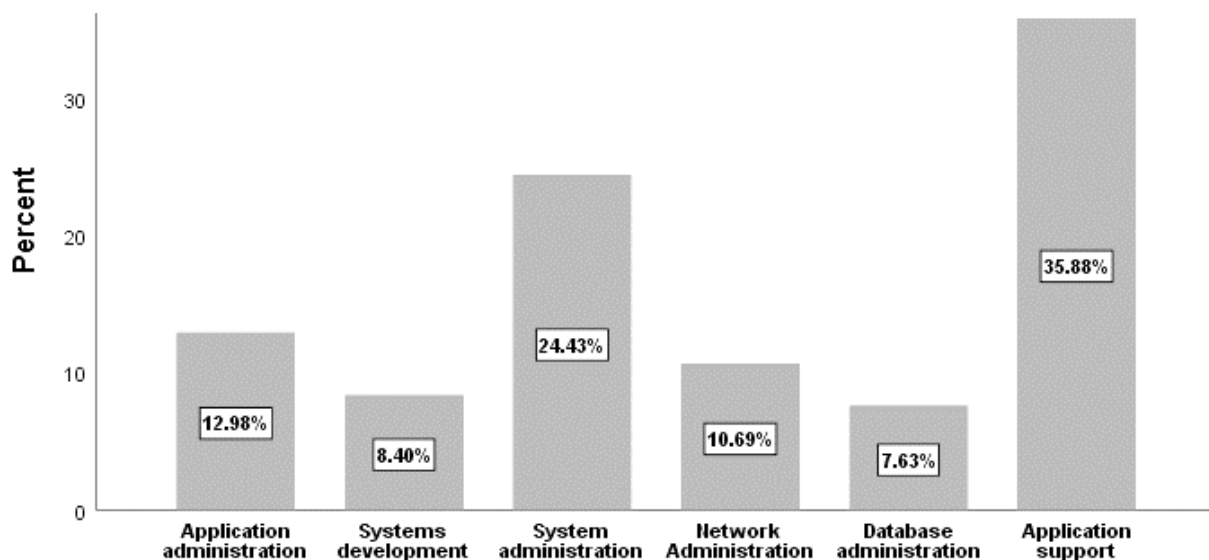


Figure 13: Distribution of the Respondent by Their Department (This study, 2018)

Accordingly among the total number of respondent 35.88 % of them works on application support. Next to application support 24.43% of the respondent are currently working in system administration. The remaining 12.98 %, 10.69 %, 8.40 %, and 7.63 % works in Application administration, Network administration, System development and database administration department respectively. From this study it can be seen that majority of IT professional in banking sector of Ethiopia engaged in application support activities.

4.2.1.6. Work Experience Distribution of the Respondents

The target respondent also asked about their work experience in the current position that they currently are. As depicted in figure 14, from the total 131 respondents 38.17 % of them replied they have an experience of between three to five years. The other respondent comprising of 29.01 % stated that their experience ranges from six to ten years. The remaining 23.66 % and 9.16 % of the respondent has a work experience of zero to two and greater than ten years of experience respectively. As can be seen from this survey majority of IT professional in banking sector has work experience of between zero to five years.

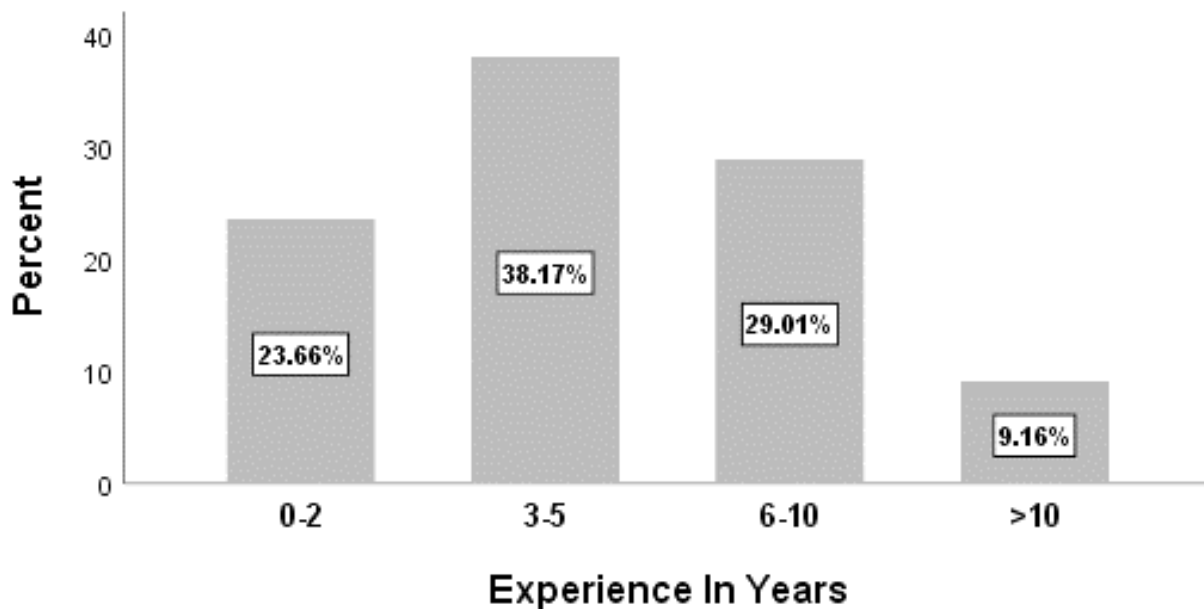


Figure 14: Distribution of Respondents by Their Experience (This study, 2018)

4.2.1.7. Distribution of the Respondent by ITG Training Taken

The last element of biographic data relates to, whether the respondent take IT governance related training or not. As depicted in the figure 15, from the total respondent three fourth of them i.e.

around 74 % ,having a frequency of ninty seven count, of the respondent did not take any IT governance related training. There remaining 26 % percent of the respondent taken IT governance related training. From this survery it can be seen tha majority of the IT professionals in banking sector of ethiopia did not take training of IT Governance. This attribute migh has relation ship with underlining reason for low IT goverance performance and it implimentation challeges since training has effect on employee and company performnce (Inaga & Imran, 2013).

IT Governance Related Training Taken ?

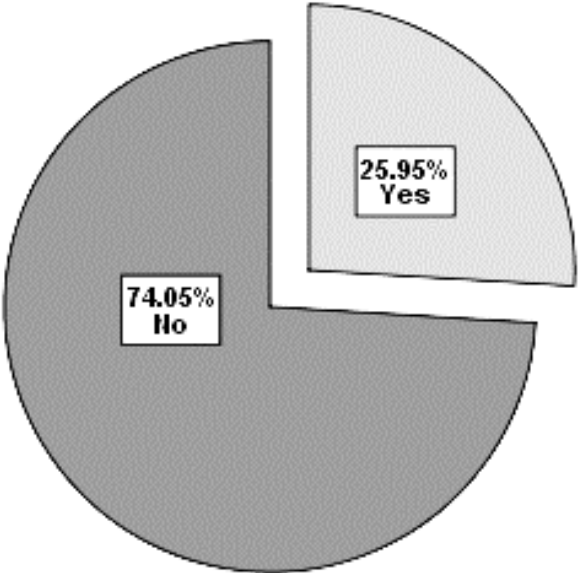


Figure 15: Distribution of Respondents based on IT Governance Training (This study, 2018)

4.2.2. IT Governance Related Data

In this section of the research report data collected regarding IT governance related issues are presented. As disclosed in chapter one of this report the objectives of the research are to identify the underlining reasons for low IT governance performance and its implementation challenges. In order to answer this research questions a research model with two major constructs i.e. IT governance related and its implementation challenge has been designed and presented in chapter three of this research at figure 8. The below section discuss and analyze the data collected on those two main constructs based on questionnaire collected and interview conducted.

4.2.2.1. IT Governance Related Constructs

As indicated in the conceptual research model the construct used in identifying the underlining reason for low IT governance performance are IT Strategy Committee, Involvement of Senior Management IT Steering Committee, Corporate Performance Measurement System, Corporate Communication Mechanisms, Ethics/Culture Of Compliance, IT Intensity, and Domains/focus area of IT governance.

The analysis of data collected through questionnaire in relation to IT governance construct are presented as follows:

4.2.2.1.1. IT Strategy Committee

As Boritz & Lim (2007) stated IT Strategy Committee is an essential element of an effective IT governance model. The collected data from respondent concerning the extent to which IT Strategy committee is performing tasks related to IT governance in their bank is shown in Table 7. As it can be seen from the table for the extent to which IT strategy committee provides direction in aligning IT and business issues only 24 % of the respondent stated as great extent. About 47 % for the respondent stated IT Strategy committee is not providing strategic direction or to small extent. The mean value regarding direction provision in aligning IT and business by IT strategy committee is 2.77 which below average value falling in small extent or less level.

For the question presented regarding direction provision by IT strategy committee in use of IT resources, skills and infrastructure 50% of the respondent replied small extent or not at all. As indicated in the survey the mean value indicates 2.77. Hence, IT strategy committee is providing direction with small extent or below affecting the operation of firms and its IT governance. In contrast to this as better performance by IT strategy committee has better impact (Boritz & Lim, 2007). Hence this aspect of the committee need improvement.

For a question, the extent to which the committee provide direction to management regarding IT strategy, 51% responded below small extent. As indicates in the survey result IT strategy committee in banking is not providing direction to management in relation to IT strategy. In line with this as Tesfaye (2016) stated on his research report on the bank that he has conducted research it is found that the absence of IT strategy.

IT Strategy Committee	Not At All	Small Extent	Moderate Extent	Great Extent	Very Great Extent	Mean
To what extent does IT strategy committee provide strategic direction towards the alignment of IT and the business issue?	5.3%	42.0%	28.2%	19.1%	5.3%	2.77
To what extent does IT strategy committee provide direction for use of IT resources, skills and infrastructure to meet the strategic objectives?	6.9%	43.1%	23.8%	18.5%	7.7%	2.77
To what extent does IT strategy committee provides direction to management regarding IT strategy?	5.4%	45.7%	27.9%	14.7%	6.2%	2.71

Table 7: IT Strategy Committee (Percentage Distribution and Mean)

As depicted the above table the aggregate mean for IT strategy committee construct shows 2.75 which is below moderate this shows that this IT governance related construct needs improvement.

4.2.2.1.2. Involvement of Senior Management

In measuring involvement of senior management questions has been presented to respondent. Those questions are senior management knowledge of IT opportunities and Innovation, and approval of Major IT investment. Concerning this the respondent response is summarize in table 8. As shown blow regarding IT opportunities 47% of the respondent replied senior management has small extent or no knowledge of IT opportunities that benefit the organization and only 26 % replied to great extent with the mean value of 2.8 which is below moderate extent.

The extent to which senior management has knowledge about IT Innovation is the other question raised for respondent, among the total 54 % of the respondent replied below small extent. According to this survey it indicates that most of senior management not up-to-date with new IT innovation developed by competitors.

Concerning the extent to which major IT investment approval by senior management that can't be approved by traditional justification, 44 % the respondent replied small extent and below. This indicates that in Major IT investment in short of approval.

Involvement Of Senior Management	Not At All	Small Extent	Moderate Extent	Great Extent	Very Great Extent	Mean
To what extent is senior management knowledgeable about IT opportunities for the organization?	2.3%	45.8%	26.0%	18.3%	7.6%	2.83
To what extent is senior management knowledgeable about IT innovations that have been developed by major competitors?	2.3%	51.5%	26.2%	18.5%	1.5%	2.65
To what extent does senior management often approve major IT investments that have not been approved by traditional justification criteria and procedures (such as the IT steering committee)?	3.9%	41.1%	31.8%	20.2%	3.1%	2.78

Table 8: Involvement of Senior Management (Percentage Distribution and Mean)

As show in the above table the list scoring attribute of senior management is to be up to date with the current technology. As it can be seen from the above the aggregate mean of the construct is in is below moderate extent as Faria, Maçada, & Kumar (2013) indicated senior management involvement contribute much for effective IT governance hence this constructs needs improvement in attaining effective IT governance.

4.2.2.1.3. IT Steering Committee

In related to IT steering committee constructs respondent were asked the extent to which the committee provide strategic direction for the banks IT project are in line with strategic direction, 42% of the respondent replied to small extent and below and 33% responded to great extent the remaining stated as moderate extent. Accordingly the majority of the respondent replied as small or below small extent.

The respondent also asked the extent to which IT steering committee provide mechanism for coordinating IT practices. Among the total 50.4% of the respondent replied below small extent, 30.2% as moderate extent and the remaining 19.4 % as great extent. In addition the extent to which the committee provide leadership in getting benefit from IT were asked, among the total respondent 49 % stated small and blow small extent and only 24.8 % stated as great extent which is only one fourth of the respondent. The last question, in this construct that were asked was to the extent which the committee provide leader ship in managing IT. Hence, 42.7% stated as small

extent or not at all, 35.7 % moderate extent and only 21.7 % of the respondent replied as great extent.

IT Steering Committee	Not At All	Small Extent	Moderate Extent	Great Extent	Very Great Extent	Mean
To what extent does the IT steering committee provide strategic direction to IT projects that are in line with the strategic directions of the organization?	3.1%	39.1%	23.4%	28.9%	5.5%	2.95
To what extent does the IT steering committee provide a mechanism for coordinating IT practices?	3.9%	46.5%	30.2%	16.3%	3.1%	2.68
To what extent does the IT steering committee provide leadership in deriving benefits from IT?	4.7%	44.2%	26.4%	19.4%	5.4%	2.77
To what extent does the IT steering committee provide leadership in managing IT?	3.9%	38.8%	35.7%	16.3%	5.4%	2.81

Table 9: IT steering Committee (Percentage Distribution and Mean)

As discussed above all the question raised in measuring IT steering committee to wards effective IT governance scored below moderate extent. The aggregate mean of this construct also shows 2.8 which is below the average. As IT Steering Committee is an administrative body that reviews, monitors and prioritizes major IT projects from a cross-functional perspective it is necessary to improve it contribution for effective IT governance (Ali & Green, 2005). Hence, this construct is considered for improvement.

4.2.2.1.4. IT Corporate Performance Measurement System (CPMS)

In relation to CPMS the respondent were asked three question. For the first question, the extent of CPMS in measuring IT strategy supports business strategy, among the total 45.8 % of the respondent replied it measures in small extent or not at all, only 23.7 % of the respondent replied it measure great extent and the remaining replied as moderated extent.

The respondent also asked to what extent CPMS provides a measure in controlling IT expenses. With this regard 57.7 % which is majority of the respondent replied CPMS is providing measure in controlling IT expense with small or below small extent. Only 19.3% of the respondent replied with great extent and the rest amounting 23.1% as moderate extent.

The ending question regarding CPMS is to the extent which it provides control measure on the efficiency of IT development and operation, from the total respondent 56.6% of the respondent replied below small extent and only 13.2 % of the respondent replied as great extent. As it can be seen from the survey result this aspect of CPMS is with the lowest score with the mean value of 2.54.

Corporate Performance Measurement System	Not At All	Small Extent	Moderate Extent	Great Extent	Very Great Extent	Mean
To what extent does your organization's corporate performance measurement system measure the degree to which the organization's IT strategy supports the business strategy?	3.1%	42.7%	30.5%	20.6%	3.1%	2.78
To what extent does your organization's corporate performance measurement system provide management with control measures on IT expenses?	2.3%	55.4%	23.1%	18.5%	0.8%	2.60
To what extent does your organization's corporate performance measurement system provide management with control measures on the efficiency of IT development and operations?	3.9%	52.7%	30.2%	11.6%	1.6%	2.54

Table 10: CPMS (Percentage Distribution and Mean)

As indicated in the above survey result CPMS scores below average value with aggregate mean value of 2.64. This indicate that CPMS of the banking sector need improvement in order to gain effective IT governance.

4.2.2.1.5. Corporate Communication Mechanisms (CCM)

Corporate communication mechanism is one of the construct used in measuring and in identifying underlining reason for low IT governance maturity. CCM is measured based on the extent to which it enables effective communication on the existence of IT governance mechanism and the system enables in informing employee about IT decision and activities throughout the organization. As depicted in Table 11 the survey result indicates that 64.9 % of the respondent states CCM is enabling effective communication on the existence of IT governance with small extent and less than 20% of the respondent stated with great extent. The other question raised in relation to CCM is the extent of communication regarding IT decision and activities in the organization. In relation

to this 62.6 % of the respondent replies they are informed about IT decision and activities with small or below extent and only 15.4 % of the respondent replied with great extent.

Corporate Communication Mechanisms	Not At All	Small Extent	Moderate Extent	Great Extent	Very Great Extent	Mean
To what extent your organization communication system enables to inform employees effectively about the existence of IT governance mechanisms?	8.4%	56.5%	17.6%	13.0%	4.6%	2.49
To what extent your organization communication system enables to inform employees about IT decisions and process throughout the organization?	8.4%	54.2%	22.1%	12.2%	3.1%	2.47

Table 11: CCM (Percentage Distribution and Mean)

From the above survey result it is found out that for first and second question raised regarding CCM the response show mean value of 2.49 and 2.47. The aggregate mean of this construct is 2.48 which is below moderate extent. This indicates that banking sector has ineffective CCM. Even if scholars stated (Ali & Green, 2005) good communication systems will enable the two parties (business and IT) to increase each other’s awareness that contribute for effective it governance, the extent of CCM exercised is below average. Hence, in order to achieve effective IT governance CCM needs to be considered for improvement.

4.2.2.1.6. Ethics/Culture of Compliance

Culture of compliance is one the construct in measuring effectiveness of it governance as discussed in methodology part of this research report. Regarding this construct respondent were asked the extent to which culture of compliance enables to achieve objective in IT. Majority of the respondent amounting 49.6 % stated that their banks culture of compliance enables the organization in achieving IT objective with small or below small extent. In the same construct respondent also asked the extent to which culture of compliance enables to avoid any violation that hinder organization to achieve its IT objective 47.3 % stated small extent or below and only 28.2 % great extent. The final question asked regarding this construct were the extent to which top management provide leadership in culture of compliance in achieving IT objectives, 56.9 % of the respondent responded with small extent or below among the three question raised this question

score with minimum having mean value of 2.68. From this it can be suggested that lot to be done in culture of compliance so as to achieve IT objectives.

Ethics/Culture Of Compliance	Not At All	Small Extent	Moderate Extent	Great Extent	Very Great Extent	Mean
To what extent does your organization's ethics/culture of compliance enables to achieve objectives in IT?	2.3%	47.3%	23.7%	20.6%	6.1%	2.81
To what extent does your organization's ethics/culture of compliance enables to avoid any violation that could hinder organization to achieve its IT objectives?	2.3%	45.0%	24.4%	22.1%	6.1%	2.85
To what extent does top management provides leadership in ethics/culture of compliance related with IT objectives?	5.4%	51.5%	18.5%	19.2%	5.4%	2.68

Table 12: Culture of Compliance (Percentage Distribution and Mean)

As discussed above the culture of compliance in achieving IT objective is below average having aggregate mean of 2.78. Literature indicates culture of compliance has impact on effective IT governance. According to Ali, Green, & Parent (2009) culture of compliance in IT influences the overall effectiveness of IT governance however the exercise in this study finding shows as small extent which requires consideration for improvement.

4.2.2.1.7. IT Intensity

Three question were forwarded to respondent in measuring IT intensity. The first question is the extent to which there is adequate IT infrastructure in your organization. In relation to this question 54.2 % of the respondent replied great extent and above. The second question were to what extent the volume of IT staff contributes for your banks IT effectiveness, for this questions 52 % of the respondent replied great extent. Finally the extent to which It annual budget is adequately enough for IT operation with this regard 40.8 % of the respondent replied great extent and only 18.5 of the respondent replied small extent and below

IT Intensity	Not At All	Small Extent	Moderate Extent	Great Extent	Very Great Extent	Mean
To what extent there are adequate IT infrastructure in your organization	3.8%	6.9%	35.1%	42.0%	12.2%	3.52
To what extent volume of IT employee in your organization contribute to IT effectiveness?	3.1%	12.2%	32.8%	40.5%	11.5%	3.45
To what extent the IT annual budget adequately enough for IT operation?	6.2%	12.3%	40.8%	33.1%	7.7%	3.24

Table 13: IT Intensity (Percentage Distribution and Mean)

As indicated in table 13, IT intensity construct scores with aggregate mean value of 3.4 which is above average that is great extent. This indicates that banks made the adequate investment on information technology in achieving IT objectives (Berger, 2003). In addition Tesfaye (2016) stated that bank's investment on IT, management support to improve IT and the existence of IT policy and governance is relatively high.

4.2.2.1.8. Domains of IT governance

The ending constructs used as depicted in the conceptual research model in Identifying underlining reason for low IT governance in banking sector of Ethiopia are domain of IT governance. The domains of IT governance include IT strategic Alignment, Value Delivery, Risk management, Resources management and performance management. As depicted in table 14 for each sub construct of IT governance domains separate question were asked.

With regard to IT strategic alignment in context of banking sector two question were raised. For the question presented extent to which IT project are aligned with the company business strategy 58.8 % which is majority of the respondent replied great extent. Among the total respondent 55.7 % replied with great extent to the question forwarded to what extent IT solution are aligned with company business. This suggests that as bank services are real time and no tolerance for service interruption, the projects and IT solution alignment are compulsory since banks business strategy highly depends on customer's satisfaction. Hence this indicates that banks invest on IT projects and solutions that align with business strategy.

In relation to IT value delivery the extent to which cost effective use of IT resources and IT contribution regarding return on investment raised. Accordingly for cost effective use IT the score

as depicted in the table below with the mean value of 3.31 which is in great extent range. The contribution of IT in return on investment is with mean value of 3.52 indicating in great extent.

IT Risk management is the other part of ITG domain construct. In relation to this three question were presented to the respondent. The first, second and third questions in summary are about confidentiality and integrity of information. As the banks holds very sensitive financial data of its customer, majority i.e. more than 50 % of the respondent replied confidentiality and integrity of information kept with great extent.

IT Strategic Alignment	Not At All	Small Extent	Moderate Extent	Great Extent	Very Great Extent	Mean
To what extent IT projects are aligned with the company's business strategies?	0.8%	9.9%	30.5%	43.5%	15.3%	3.63
To what extent Implemented IT solutions are aligned with the company's business?	2.3%	6.9%	35.1%	42.0%	13.7%	3.58
IT Value Delivery						
To what extent there is cost-effective acquisition and use of IT across the organization?	2.3%	10.9%	46.5%	34.1%	6.2%	3.31
To what extent IT contributed regarding Return on Investment?	3.1%	9.2%	31.5%	44.6%	11.5%	3.52
IT Risk Management						
To what extent Confidential information is prevented from being accessed by unauthorized persons?	0.8%	17.7%	30.8%	33.8%	16.9%	3.48
To what extent IT infrastructure and business information are well protected and safe?	1.5%	14.5%	33.6%	36.6%	13.7%	3.47
To what extent IT infrastructure ensures and maintains the integrity of information?	0.8%	13.0%	32.8%	40.5%	13.0%	3.52
IT Resource Management						
To what extent IT services and infrastructure can resist and recover from failures due to error, deliberate attack or disaster?	2.3%	37.7%	23.8%	30.0%	6.2%	3.00
To what extent IT resources (hardware, software, and personnel) are adequate to support business applications?	1.5%	36.6%	25.2%	28.2%	8.4%	3.05
The extent to which competitive IT professionals attracted, developed and retained?	6.9%	45.4%	29.2%	13.8%	4.6%	2.64
IT Performance Management						
To what extent IT projects are delivered on time and on budget?	3.1%	49.2%	23.1%	20.0%	4.6%	2.74
To what extent IT services and solutions are delivered without failures?	1.6%	41.9%	31.0%	20.9%	4.7%	2.85

Table 14: Domains of IT governance (Percentage Distribution and Mean)

In contrast to IT strategic alignment, value delivery and risk management, IT resources management and IT performance management are sub construct that score small and below small extent. As depicted in the table above the extent to which IT infrastructure recover from failure has small extent with 39.9 % respondent response which is more than responded as great extent. Also the extent to which IT resources are adequate to support business operation scores average score but the extent to which IT staffs are attracted and retained get the lowest score with mean value of 2.64 which small or below small extent. This suggests that IT staffs in banks are not attracted and retained well. Hence this requires improvement.

The last construct in IT governance domain is IT performance management. In relation to this the first question raised is the extent to which IT project are delivered on time and budget among the total respondent majority i.e. 52.3 % respondent replied with small and below small extent. Second question were the extent to which IT services and solution offered without failure majority i.e. 43.5 % respondent replied with small or below small extent. This situation is what we are daily facing in accessing the bank's branch for instance when we want to withdraw money in front office we may be informed system is not working or in case of ATM we may be informed this ATM is out of services.

4.2.2.1.9. Summary

As it can be seen in the conceptual research model IT governance related constructs that pertinent to IT Governance effectiveness, designed to answer the first research question. These constructs are supported by scholars in the area of IT governance. These construct one way or the other they are in the scope of mechanisms of IT governance structure, process and relational mechanisms; or in the domains of IT governance.

To summarize, in answering first research question i.e. underlining reasons for low IT governance in banking sector, the constructs in subsequent statement with low score requires improvement. Among construct Corporate Performance Measurement System and Corporate Communication Mechanisms registered with least mean value that need due attention. In addition IT Strategy Committee, Involvement Of Senior Management, IT Steering Committee and Culture Of Compliance also requires improvement in order to attain effective IT governance with regard to IT Intensity the mean value indicates in a great extent interval.

In addition construct such as IT Strategic Alignment, IT Value Delivery, IT Risk Management, scores a mean value above the average in contributing for effective IT governance. In contrast to this IT Resource Management and IT Performance Management scored below average that need improvement and reconsideration.

4.2.2.2. IT Governance Implementation Related Challenge

It is indicated in the conceptual research model that the construct used in identifying the challenges in implementation of IT governance are Environmental context such as Top Management Support, Innovation context including Compatibility, Complexity, Cost and environmental context such as External Pressure and Consultant in Efficiencies

The analysis of data related to these construct collected through questionnaire presented as follows:

4.2.2.2.1. Top Management Support

Regarding the challenges in implementation and practice of IT governance respondent presented with question that is related to top management support. The first question raised was to what extent lack of top management resources allocation challenged IT governance implementation. Regarding to this among the total respondent 48.9 % of the respondent replied as it is very or extreme challenge and only 19.4 % of the respondent replied it is somewhat or not challenge. Next question were the extent to which top management lack of vision sharing challenged IT governance implementation. In Relation to this 54 % of the respondent replied is it very or extreme challenge and only 24.8% of the respondent replied somewhat or not a challenge. The last question in this construct where the extent to which lack of top management in formulating strategy challenged implementation IT governance. From the total respondent 46.5 % of the respondent replied very or extreme challenge, 26.4 % of the respondent stated moderate challenge and 27.2 % of the respondent replied as somewhat or not a challenge.

Top Management Support	Not a challenge	Somewhat a challenge	Moderate challenge	Very challenge	Extreme challenge	Mean
Lack of top management resource allocation for formal IT Governance	7.0%	12.4%	31.8%	41.9%	7.0%	3.29
Lack of top management vision sharing and articulation of formal IT Governance	8.5%	16.3%	20.9%	47.3%	7.0%	3.28
Lack of top management involvement in formulating a strategy for formal IT Governance	7.8%	19.4%	26.4%	41.1%	5.4%	3.17

Table 15: Top Management Support (Percentage Distribution and Mean)

As discussed and presented in the above paragraph the lack of top management resource allocation, vision sharing and formulating of a strategy for formal IT governance performance has been identified as very and extremely challenge with aggregate mean value of 3.25. In line with this (Othman, Iskandar, & Chan, 2013) mentioned lack of top management support is one of the barriers of in implementation of formal IT governance practice. In addition Deloitte (2015) stated that the more active role senior business leader’s play in IT governance, the more it is applied and practiced resulting in overall Improved IT effectiveness. Therefore this construct of implementation challenge should be considered for improvement.

4.2.2.2.2. Compatibility

Compatibility of formal IT governance practice with the existing business operation considered as one of the construct in determining challenges in IT governance implementation. In relation to this two question was forwarded to respondent. One is the level of challenge regarding to alignment of formal IT governance to the prevailing organizational practice. For this majority i.e. 41.4 % of the respondent replied somewhat or not a challenge in contrast to this only 20.9 % of the respondent replied it is a challenge. The other question were the level of challenge regarding incompatibility of formal IT governance practice with the existing information system. For this question 36.5 % of the respondent stated it is somewhat a challenge or not a challenge, and 27.1% of the respondent replied as a challenge but much lower than reported as not a challenge. As can be seen from the discussion compatibility scores aggregate mean of 2.78 which is below somewhat a challenge side.

Compatibility	Not a challenge	Somewhat a challenge	Moderate challenge	Very challenge	Extreme challenge	Mean
Formal IT Governance practice not align with our organization practice	9.4%	32.0%	36.7%	20.3%	1.6%	2.73
Incompatibility of formal IT Governance practice with our current information system	10.1%	26.4%	36.4%	24.8%	2.3%	2.83

Table 16: Compatibility (Percentage Distribution and Mean)

4.2.2.2.3. Complexity

In complexity construct respondent were asked the difficulty of understanding formal IT governance practice. Among the total respondent 53.1 % of the respondent replied very challenge or extreme challenge, 20 % of the respondent stated moderate challenge and 26.9 % of the respondent replied somewhat a challenge or not challenge. As it can be seen from the below table the mean value for difficulty to understand formal ITG is 3.25 which is very challenge category. The other question were related to difficulty to use of formal ITG practice. For this question 49.7 % of the respondent stated it is very challenging and only 25.6 % of the respondent replied it is somewhat a challenge or not a challenge.

Complexity	Not a challenge	Somewhat a challenge	Moderate challenge	Very challenge	Extreme challenge	Mean
Difficulty to understand formal IT Governance practice	6.9%	20.0%	20.0%	47.7%	5.4%	3.25
Difficulty to use formal IT Governance practice	4.7%	20.9%	24.8%	45.0%	4.7%	3.24

Table 17: Complexity (Percentage Distribution and Mean)

Regarding the complexity constructs of implementation challenge, the aggregate mean value of the construct is 3.24 that requires due attention during ITG implementation. This is in line with literatures as Nicho & Muamaar (2016) discussed In implementation of formal ITG frame work when the company decided to acquire most frame work included more than what the organization need resulting creating complexity challenge.

4.2.2.2.4. Cost

Cost is the other construct used in measuring challenges in implementation and practice of ITG. Regarding this construct respondent were asked the cost of setting up ITG practices is very high. In relation to this respondent replied the level of challenge accordingly, 57.2 % of the respondent stated is very challenge or extreme challenge, 20.6 % and 22.2% of the respondent replied it is moderate and, somewhat or not a challenge respectively. The other question was the cost of formal ITG training is very high, for this question among the total 56.5 % of the respondent replied very or extreme challenge and only 22.9 % of the respondent stated it is somewhat or not a challenge. This indicates that taking formal ITG training difficult due to the cost issue. In line with this there is indication that affirms this i.e. in biographic data presentation among the total respondent only 26 % of the respondent taken ITG training.

Cost	Not a challenge	Somewhat a challenge	Moderate challenge	Very challenge	Extreme challenge	Mean
The cost of setting up formal IT Governance practice is very high	3.1%	19.1%	20.6%	51.1%	6.1%	3.38
The cost of formal IT Governance practice training is very high	4.6%	18.3%	20.6%	49.6%	6.9%	3.36

Table 18: Cost (Percentage Distribution and Mean)

As discussed and presented above cost is a construct that scores 3.37 which is in a very challenge or extreme challenge category. In related to this there is indication that affirms i.e. in biographic data presentation among the total respondent only 26 % of the respondent taken ITG training due to the cost issue.

4.2.2.2.5. External Pressure

Regarding External pressure construct respondent were asked two questions. One of the question was the respondent asked to measure the level of challenge for lack of government directive to implement and use formal ITG. Accordingly 66.2 % stated is very or extreme challenge only 18.5 % of the respondent replied somewhat a challenge or not challenge. The other question asked was the level of challenge for no pressure from customers to apply formal ITG. Accordingly 66.2 % of the respondent replied very or extreme challenge and only 16.9 % of the respondent replied somewhat or not a challenge

External Pressure	Not a challenge	Somewhat a challenge	Moderate challenge	Very challenge	Extreme challenge	Mean
Lack of directive from government to use formal IT Governance practice	5.4%	13.1%	15.4%	57.7%	8.5%	3.51
Lack of pressure from our customers for formal IT Governance practice	6.9%	10.0%	16.9%	57.7%	8.5%	3.51

Table 19: External Pressure (Percentage Distribution and Mean)

As depicted in the table 19, the aggregate mean of the construct is 3.51 which is in very challenge category. This indicates that if there is a directive form government body in the study context from National Bank of Ethiopia to apply and practice formal ITG this challenge might be eliminated and the same is true for customer as well. In line with this Jordan Central bank published directive to implement ITG (Arab Bank, 2017) due to this most Jordanian banks implemented ITG framework (Khadra & etal., 2009).

4.2.2.2.6. Consultant in Efficiencies

In relation to consultant in efficiencies among the total respondent 35.7% the respondent stated consultant lack of prior experience is somewhat a challenge or not challenge and only 25.6 % of them stated very or extreme challenge. The other question raised to respondent were related lack consultant capability in providing relevant solution. With this regard 35.7% of the respondent replied as some what a challenge or not a challenge, 38% moderate challenge and 26.3 % of the respondent stated very or extreme challenge.

Consultant in Efficiencies	Not a challenge	Somewhat a challenge	Moderate challenge	Very challenge	Extreme challenge	Mean
Consultant lacks prior experience in providing quality service for formal IT Governance	9.3%	26.4%	38.8%	20.2%	5.4%	2.86
Consultant lacks the capability to provide relevant solutions for formal IT Governance	10.1%	25.6%	38.0%	20.9%	5.4%	2.86

Table 20: Consultant in Efficiencies (Percentage Distribution and Mean)

As can be seen from Table 20, the aggregate mean of the construct is 2.86 which is in not a challenge category. This indicates that consultant in the industry has experience in providing quality service and has a capability to provide relevant solution for formal IT governance practice.

4.2.2.2.7. Summary

Those construct discussed in the previous paragraph, designed to answer the second research question, which are supported by scholars in the area of IT governance. As it can be seen from the finding of this study among construct in measuring ITG implementation challenge compatibly and consultant inefficiencies measure with aggregate mean that fall in not a challenge interval. In contrast to this Top management support, complexity, cost and external pressure needs improvement or should be considered in the process of implementation of IT Governance.

4.3. Qualitative Data Presentation, Analysis and Discussions

4.3.1. Overview

For qualitative data the target respondent were from the selected banks IT Director and Vice president IT/CIO. As indicated in the research methodology purposively a sample director was taken from each bank and two Vice president IT from six selected banks. Form the two Vice president interview has been conducted with only one. Even if the researcher has taken many appointment but unable to conduct the interview due to CIO busy schedule and also during data collection period the respondent was out of the country. Regarding directors among six directors the interview was conducted with four directors. With two director interview was not conducted due to the fact that first director were intensively engaged in the banks IT project and the other one not willing to conduct. Accordingly the interview session has been conducted with one Vice president IT and four directors.

4.3.2. Qualitative Data Analysis

In this study qualitative data analysis is conducted to support, supplement and enrich the findings obtained from the survey regarding the construct related to IT governance performance and its implementation challenges. Accordingly, as indicated in the overview section above interviews have been conducted with one Vice president IT and four IT directors. Accordingly, the interview output has been analyzed by conducting open coding i.e. in narrative form and driving main concept from respondent statement, presented in the subsequent paragraph below.

Interviewees were presented to discuss the overall practice of IT governance in its own bank and banking in of Ethiopia. Regarding this question all respondent replies indicates that the practice of IT governance in banking sector is at infant stage. In relation to this one of the respondent stated “...as you can see Most the IT directors or vice president they have completed their education before fifteen or twenty years ago where almost no IT professional aware of IT governance...”

In addition to this the other respondent also stated “... most IT senior management are from technical back ground and they have been working focusing on making sure system are up and running. This results in to have narrower vision about IT services... ”. Regarding to this One CIO also made remark that “The practice is more of ad hoc, less conscious of cost and return on investment excluding CBE”. Form this interview response it is observed that IT governance in banking sector is at low stage (Mekonnen, 2016) this also support by previous study.

The question raised regarding whether they implemented ITG standards or framework at their bank, standard or framework that is established by their organization or acquired from third party. For this question excluding CBE all respondent replied they didn't acquired from third party. But one respondent stated they have included it in the IT strategic plan of next year. The other respondent also stated the have started training between employee by establishing study group then in the near future to emplace it. Regarding in house establish standards or best practice one respondent stated “ we have structural process change like project office to be directly reporting to VP and establishing IT service delivery desk also reporting to VP.. ”. This shows that even if the bank didn't emplace off the shelf ITG framework they are using best practices for effective use of IT.

The other question forwarded to the interviewees is what factors contribute for effectiveness of IT governance. One respondent stated that proper IT strategy and awareness of senior executive about IT governance is the contributing factors for effectiveness. The other respondent stated “...We should have IT executives that are stress free i.e. who don't worry about routine request from board about system up time instead focus on ITG. In addition to have exposure and measurement system that particularly gage IT activities not behavioral aspect of employee... ”.Two respondent stated that proper establishment IT steering committee will help for effectiveness of IT governance. The response of these respondent in line with the questionnaire result. For instance the extent to which corporate performance management system measures IT is below the average

in data analysis from questionnaire as stated above one respondent stated CPMS should measure IT performance instead of behavioral aspect of employee .

For respondent, the role of IT strategy committee is another question presented. Regarding to this three respondent replied IT strategy committee give direction for IT unit on focus area to consider in a given fiscal year however the committee is not actively syncing with IT units. One respondent also stated there is IT strategy committee in his banks but its major task is related with IT infrastructure purchasing process. The other respondent stated “...*We informally established IT Strategy committee and experience vital IT strategy meetings at VP IT and Executives Level as and when significant investment on IT is concerned. Such focused group discussions have roles to play in shaping the ITG of the bank be it providing direction and mobilization of resources...*” As it can be seen from the respondent response, even if for effectiveness of IT governance the contribution of IT strategy committee vital but the extent of its contribution is less. This also indicated in the analysis of quantitative data.

About the involvement of senior management with regard to opportunities, innovation and endorsing IT investment is another question presented for discussion to respondent. All replied that senior management are duly involved however their involvement is limited to endorsing IT investment and the endorsement for IT investment depends usually on the credibility and level of trust senior management has on the person who is presenting IT investment for approval. One respondent states that “...*I am new to this bank but in my previous experience I was presenting IT investment for endorsement on different occasions the first thing senior management asking is do you believe this will be successful... as I discussed with my relative also senior management usually depends on the confidence level they have on the person who present the proposal in order to endorse....*”

Interviewees also asked about the extent to which IT steering committee contribution towards managing and coordinating IT, and deriving benefit from IT. Among the five participant three of them stated IT steering committee found at executive management level not independently exist this affect the extent to which managing and coordinating IT. Two of them stated there is IT steering committee in the bank but it is active when there are grand or big project since then the committee is in active. This in line with the qualitative result that tells its extent of contribution in managing coordinating IT is small extent.

The interview respondent also asked about corporate performance measurement system in relation to effectiveness and efficiency of IT and its alignment with business. Among these two respondent replied the existing CPMS measure the behavioral aspect of IT staff. Among them one stated as” *...the measurement system that we emplaced is the traditional one that is measure integrity, honesty, dependability, reliability of IT staffs...* ”. The remaining three of responded replied they do have CPMS emplaced called IPMS integrated performance management system but the issue raised by the respondent is this was not used to the level expected since there is no software system that facilitate the measuring the score cards. Among them one respondent stated “*...the existence of these IPMS come to picture when there is quarter or semiannual employee appraisals...*” From the interviewees response CPMS in relation to measuring effectiveness and efficiency of IT is small extent and that needs to be considered for further improvement so as to achieve the desired IT governance. These interviewees response in line with the quantitative data analysis result of this construct.

In relation to corporate communication mechanisms the interviewees were asked to describe the communication regarding IT decision and IT governance. Among the respondent one respondent only stated that the corporate communication is doing well as information’s are flowing to staffs about any updates or changes through our portal system. The rest stated that there is corporate communication department but the task is more of marketing and public relation and in addition they do have portal but not frequently updated. From these respondent one presented as “*...we were having corporate communication in side marketing and it has been three month since this corporate communication department came out as independent unit but mean while we usually use email to exchange information for instance assigning task or issues...*”. This interview result shows that corporate communication is not performing well regarding facilitating information about IT governance, IT decision and process. Hence as it is in line with qualitative result the issues related to this construct should be addressed.

Regarding the IT alignment the respondent replied as follows. One respondent state that “*we didn’t initiate project or acquire system software or hardware for the sake of technology first we will the requirement form different unit and based on this we will initiate the project and facilitate acquiring of technology*”. The other despondent also states that IT alignments as “*...regarding the alignment I can say that IT is providing what the business want for instance to deploy and maintain core banking solution , to keep up and running card system and ATM etc...*” . In addition another respondent stated “*...however we have commendable practices of considering Major IT investment*

in line with its alignment to business, benefits realized and risk minimized. We do these on meetings casually assigned for a specific purpose calling on concerned domain director for the particular investment required.” As it can be seen from this interview result respondent express alignment of IT with business need in particular for the acquiring of hardware and software for the business to run.

Challenges in relation to IT governance implementation is also the other discussion point presented to interviewees. In relation to this respondent were asked top management support and IT governance. With this regard only one respondent answer top management is ready to take action on the proposal presented only expecting initiative from IT unit in implementation of IT related system enhancement. But the rest they do face challenges in implementation of IT governance in related to Top management. Among the four One of the respondent stated that *“...it is difficult to expect from support from top management in implementation of IT governance as we do have higher executives with mind set up of ever thing going well whenever core banking is working , ATM are up...”* And the other respondent stated *“The main challenge regarding Top management’s support on ITG implementation and practice is limitation in awareness of return on investment of IT”*. Most respondent replies indicates that, top management support, the extent of challenge in implementation of IT governance is significant and in line with questionnaires response result.

The respondent also asked about challenges with regard to compatibility, complexity, and cost in implementation of IT governance. All respondent replied that except compatibility all has a challenge in implementation. As explained by respondent compatibility is not an issue because if we design IT process and structure internally for facilitation of IT process it would be to the context of the bank or if acquired from third part it can be customized based on the banks requirement.

Interviewees also asked the level of challenge regarding no enforcement by national bank of Ethiopia to use IT governance frame work. With this regard all respondent states that it is a challenge. They stated that all banks are forced to comply to the directives published by central bank because if they do not there is subsequent action such as penalty charge that might extend to suspension of trade license. Among these one indicated as *“... NBE has not yet put in place an enforcing directive for banks to consider ITG. I do recall reserve bank of South Africa and central bank of Greece/turkey has put COBIT 5 as an ITG implementation framework a standard to*

comply. These is another approach to see ITG in place though is a push factor...” It is clearly presented that this a challenge in line with the qualitative data analysis result

For the question raised regarding consultant inefficiencies is a challenge in implementation of IT governance. All agreed is not such a challenge what might be the challenge is the availability of enough consultant in the area of IT governance. In relation this one respondent stated “... *as it might not be difficult for consultant to efficiently implement ITG for a given bank as their sole duty is to study the organization and recommend appropriate IT governance for application.*”

The practice of their bank regarding IT governance implementation strategy were asked to respondents. Excluding one bank all respondent stated that they do have initiative to consider implementation of IT governance but not have the experience of ITG implementation strategy development and use. The statement of one respondent is the following “... *there is no, to the best level of my knowledge, IT Governance implementation strategy developed and in use. However this does not nullify the practice of ITG we have been practicing as I have tried to explain in my previous response.*”

Another question raised to the respondent is what to consider in developing ITG implementation strategy and what would be the potential component. For this query the summarized response is as follows. Regarding what to consider they have stated business need, available resources, and awareness creation on return on investment of IT and IT governance. In relation to implementation strategy component they have replied it should have mission, vision, goals, specific objectives, SWOT analysis, and strategic initiative.

Finally respondent were asked what to do regarding for effectiveness of IT governance and the way forward. Respondent raised and discussed different ideas and proposal. The summary of way forward proposal and activities are; awareness creation on banking IT professional regarding ITG, providing training on ITG, top management should be aware and involve on IT related activities and ITG, central bank should come up with a contextualized ITG framework that is applicable in the country and enforce its compliance, Experience sharing platform between banks on ITG should be emplaced.

4.4. Discussions

In this section of the study report, the findings from quantitative and qualitative data analysis are discussed. Although both analysis output has been reconciled with each other and provided with support from literature, in this chapter of previous data analysis sub sections, this part discuss those findings in relation to research questions and literatures.

As presented in the beginning of this study report the general objective of the research was to identify underlining reason for low IT governance /maturity, challenges, and based on findings to produce IT governance implementation strategy that is adoptable to the banking sector. In line with this three research question has been raised i.e. what are the underlining reason for low IT governance in banking sector of Ethiopia? What are the challenges for applying IT governance in banking sector of Ethiopia? What should be the implementation strategy in its fullest sense for IT governance in banking sector of Ethiopia?

Regarding the first research question, in identifying the underlining reason for low IT governance twelve constructs has been considered. According to qualitative and quantitative data analysis result from respondent response more than fifty percent of the constructs and actions under each constructs needs improvement in order to achieve effective IT governance. These constructs, based on their below average score to the extent which they are exercised in achieving effective IT governance in ascending order are corporate communication mechanisms, corporate performance measurement system, IT strategy committee, involvement of senior management, culture of compliance, IT performance measurement, IT steering committee, and IT resource management. The discussion on findings in answering the first research question is presented in the subsequent paragraphs.

As indicated in the analysis result, the respondent stated that corporate communication mechanisms in banking sector is not enabling to inform existence of IT governance mechanisms, and IT decisions and process. Corporate communication is part of the relational mechanism element of IT governance. In line with this according to Mekonnen (2016) IT Governance relational mechanisms practices were not recognized well in banking sector of Ethiopia. In addition Qassimi & Rusu (2015) on their conducted study, in developing country organizations, found out that relational mechanism that includes corporate communication needs improvement.

In relation to corporate performance measurement system in quantitative analysis more than 53% of respondent, which is supported by qualitative analysis result, stated that CPMS is not measuring whether IT strategy support business strategy, and not provide the management on control of IT expenses and efficiency. CPMS using balanced score card helps in measuring the performance of IT, however as indicated in the interview result banks are using traditional ways of measuring IT performance since most banks didn't apply CPMS as indicated by (Mamo & Lemma, 2015) due to various challenges in its implementation. This results in banks to have measurement system that did not promote enhancement of IT and ITG effectiveness.

The other construct the needs improvement is IT strategy committee. Both quantitative and qualitative data analysis result indicated that the committee is weak in providing direction towards the alignment of IT and business, in use of IT resources and infrastructure to meet strategic objectives, and regard to IT strategy. This in line with the research conducted by (Samuwai & Prasad, 2014)stating that that IT strategy committee has oversight of IT strategy. In addition (Qassimi & Rusu, 2015) on their research indicated that with low level maturity or an intentional implementation of IT governance the extent which IT strategy committee performance is in adequate resulting in ineffective ITG structure.

In this study it is also identified that the involvement of senior management is below average extent according to quantitative data analysis result. This is also the same in qualitative result that is involvement of IT strategy committee is limited to endorsing IT investment however the endorsement is bias on individual attribute of a person who present the proposal. Both analysis result indicates that senior management less in involved in identifying opportunities, innovation and endorsement of IT investment that affirms low maturity of IT governance in banking sector. In line with this Ali & Green (2005) and Ferguson, Green, Vaswani, & Wu (2013) states that senior management involvement had a significant positive effect on the level of effective IT governance and lack the involvement results in in effective IT governance.

The extent of culture of compliance practice in banking sector is below average. According to this research findings as indicated in quantitative data analysis more than 50 % of the respondent stated the culture of compliance is not enabling to achieve IT objectives. In line with this (Kupfer, Scott, & Chiou, 2018) presented the prevalent business culture in the banking industry weakens and undermines culture of compliance. In addition according to (KPMG, 2015) instances of

misconduct (i.e., professional misbehavior, ethical lapses, and compliance failures) continue to be reported in the press with troubling frequency in financial sector affecting the banks.

According to quantitative data analysis result the extent of IT performance management exercise in banking sector is below average. In measuring IT performance, underlining reasons within this construct that contributed for low IT governance are the problem of on time and on budget delivery of IT projects and, IT services and solution provision with frequent failure. Among other that needs improvement, this is a construct in relation to answering first research question. In line with this research findings in different literature also argue these problem exists in banking sector. The problem of budget and time overruns with regard to core banking implementation is what most bank faces in Ethiopia (Hailu & Belachew, 2016). These authors also presented there is a high failure rate of core banking system implementation that extends to interrupted services provision. In addition Bloch, Blumberg, & Laartz (2012) and Uvaneswaran., Chera, & Muhammed (2017) indicated that the majority of public sector ICT applications in least developed countries are either in partial or total failures and on average large IT projects run over budget and over time.

The other construct identified in relation to underlining reasons for low IT governance is IT steering committee. According to the quantitative results IT steering committee activities, such as providing direction for alignment of IT project with business objectives, providing leadership in getting benefit from and managing IT, and providing means for coordinating IT practices, are performed much less than the average extent. In line with this the interview result also indicated that IT steering committee found not as separate unit but part of IT executive management. In some bank even if it exists the involvement is limited to IT infrastructure purchase. This also agrees with Mekonnen (2016) that the practice of IT steering committee is on an informal, ad hoc basis with little or no evidence of standardization.

IT resources management is also the below average scoring construct. As a result it is considered in answering first research question i.e. underlining reason for low IT governance. Regarding IT resources management the extent to which how IT services and infrastructure can resist and recover from failure, adequacy of infrastructure to support business, and how competitive IT professionals attracted, developed and retained indicates minimal level. This in line with (National Bank of Ethiopia, 2009) report stating 93% of banks do not have continuity/disaster recovery/contingency plan emplaced. According to this findings IT professional in banking sector are not attracted and maintain. This in line with Agarwal (2016) discussed almost in all banks on

an average the turnover rate is between 8-9% which can be rated very high. This due to lack of recognition for employee commitment and effort, superior and subordinate relationship between supervisor and employee, lack of continuous and off the job training.

Regarding the second research question, in identifying the challenges in ITG implementation Top Management Support, Compatibility, Complexity, Cost, External Pressure and Consultant in efficiencies were used for analysis. Among these construct according to the quantitative and qualitative analysis result, through measuring the level of challenge the constructs impose on implementation and practice of ITG, Top Management Support, Complexity, Cost, and External Pressure were identified with a score of above average challenge i.e. great, very great and extreme challenge. Hence the discussion on those construct in relation to quantitative and qualitative analysis result, and related literature is presented in the subsequent paragraph.

The result of both quantitative and qualitative analysis show that Top management support is a challenge in banking sector that need improvement. Within this construct challenge such lack of resources allocation, vision sharing and involvement in formulating strategy for ITG practice by top management are the improvement area to be taken in to account. This agrees with (Othman, Iskandar, & Chan, 2013) and (ISACA, 2011) study result that indicate lack of top management commitment and support is one of the barriers in implementation of formal IT governance and it practice.

The difficulty to understand and use formal IT governance are the identified attributes in relation to complexity challenge construct. According to the quantitative analysis result more than 50% of the respondent reported attributes that are related to complexity, are very and extreme challenge. In contrast only 25% for the respondent reported those attributes are somewhat or not a challenge. Difficulty to use and understand a process related to awareness about and training taken regarding the subject matter (Aguinis & Kraiger, 2009). In line with this on demographic data presentation only 26 % of the respondent has taken IT governance training. In qualitative data analysis result interviewees also confirmed that complexity is a challenge in IT governance implementation. These discussion also agrees with Nicho & Muamaar (2016) statement. They argue that when the company decided to implement IT governance most frame work included more than what the organization need resulting in creating complexity challenge. In addition Youssfi, Boutahar, & Elghazi (2014) indicates complexity is typically encountered during ITG implementation.

In challenges related to ITG implementation cost is the other construct that is considered for improvement. Regarding cost two attributes has been measured i.e. cost of setting up formal ITG and ITG training. According quantitative as well as qualitative data analysis result shows that those are challenges in implementation of ITG in banking sector. The demographic data might give an indication that due to high cost of ITG training only one fourth of the total respondents taken the training. This is indicated by Tittel & Kyle (2018) that the cost for ITG governance training like ITIL is very high.

The last challenges related to the second research question is lack external pressure in use of formal IT governance practice. Form the quantitative analysis result more than 65 % of the respondent stated that lack of central bank pressure to use formal IT governance create challenge for IT governance in its fullest sense implementation. This is also supported by qualitative data analysis result as interviewee respondents stated if national bank enforce, through directives, those commercial banks to use formal ITG, the implementation will be in a better position. This agree with due to the fact that Jordan Central bank published directive to implement ITG (Arab Bank, 2017) most Jordanian banks implemented ITG framework and practiced it accordingly (Khadra & etal., 2009).

In this study findings discussion, the research questions has been reconciled with quantitative as well as qualitative data analysis result. The first and second research question were the point of discussion. As indicated chapter one the third specific objective of the study is to produce IT governance implementation strategy that can be attained through addressing the third research question. In answering the third research question IT governance implementation strategy is suggested by considering the findings of this study from both qualitative and quantitative data analysis result and the suggestion from interviewee response. The next section of this chapter discuss the suggested IT governance implementation strategy components, consideration and action to include in it, in answering the third research question.

4.5. IT Governance Implementation Strategy

In today's business environment the pace of changes are increasing. Business and IT senior manager are facing many pressure such as reducing cost, continuous improvement and innovation, ease accessibility in market, more demanding and unpredictable customer (Selig, 2008). In order to align to such business environment organization need to have responsive and competent IT

process the enable the business in serving customers efficiently. This can be achieved with the existence of effective IT governance.

In contrast if company has ineffective IT governance it faces business losses, incur higher costs, poorer quality product and unsatisfied customers (IT Governance Institute, 2006). With this regard, an organization expected to be in a better position regarding IT governance. Hence, Implementation of IT governance and monitoring it effectiveness is recommended for an organization in today's business environment.

In line with the above facts this research was conducted to produce IT governance implementation strategy in answering its third research questions in addition to the first and second one. With this regard an interview question was devised, used and data has been collected. These data were analyzed and presented and discussed in the qualitative data analysis section. In relation to this the interview questions raised to respondent, i.e. Vice president IT and director IT, was the experience of their company regarding IT governance implementation strategy development and use, what to consider in developing it and what should be the component of ITG implementation strategy.

The qualitative analysis finding indicates that banks did not have the experience of developing and use of ITG implementation strategy. This indicates there is a need for ITG implementation strategy. Further the qualitative analysis finding regarding what to consider for ITG implementation strategy indicates that variables such as business need, availability of resources, and awareness creation on return on investment of IT and IT governance should be taken in to account. What components to consider for ITG implementation strategy development was also interview question presented to senior executives. The qualitative data analysis findings indicates that IT governance implementation strategy for its component should have mission, vision, goals, specific objectives, SWOT analysis, and strategic initiative. This agrees with literature (Poister & Streib, 2005), (Olsen, 2011) and (Abraham, 2012) as main component a strategy requires articulating where the organization want to be, what is the current status, what action required in order to achieve what has been planned and measuring it attainment.

Accordingly, IT governance implementation strategy is produced based on component taken from research findings and reviewed literatures. The below diagram shows the suggested IT Governance implementation strategy in light of the research findings of this study, literature and adoption from (Selig, 2008). This strategy is a plan of action designed to achieve determined objectives (Porter, 1996).

As indicated in the below diagram the strategy has four major component i.e. mission, vision, and goals, assessments on current status, actions to take and measuring the achievement. The first component of the strategy designed to incorporate the banks mission, vision and goal statement and its future state of IT Governance. The second component incorporate SWOT analysis of the existing IT governance. In this part of the strategy this research findings are included. Those research findings are gaps that need improvement in relation to underlining reason for low IT governance and implementation challenges. The third component includes list of action to be taken on the gap identified in research findings constructs. The final component of the strategy incorporate measurement system. As indicated in the research findings CPMS is one of construct that needs improvement. Hence, emplacing and application of CPMS is considered as a measurement component of the suggested IT governance implementation strategy.

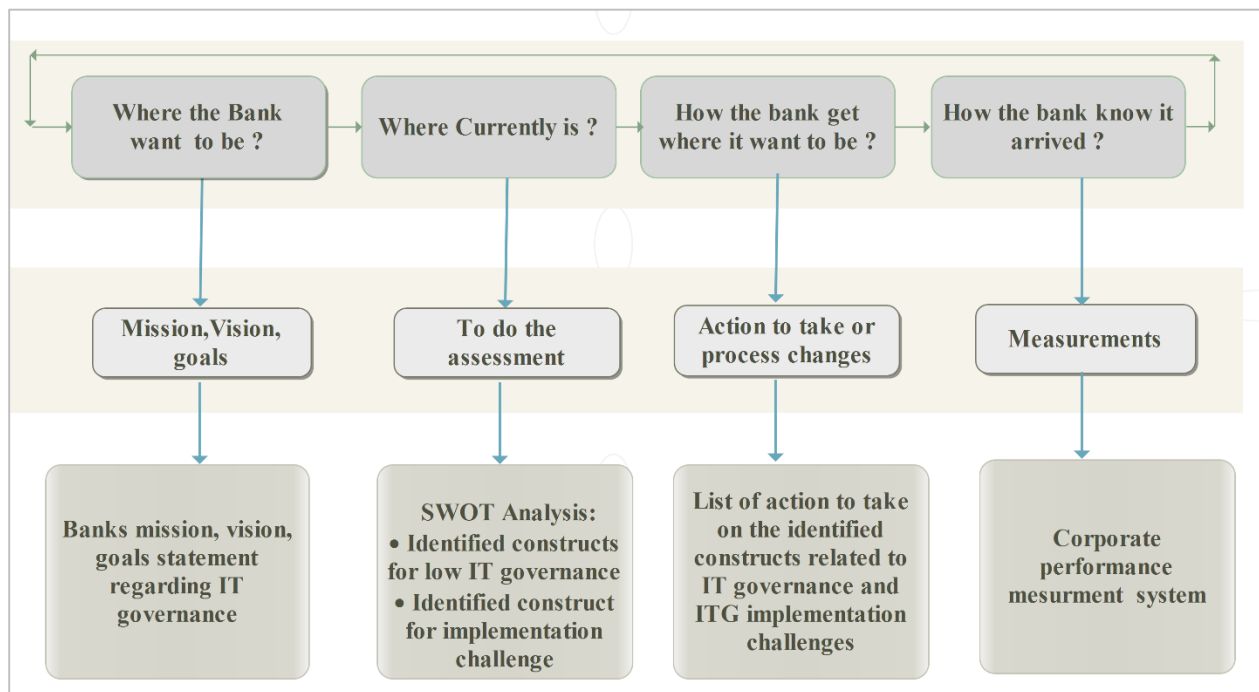


Figure 16: Suggested IT governances Implementation strategy (Adopted from (Selig, 2008))

Banks Mission, Vision and Goal

Here the bank will specify the mission, vision and goal statement. Define Future State of IT Governance and Components including assumptions this is an iterative process. Once the banks specify the mission, vision or goal statement based on the feedback from measurements or current state achieved urges for change, it can be revised.

SWOT Analysis

At this stage strength, weakness, opportunity and threat analysis on the existing IT governances is performed. In relation to SWOT analysis in this study determinants for underlining reason low IT governances and challenges in implementation has been identified. These constructs are from the finding of qualitative and quantitative data analysis result that are suggested they need improvement.

The construct regarding underlining reasons for low IT governance are selected and included in this suggested ITG implementation strategy. The construct selection is based on the qualitative data analysis result having score of mean or aggregate mean value less than the average extent the constructs is exercised or performed based on respondent response, and reconciled with interview result and literature. Regarding IT governances implementation challenge the constructs are selected from quantitative data analysis result in reconciliation with qualitative data analysis result. Theses having a score of mean or aggregate mean value greater than the average level of challenge the construct impose on IT governance implementation.

Accordingly, for effective IT governance and better implementation in the suggested IT governance strategy the under listed constructs are included in this SWOT analysis component of the strategy. The construct to be considered for improvement for effective IT governance are IT Strategy Committee, Involvement of Senior Management, IT Steering Committee, Corporate Performance Measurement System, Corporate Communication Mechanisms, Culture of Compliance, IT Resource Management, IT Performance Management, Top Management Support, cost, ITG Complexity and External Pressure.

Action to be taken

In strategy after doing SWOT analysis the next steps is to specify the action to be taken based on SWOT analysis result and including additional initiatives. Accordingly, the under listed activities are included on each constructs for this IT governance implementation strategy.

Category	Actionable Items
IT Strategy Committee	To provide strategic direction towards the alignment of IT and the business issue.
	To provide direction for use of IT resources, skills and infrastructure to meet the strategic objectives.
	To provides direction to management regarding IT strategy

Involvement of Senior Management	To Identify and present IT opportunities for the organization
	To search , investigate, identify and present IT innovations that have been developed by major competitors for company further plan and act
	To Approve major IT investments that have not been approved by traditional justification criteria and procedures considering the contribution to business and its ROI , by avoiding tradition criterion
IT Steering Committee	To provide strategic direction to IT projects that are in line with the strategic directions of the organization
	To provide a mechanism for coordinating IT practices
	To provide leadership in deriving benefits from IT
	To provide leadership in managing IT
Corporate Performance Measurement System	To emplace and monitor corporate performance measurement system that measure the degree to which the organization’s IT strategy supports the business strategy
	To emplace and monitor corporate performance measurement system that provide management with control measures on IT expenses
	To emplace and monitor corporate performance measurement system that provide management with control measures on the efficiency of IT development and operations
Corporate Communication Mechanisms	To emplace communication system that enables to inform employees effectively about the existence of IT governance mechanisms
	To emplace communication system that enables to inform employees about IT decisions and process throughout the organization
Culture Of Compliance	To develop and maintain culture of compliance that enables to achieve objectives in IT
	To develop and maintain culture of compliance that enables to avoid any violation that could hinder organization to achieve its IT objectives
	To communicate and facilitate management to provides leadership in culture of compliance related with IT objectives
IT Resource Management	To establish, secure and maintain IT infrastructure that can resist and recover from failures due to error, deliberate attack or disaster
	To make sure that IT resources (hardware, software, and personnel) are adequate to support business applications
	To design, implement and maintain human resources package that attract, develop and retain competitive IT professionals in the organization

IT Performance Management	To plan, execute and monitor for the delivery of IT projects on time and on budget
	To emplace a system that ensures IT services and solutions are delivered without failures
Top Management Support	To provide justification and convince top management on resource allocation for formal IT Governance
	To enable top management in vision sharing and articulation of formal IT Governance
	To involvement top management in formulating a strategy for formal IT Governance
Cost	To plan for alternate cost reduction mechanism in order to set up formal ITG
	To design study group set up so that selected individual will take training then after emplace knowledge sharing scheme between those who has taken the training and not.
Complexity	To provide training and awareness creation program in on IT governance the enable in understand the practice
	To provide real time experience in relation to ITG that enable user to use formal IT Governance practice with ease
External Pressure	To comply to central bank directive regarding implementation and use of ITG
	To align the existing ITG with customer's ITG practice

Table 21: ITG Implementation strategy construct's action Items (The study result)

Measurements

In relation to the implementation strategy where the company want to be, SWOT of the company, and what to do in order to attain the plan has been specified. However this is not enough in attaining the objectives specified. It is necessary to measure and continuously improve the process. Hence, measurements is one the component of IT governance implementation strategy. Regarding measurement the construct Corporate performance management system (with balanced score card) should be emplaced in order to measure the achievement of objectives in ITG implementation strategy, and improve the process from the acquired feedback continually.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

This section of the research report presents conclusion and recommendations based on findings obtained from quantitative and qualitative data analysis result. In addition it presents recommendation for future work.

5.1. Conclusions

In current business environment the practice of IT governance in an organization facilitate and enables the achievement of short, medium and long term objectives. However the performance of IT governance should be in a better position in achieving specified objectives. IT Governance in developing country and specifically banking sector of Ethiopia, as in indicated and discussed in literature review part of this research report, maturity is low or initial stage.

In line with this fact and literature support the research is conducted by defining problem statement, specific and general objective of the research. Accordingly, assuring that there is low IT governance in banking sector and up to the researcher knowledge no research conducted in identifying underling reasons for low IT governance performance and implementation challenge a research objectives and research question has been prepared.

So as to answer the research question based on extensive literature review a conceptual research model has been developed. The research model consists of construct related to ITG performance and ITG implementation challenges. Based on these construct a research questionnaires and interview question has been prepared. Those instruments distributed and data has been collected and analyzed. Both quantitative and qualitative data analysis method has been employed in order to come up with findings in answering research questions.

In summary by answering research question this study has been able to: To identify the underlining reason for low IT governance maturity, challenges in implementation of IT governance and suggest IT governance implementation strategy adoptable to the banking sector.

Based on the quantitative and qualitative data analysis results, and findings the following conclusion has been drawn:

- In relation to underlining reason for low IT governance ITG relational mechanisms i.e. Corporate Communication Mechanisms is the lowest rated construct that affect ITG

performance. Regarding to this employees about IT decisions, process and ITG mechanisms not communicated well throughout the organization.

- Corporate Performance Measurement System of the banks is not to the desired level. As per the analysis result the CPMS is not measuring how IT strategy measures support business strategy, and efficiency of IT. Instead the emplaced Measurement system focus on measuring behavioral aspect of employee.
- For effective IT governance actively working IT strategy committee has its own role. However IT strategy committee is the other low rated construct that contribute for low IT governance performance. IT strategy committee in the banks is weak in providing direction towards the alignment of IT and business, in use of IT resources and infrastructure to meet strategic objectives, and regard to IT strategy.
- The survey result indicates that senior management are not involved well regarding IT and ITG related activities and decisions. This is other construct that contribute for low IT governance as indicated in the data analysis output with low mean value. The finding of the study shows senior management not exercising to the level expected regarding in identifying and presenting IT opportunities for the organization, identifying and present innovations by competitors for the company to plan and act, and approve major IT investment based on contribution to business and its ROI.
- It is clear that the penalties for regulatory breaches affects the banks and its staff and IT process. The study result indicates that culture of compliance is not well exercised in the banking sector. As the result the company culture of compliance is not enabling to the level expected in achieving IT objectives and avoid any violation that could hinder the bank to achieve its IT objectives. With this regard top management also not providing direction in relation to culture of compliance.
- According to this study result the next low rated construct in relation to IT governance is IT performance management. The collected data analysis result shows that IT projects in banking sector are not delivered on time and budget. In addition IT services and solution are not delivered continuously without failure.
- Availability and active participation of IT steering committees contribute for effective IT governance. A committee in name only does not satisfy the criteria for effective IT governance. The quantitative and qualitative data analysis result of the study indicates that IT steering committee in banking sector is performing below the average extent as per the respondent reply. In line with IT steering committee is not providing direction to IT

projects to be in line with the strategic direction of the bank. The committee is not in a position in providing a mechanism for coordinating IT practices. The committee is not providing leadership in managing and deriving benefit from IT.

- As indicated in the data analysis result IT infrastructure resources are not managed well. The extent of recovery from system failure due to error, and disaster in banking sector is minimal as it is experienced in real life situation that customers are facing service interruption due to system failure. In relation to IT resources management, competitive IT professionals are not attracted, developed and maintained.
- The other aspect of this research finding is relates with the challenge constructs in relation to ITG implementation. Lack of top management support is one of the challenge that is obtained from this research output. Accordingly the research result indicates and can be conclude that in banking sector top management are not adequately allocating resources, share vision and articulation, and formulate strategy for implementation of formal IT governance.
- Cost is the other challenging factor that affects formal ITG application. As indicated in qualitative and quantitative data analysis result the cost of setting up formal ITG practice and training is very high.
- Complexity is the other challenge in implementation of IT governance that has been found out from this research result. As indicated in data analysis section majority of the respondent replied formal IT governance practice is difficult to understand and to use. For understanding and ease application users should know about the subject matter however as indicated in the demographic data analysis of this research respondent which are only one fourth of the total has taken ITG training. From this it can be conclude that IT governance training is not provided well resulting IT staffs unable to understand and use formal ITG.
- The other challenge for implementation of formal ITG is lack of external pressure to use formal ITG practice. According to the study result central bank is not enforcing to apply formal ITG framework or standard.

In summary corporate communication about IT processes and decisions, and ITG awareness in relation to ITG relational mechanisms are major underlining reasons for low ITG. An ITG process i.e. Corporate performance measurement system in Ethiopia banking sector, that did not measure IT process contributes for low IT governance. In addition ITG structures such as ineffective performance of IT strategy and steering committee results in low IT governance in the sector.

5.2. Recommendations

Based on the quantitative and qualitative data analysis results, findings and conclusions drawn, the following recommendation are forwarded for practice and further research

5.2.1 Recommendation for Practice

As it is discussed throughout this study report the ITG performance in banking sector of Ethiopia is immature. Different literature discussed the benefit of ITG, among them having effective ITG helps in aligning IT and organizational goal, optimized IT operation, reduced cost and risk are some.

This study result indicates that ITG in banking sector is not up to the desired level since the extent to which the mechanisms of IT governance exercised below the average level. In line with this fact and study findings the following recommendation are forwarded:

- The banks should recognizes and make IT strategy committee active participant in the alignment of IT and business strategy. The committee should also provide direction for use of IT resources, skills and infrastructure in meeting strategic objectives.
- Senior management should involve in identifying IT opportunities that helps and enables the bank to improve its IT process. In addition senior management should approve IT investment based on contribution to business and its ROI, by avoiding tradition criterion.
- IT Steering committee instead of working in ad hoc and temporary bases it should be establish formally. Even the existing steering committee should provide; direction the alignment of IT project with business strategy, mechanism in coordinating IT practices, leadership managing and driving benefit from IT.
- The existing Corporate Performance Measurement System of the banks should be revised. As indicated in the study result CPMS is not measuring IT with perspective of alignment and support of business strategy. So as to achieve the desired IT governance maturity the banks should emplace CPMS that measure IT for it contribution to business strategy and goals.
- The corporate communication system of the banks should be in a position to inform about the existence of IT governance mechanisms and IT process, changes and decisions. So as to achieve this the bank should have their own portal services for information exchange.

As from the interview result it shows that the bank has portal but it is not frequently updated hence the bank should update their portal regarding information about IT decisions.

- As indicated in the research result 75% of the respondent didn't take training. This has the effect in its adoption and use, hence the bank should provide ITG training for IT professionals. Establish awareness creation program for employees on IT governance that enables them to understand the practice and provide real time experience in relation to ITG that enable them to use formal ITG practice.
- Banks should develop and maintain culture of compliance that enables to achieve the banks objectives. The culture of compliance should enable to avoid any violation that could hinder organization to achieve its IT objectives
- IT resources such as infrastructure and peoples should be managed well. Banks should make sure that IT infrastructure should be free from failures due to error, deliberate attack or disaster. Bank should attract, develop and retain competitive IT professionals who are employee of the company.
- Banks should have proper planning and resource allocation for delivery of IT project on time and on budget. They should also emplace a proper resources management and monitoring system so that IT solutions are delivered without failure. This alleviate the below average performance reported with regard to IT performance management.
- Top management should provide resources for formal IT governance, approve Major IT investment request on time, and share visions and articulation of formal ITG.
- As indicated in the research result the application of formal ITG practice and training is very high. In order to address this issues banks plan for alternate cost reduction mechanism in order to set up formal ITG and design study group set up so that selected individual will take training then after emplace knowledge sharing scheme between those who has taken the training and not.
- Central bank of Ethiopia should work on IT governance implementation. As a country central bank should recognize the benefit of IT governance. IT should create awareness about it governance for banks in the country. Taking other country experience, it should publish directives then enforce the application and use of formal IT governance.

5.2.1 Recommendation for Further Research

For the purpose of future research the following are recommended for further research:

- The benefit of using IT governance is not limited to Banking sectors other sectors gaps should be identified and formal ITG should be applied. Hence the underlining reason for low IT governance and its implementation challenge should further be researched in a sector other than bank in Ethiopia.
- The suggested IT governance implementation strategy in this study considers constructs in the conceptual research model. This should be further researched by considering other variable related to IT governance implementation strategy and evaluated by considering a representative sample from all banks.
- For profit, IT intensive organization, as well known, their objective is to increase profit by satisfying customers and reducing cost. In addition to Identifying the underlining reasons for low ITG performance the cost impact of low IT governance recommended for future area of research. So as to create the visibility of applying formal ITG create benefit that has direct impact on profit.
- In this study only IT professionals were considered but it is better to conduct a study by involving business or operation team of an organization.

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Appendix I – Questionnaires

Addis Ababa University
School of Graduate Studies College of Natural Science
Department of Information Science

Dear Sir /Madam

I am a master's degree student at Addis Ababa University in school of information science. I am conducting a research in partial fulfillment of degree of masters of Science in information science. My research title is "Underlining Reasons and Challenges for Low Information Technology Governance in Banking Sector of Ethiopia: Towards Developing IT Governance Implementation Strategy". The purpose of this survey is to identify the reasons behind low Performance of IT governance, and the challenges in IT governance implementation and practices in banking sector of Ethiopia.

Your honest responses to all questions are extremely valuable to the result of this research. The output of the survey will be used only for the purpose of academic research. Hence, all responses will be kept in strict confidentiality and doesn't affect anyone.

Your dedication is most valued and appreciated and I would like thank you in advance for your kind participation, genuine and on time response to the questionnaire.

If you have any question or concern about completing the questionnaire or participating in this study, please contact me on the below address.

Regards,

Kalid Ahmed

Mobile: 0911-437284

Email: Kalidahmedk@gmail.com

Questionnaires General Instruction

Please consider the following Terminology while your are responding the question

Terminology	Description
IT Governance Performance	It is the process that ensures the effective and efficient use of IT in enabling an organization to achieve its goals
Formal IT Governance	A implementation of IT governance through the use of standards or frameworks that are formulated in house or acquired from third party, for effective IT governance.
Standard	A document set of rules or guidelines for activities or their results, established by consensus and approved by recognized body that provide common and repeated use.
Framework	A set of documented best practices from recognized body that are implemented according to the needs of the organization

Part I: Please circle the right demographic information of yours.

Part II: The second part contain factors that have relationship with IT governance performance.

Please circle one that indicate the extent to which it is performed in your bank using the following Likert scale:

- 1 = Not At All
- 2 = Small Extent
- 3 = Moderate Extent
- 4 = Great Extent
- 5 = Very Great Extent

Part III: The third part contains challenges that have relationship with IT Governance implementation. Please circle one that indicate the level of challenge in formal IT governance practice using the following Likert scale:

- 1 = Not a challenge
- 2 = Somewhat a challenge
- 3 = Moderate challenge
- 4 = Very challenge
- 5 = Extreme challenge

Part I: Demographic Information

1. Gender

I. Male

II. Female

2. Age

I. 18 – 25 years

III. 31 – 40 years

V. More than 50 years

II. 25 – 30 years

IV. 41 – 50 years

3. Higher level of education achieved?

I. College Diploma

III. Master's degree

II. Bachelor's Degree

IV. PhD

Other, Please Specify _____

4. What is your current position in the organization?

I. IT Manager/Head

III. Senior IT professional

II. IT Team leader

IV. IT Professional

Other, please specify _____

5. Department, Section or Division you are currently working in

I. Application administration

V. Database administration

II. Systems development

VI. Application support

III. System administration

VII. Hardware support

IV. Network Administration

Other, please specify _____

6. Years of experience in your current position?

I. 0 – 2 years

III. 6 – 10 years

II. 3 – 5 years

IV. Greater than 10 years

7. Have you taken any IT governance related training?

I. Yes

II. No

Part II: IT Governance Performance Related

		Not At All	Small Extent	Moderate Extent	Great Extent	Very Great Extent
	IT Strategy Committee					
1	To what extent does IT strategy committee provide strategic direction towards the alignment of IT and the business issue?	1	2	3	4	5
2	To what extent does IT strategy committee provide direction for use of IT resources, skills and infrastructure to meet the strategic objectives?	1	2	3	4	5
3	To what extent does IT strategy committee provides direction to management regarding IT strategy?	1	2	3	4	5
	Involvement of Senior Management					
1	To what extent is senior management knowledgeable about IT opportunities for the organization?	1	2	3	4	5
2	To what extent is senior management knowledgeable about IT innovations that have been developed by major competitors?	1	2	3	4	5
3	To what extent does senior management often approve major IT investments that have not been approved by traditional justification criteria and procedures (such as the IT steering committee)?	1	2	3	4	5
	IT Steering Committee					
1	To what extent does the IT steering committee provide strategic direction to IT projects that are in line with the strategic directions of the organization?	1	2	3	4	5
2	To what extent does the IT steering committee provide a mechanism for coordinating IT practices?	1	2	3	4	5
3	To what extent does the IT steering committee provide leadership in deriving benefits from IT?	1	2	3	4	5
4	To what extent does the IT steering committee provide leadership in managing IT?	1	2	3	4	5

Corporate Performance Measurement System						
1	To what extent does your organization's corporate performance measurement system measure the degree to which the organization's IT strategy supports the business strategy?	1	2	3	4	5
2	To what extent does your organization's corporate performance measurement system provide management with control measures on IT expenses?	1	2	3	4	5
3	To what extent does your organization's corporate performance measurement system provide management with control measures on the efficiency of IT development and operations?	1	2	3	4	5
Corporate Communication Mechanisms						
1	To what extent your organization communication system enables to inform employees effectively about the existence of IT governance mechanisms?	1	2	3	4	5
2	To what extent your organization communication system enables to inform employees about IT decisions and process throughout the organization?	1	2	3	4	5
Ethics/Culture Of Compliance						
1	To what extent does your organization's ethics/culture of compliance enables to achieve objectives in IT?	1	2	3	4	5
2	To what extent does your organization's ethics/culture of compliance enables to avoid any violation that could hinder organization to achieve its IT objectives?	1	2	3	4	5
3	To what extent does top management provides leadership in ethics/culture of compliance related with IT objectives?	1	2	3	4	5
IT Intensity						
1	To what extent there are adequate IT infrastructure in your organization	1	2	3	4	5
2	To what extent volume of IT employee in your organization contribute to IT effectiveness?	1	2	3	4	5
3	To what extent the IT annual budget adequately enough for IT operation?	1	2	3	4	5

	IT Strategic Alignment					
1	To what extent IT projects are aligned with the company's business strategies?	1	2	3	4	5
2	To what extent Implemented IT solutions are aligned with the company's business?	1	2	3	4	5
	IT Value Delivery					
1	To what extent there is cost-effective acquisition and use of IT across the organization?	1	2	3	4	5
2	To what extent IT contributed regarding Return on Investment?	1	2	3	4	5
	IT Risk Management					
1	To what extent Confidential information is prevented from being accessed by unauthorized persons?	1	2	3	4	5
2	To what extent IT infrastructure and business information are well protected and safe?	1	2	3	4	5
3	To what extent IT infrastructure ensures and maintains the integrity of information?	1	2	3	4	5
	IT Resource Management					
1	To what extent IT services and infrastructure can resist and recover from failures due to error, deliberate attack or disaster?	1	2	3	4	5
2	To what extent IT resources (hardware, software, and personnel) are adequate to support business applications?	1	2	3	4	5
3	The extent to which competitive IT professionals attracted, developed and retained?	1	2	3	4	5
	IT Performance Management					
1	To what extent IT projects are delivered on time and on budget?	1	2	3	4	5
2	To what extent IT services and solutions are delivered without failures?	1	2	3	4	5

Part III: IT Governance Implementation Related Challenge

		Not a Challenge	Somewhat a Challenge	Moderate Challenge	Very Challenge	Extreme Challenge
	Top Management Support					
1	Lack of top management resource allocation for formal IT Governance	1	2	3	4	5
2	Lack of top management vision sharing and articulation of formal IT Governance	1	2	3	4	5
3	Lack of top management involvement in formulating a strategy for formal IT Governance	1	2	3	4	5
	Compatibility					
1	Formal IT Governance practice not align with our organization practice	1	2	3	4	5
2	Incompatibility of formal IT Governance practice with our current information system	1	2	3	4	5
	Complexity					
1	Difficulty to understand formal IT Governance practice	1	2	3	4	5
2	Difficulty to use formal IT Governance practice	1	2	3	4	5
	Cost					
1	The cost of setting up formal IT Governance practice is very high	1	2	3	4	5
2	The cost of formal IT Governance practice training is very high	1	2	3	4	5
	External Pressure					
1	Lack of directive from government to use formal IT Governance practice	1	2	3	4	5
2	Lack of pressure from our customers for formal IT Governance practice	1	2	3	4	5
	Consultant in Efficiencies					
1	Consultant lacks prior experience in providing quality service for formal IT Governance	1	2	3	4	5
2	Consultant lacks the capability to provide relevant solutions for formal IT Governance	1	2	3	4	5

Thank You!!

Appendix II – Interview Questions

Part I: IT governance Performance

1. Can we discuss the overall practice of IT governance in your bank and banking industry.
2. Have you implemented formal ITG standards or framework in your organization, standard or framework that is established by your organization or acquired from third party?
3. How do you rate the level of IT governance performance in your bank and banking sectors in our country?
4. What factors contribute for effectiveness of IT governance?
5. How do you explain the role of IT strategy committee in your bank in relation to ITG governance i.e. in providing direction, IT resource utilization and other?
6. How do you explain the senior management involvement of the bank regarding IT opportunities, innovation and endorsing IT investment?
7. How do explain the extent to which IT steering committee contribution towards managing and coordinating IT, and deriving benefit from IT?
8. How do you explain your bank corporate performance measurement system in relation to efficiency and effectiveness of IT operation and its alignment with business goals?
9. How do you describe your bank corporate communication with regard to IT decision and IT governance?
10. How do you measure IT governance of your bank in terms of alignment of IT with business, IT value delivery, IT risk management, IT resource management, and IT performance management?

Part II: IT Governance Implementation Challenge

1. How do you describe the extent of challenge of top management support with regard to IT governance implementation and practice?
2. In implementation of formal IT governance practice how do you describe the cost, complexity and compatibility challenge in your bank?
3. How do you describe lack of central bank enforcement as directive for implementation of formal ITG practice?
4. How do you find consultant efficiency with regard in implementation of formal ITG practice?
5. Generally what challenge have you faced regard to implementation of ITG in your experience in banking sector?

Part III: IT Governance Implementation Strategy

1. How do explain your bank practice with regard to IT governance implementation strategy development and use?
2. Would you share us your idea on what to consider for developing strategy of IT governance implementation in banking sector?
3. Would you share us what would be the potential content of IT governance implementation strategy?

Ending Question

1. Over all how do you rate the level of IT governance performance in banking sector of Ethiopia?
2. Can you share your idea or perception on what to do regarding effectiveness of IT governance , and the way forward in banking sector of Ethiopia

Appendix III - Letter submitted to and accepted by Banks

አዲስ አበባ ዩኒቨርሲቲ
የተፈጥሮ ሳይንስ ኮሌጅ
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ADDIS ABABA UNIVERSITY
College of Natural Science
School of Information
Science

Date March 13, 2018

Ref:-SIS/17/2010

To:- Berhan International Bank
Commercial Bank of Ethiopia
Cooperative Bank Of Oromia
Dashen Bank
Dehub Global Bank
Wegagen Bank
Addis Ababa

Dear Sir / Madam

Student Kalid Ahmed (ID. No. GSE/0381/08) is a graduate student at the School of Information Science, Addis Ababa University. He is currently conducting a MSc thesis research under the title "Underlining Reasons and Challenges for Low IT Governance In Banking Sector of Ethiopia: Towards developing IT Governance Implementation Strategy"

I would like to thank you in advance for all the assistance that you would provide to the student.



With Regards,
Martha Yifru (PhD)
Head, School of Information Science

Woy Terebeaw
pls forward it
19/03/18

☎: 1176

☎: +251-(11)-122-91-91 ☎:2122- 91-92



የኢትዮጵያ ንግድ ባንክ

COMMERCIAL BANK OF ETHIOPIA

Inter Departmental Memorandum

DATE ቀን:	March 19 ,2018
TO ለ:	Director, Application and Infrastructure Management
FROM ከ:	Manager - Learning & Development
SUBJECT ጉዳይ:	Request of Research work

Addis Ababa University College of Natural Science, School of Information Science requested our bank to assist and cooperate with Kalid Ahmed, to grant him access to the required information to the research work entitled "Underlining Reasons and Challenges for Low IT Governance In Banking Sector of Ethiopia: Towards Developing IT Governance Implementation Strategy."

This is, therefore to kindly request your good office to provide him the necessary assistance and cooperation without compromising confidentiality.

Best Regards,

Getu Bedilu

/KA

አዲስ አበባ ዩኒቨርሲቲ
የተፈጥሮ ሳይንስ ኮሌጅ
የኢንፎርሜሽን ሳይንስ ት/ቤት



ADDIS ABABA UNIVERSITY
College of Natural Science
School of Information
Science

Date March 13, 2018

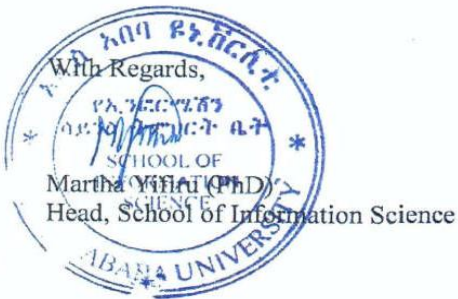
Ref:-SIS/17/2010

To:- Berhan International Bank
Commercial Bank of Ethiopia
Cooperative Bank Of Oromia
Dashen Bank
Dehub Global Bank
Wegagen Bank
Addis Ababa

Dear Sir / Madam

Student Kalid Ahmed (ID. No. GSE/0381/08) is a graduate student at the School of Information Science, Addis Ababa University. He is currently conducting a MSc thesis research under the title "Underlining Reasons and Challenges for Low IT Governance In Banking Sector of Ethiopia: Towards developing IT Governance Implementation Strategy"

I would like to thank you in advance for all the assistance that you would provide to the student.



*Dear Staffs
Please provide the necessary
support to Ato Kalid Ahmed.
Wossen Alemayehu*



☒: 1176

☎: +251-(11)-122-91-91 ☎: 2122-91-92

አዲስ አበባ ዩኒቨርሲቲ
የተፈጥሮ ሳይንስ ኮሌጅ
የኢንፎርሜሽን ሳይንስ ት/ቤት



ADDIS ABABA UNIVERSITY
College of Natural Science
School of Information
Science

Date March 13, 2018

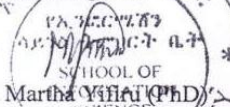
Ref:-SIS/17/2010

To:- Berhan International Bank
Commercial Bank of Ethiopia
Cooperative Bank Of Oromia
Dashen Bank
→ Debut Global Bank
Wegagen Bank
Addis Ababa

Dear Sir / Madam

Student Kalid Ahmed (ID. No. GSE/0381/08) is a graduate student at the School of Information Science, Addis Ababa University. He is currently conducting a MSc thesis research under the title "Underlining Reasons and Challenges for Low IT Governance In Banking Sector of Ethiopia: Towards developing IT Governance Implementation Strategy"

I would like to thank you in advance for all the assistance that you would provide to the student.

With Regards,

SCHOOL OF
Martha Yifru (PhD)
Head, School of Information Science
ADDIS ABABA UNIVERSITY

Manager System IT
Please provide the necessary
assistance as requested.


7/3/2018
10
Debut Glob. Bank S.C.

☒: 1176

☎: +251-(11)-122-91-91 ☎:2122- 91-92

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የኢንፎርሜሽን ሳይንስ ት/ቤት



ADDIS ABABA UNIVERSITY
College of Natural Science
School of Information
Science

Date March 13, 2018

Ref:-SIS/17/2010

To:- Berhan International Bank
Commercial Bank of Ethiopia
Cooperative Bank Of Oromia
Dashen Bank
Debub Global Bank
Wegagen Bank
Addis Ababa

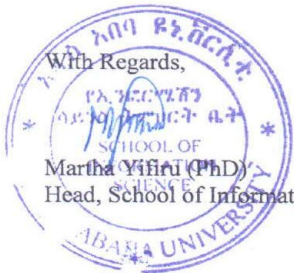
*Director, ASDD
Director, IT STD
Manager, ISSD
For your cooperation
Sincerely
26/03
18*

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With Regards,



Martha Yifru (PhD)
Head, School of Information Science

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የተፈጥሮ ሳይንስ ኮሌጅ
የኢንፎርሜሽን ሳይንስ ት/ቤት



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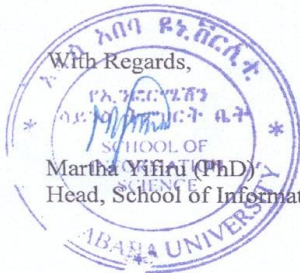
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With Regards,
Martha Yifru (PhD)
Head, School of Information Science

To: Director IT APPS
Director IT Infra
Director E-Banking
For Your kind cooperation.
Regards
28/03/18

☒: 1176

☎: +251-(11)-122-91-91 ☎: 2122- 91-92

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Date March 13, 2018

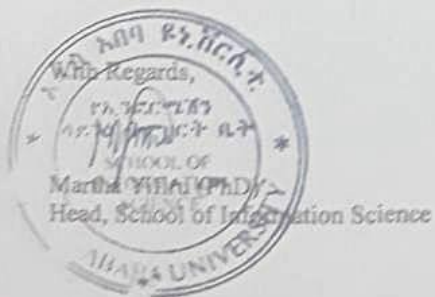
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All division of IS.
pls assist Ato kalid
in his research
By 16/03/18

☎: 1176

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