IT GOVERNANCE PRACTICES IN COMMERCIAL BANKS IN ETHIOPIA

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A thesis submitted to the College of Business and Economics of Addis Ababa University in partial fulfillment of the requirements for the Degree of Master of Business Administration (MBA)

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Abstract

In this study, there were two main objectives. Identifying the IT Governance practices in Ethiopian commercial banks was the first step. Further, it set out to explore the challenges Ethiopian Commercial Banks confront when implementing IT Governance. The goal was to look at Ethiopian commercial banks' IT governance practices. Commercial banks in Ethiopia were the focus of the investigation. A questionnaire was used to gather primary data from 52 respondents from commercial banks. Directors, managers, and senior officers responsible in IT strategy design and implementation were among those who responded. The commercial banks were identified using data from the Ethiopian National Bank (NBE).

The majority of the banks where the data was gathered had been in business for more than twenty years. The other two banks (OIB and CBO) have also been above a decade. There was evidence that a large number of respondents had adequate IT experience. The strategy committee meets quarterly to discuss how to implement and design appropriate IT governance strategy processes. As a result of the conclusions of the study, it is suggested that banks place a greater emphasis on IT governance. To strengthen IT governance processes in Ethiopian commercial banks, the role of NBE in the process needs to be examined. Commercial banks should serve as role models for other businesses in terms of implementing and adhering to standard IT processes that are compliant with IT governance.

Given the restrictions discovered, the study concluded that an effective IT governance approach is a function of numerous factors. As the major controller of both commercial banks, the National Bank must ensure that its machinery has the best processes in place to ensure that IT governance becomes a central driver for achieving IT business strategy alignment, risk management, and value delivery from massive ICT investments. To ensure compliance and wise use of the strategies in place, every officer with a responsibility for the IT governance process must be well-equipped with the necessary skills and knowledge. The IT governance process has confirmed that policy implementation, budget execution, planning, and the resource allocation function are all critical outcomes.

Keywords: Information Technology (IT), Information Technology Governance (ITG), IT-Business alignment, banking sector

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List of Abbreviations

CEO	Chief Executive Officer
CIO	Chief Information Officer
COBIT	Control Objectives for Information Technology
CMM	Capability Maturity Model
ERP	Enterprise Resource Planning
ICT	Information and Communication Technology
ITG	Information Technology Governance
IT	Information Technology
ITGI	Information Technology Governance Institute
ITIL	Information Technology Infrastructure Library

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the Study

In today's global society, information technology holds considerable power. IT advances have had a significant impact on the radical changes of the twentieth century. Various writers have defined it in a variety of ways. According to Williams & Sawyer (2005), information technology is a broad term that encompasses any technology that aids in the creation, manipulation, processing, storage, communication, and/or dissemination of information. Shally (2004) expanded on this definition by including hardware, software, databases, networks, and other related components used in the construction of information systems.

According to Vasudevan, A. (2003), information technology has become an inevitability for every company in a relatively short period of time. IT is revolutionizing all aspects of life, and it has given new meaning to the word "convenience". Larry & Nancy (1999) determined that information technology is a major contributor to the improvement of both developing and developed countries. IT has the potential not only to support existing business strategies but to develop new ones Guldentops, 2011; Henderson & Venkatraman, 1993). In this context, IT not only becomes a survival and prosperity success factor, but also a chance to differentiate and achieve competitive advantage. Leveraging IT to successfully turn the company into a universal business competence in order to create value-added products and services (Guldentops, 2011).

According to Weill & Ross, (2004) good IT governance depends heavily on the efficient use of information technology. The results may be devastating if IT and corporate governance go away. Some studies have demonstrated that companies with good IT governance models have higher IT investments than competitors, especially as they decide better IT structures and IT capabilities (Weill, 2010).

IT governance helps to achieve three major goals: (a) regulatory and legal compliance, (b) operational excellence, and (c) optimal risk management (Robinson, 2005). Robinson also stated that poor IT performance is frequently the result of failed IT projects, poor budget management, poor time management, and poor return on investment. As a result, the need for any type of

governance is obvious if organizations are to function optimally by establishing transparency and accountability.

According to IT Governance Institute (ITGI) IT governance is the process by which businesses align their business and IT strategies while keeping stakeholders' interests in mind. As a result, many businesses use IT governance as a means of achieving alignment between IT projects and business. Because of the importance of IT governance in improving business performance, interest in its adoption is growing (ITGI, 2005).

The strategic implementation of ICT is the decisive determinant between survival and extinction, says Williams & Sawyer (2005). The concentration has been on IT, profitable and highly competitive companies, particularly banks. The speedy progress made in ICT has had a significant impact on the banking industry and the broader financial sectors over the past two decades, according to Williams & Sawyer (2005). Since, ICT has now been converted into an instrument to facilitate bank structures, business strategies, client service and other related functions.

According to (Arab Bank, 2017) ITG is very important for financial institutions, especially banks. Banks have many reasons to implement ITG. The main and most important reason is align IT goals with business goals. However, meet stakeholders' needs of risk optimization, resource optimization and benefit realization, provide sufficient information and reports to support the decision making process regarding governance and management of enterprise IT. In addition, achieve effective and prudent IT project management and IT resources management processes, develop technological infrastructure and information systems that enable the banks ’business strategies, optimize IT risk management to ensure the necessary protection of the bank’s assets are the core IT objectives. Comply with laws and regulations ’requirements, internal controls and monitoring, and related policies and procedures, maximize end user’s satisfaction level of IT services Manage third parties / vendors relationships are additional goals of ITG implementation in banks.

To accomplish all of this, Haes & Grembergen, (2008) believes that IT governance, which consists of leadership, organizational structures, and processes, is required. IT governance

ensures that the organization's IT can support and expand the organization's strategy and objectives. IT governance is a framework for ensuring that information technology decisions are made in accordance with an organization's business goals and objectives. As with corporate governance, which assists an organization in ensuring that major decisions are in alignment with the organization's vision, mission, and strategy, IT governance ensures that IT-related key decisions match the organization's overall objectives over a long time horizon.

Within corporations, IT governance exists to guide IT initiatives and ensure that IT performance meets corporate objectives. The issues and strategic importance of IT must be clearly understood in the IT governance framework so that the organization can effectively implement its strategies to face the growing market competition on a sustained basis.

The vision for IT governance of a bank must include ideas and information about how the bank executes its business strategy. It is about how implement the strategy and then capitalizes on market opportunities. Only at the lowest levels of the framework is IT governance concerned with decision rights, regulatory compliance and standard setting, and so on.

In line with this, the purpose of this study is to evaluate the practice of IT governance in Ethiopian commercial banks.

1.2. Statement of the Problem

Researchers have proposed that adopting and implementing IT governance practices may benefit the organization because the organization may use its IT resources to achieve its business strategic goals (Weill, 2010). Individual managers are left to resolve isolated issues as they arise in the absence of formal ITG, and these individual actions are frequently at odds with one another (Weill, 2010). In a survey of 250 organizations worldwide, Weill and Ross (2004) discovered that companies with superior IT Governance have 20% higher profits than those with poor IT Governance when the same strategic objectives are considered. Many researchers discovered that the performance of IT Governance is strongly correlated with the performance of the organization.

As financial institutions struggle to keep up with technological and regulatory change, mature IT Governance can mean the difference between thriving and failing. According to Selig, (2016), a lack of effective IT Governance will have negative consequences for organizations in the form of inability to comply with regulatory requirements, project runaway (cost and/or schedule overrun), poor quality IT product/service delivery, business loss and disruption, damaged reputations, weakened competitive position, business/IT misalignment and customer dissatisfaction.

In research on the implementation of IT governance in many developing nations, the banking sector's fragility has been attributed to poor governance, management, and rising economic conditions. Many researchers believe that the following factors are important in Ethiopian banking: ICT infrastructure problems, socioeconomic problems, language barriers, insufficient information and telecommunication policy, low literacy level of the society, community information seeking culture, high cost of ICT, business environment (financial and legal issues), and business environment. (Bagchi & Udo, 2007; JIRU, 2017; Ababa, 2016) Numerous studies and research have shown that there are a number of different problems that make IT important in all organizations. Such as:

- IT activities and applications that are fragmented due to the loss of organizational coordination (Moyo, 1996; Ndou, 2004; *Bakari, 2007)*
- A lack of identified essential areas where additional emphasis can be put for success, given the IT resources and related knowledge and culture constraints.
- A lack of management support and active participation of both IT and business professionals in the planning, implementation, and monitoring of IT-enabled business applications. (*Suluo, 2003; Bakari, 2007;* Nfuka, 2009).
- The ineffective use of available IT specialists, as well as the difficulty in holding employees accountable for their performance, has a negative impact on the optimal use of IT (Weill, 2010).
- Difficulties in managing ever increasing IT investment in a cost-effective manner, including IT applications and enabling infrastructure. (Weill, 2010).

- The absence of a clear roadmap for integrating IT into the organization's strategies and reform programs (ITGI, 1998).

Banking services would be unthinkable without the pervasive support of IT and communications. IT governance recognizes the value of technology and emphasizes that it be driven by and for the benefit of business. This necessitates that the IT agenda be placed where it belongs at the board level. IT Governance Institute (ITGI) discovered that, given the same strategic objectives, companies with superior IT governance have at least 20% higher profitability than companies with weak governance (ITGI, 2005).

As ITGI (2005) points out, boards' lack of attention to IT issues has become a critical issue as IT has evolved from only providing back-office support to becoming the primary facilitator and enabler of the entire organization during the last two decades. ICT is not only vital in supporting key business activities, but it is also transformative, according to ITGI (2008). Mukenge (2008) claims that without effective IT governance, commercial banks' ICT systems can lose integrity, resulting in major consequences for the bank's performance as well as a breach of customer confidentiality. Commercial banks, he says, must have ICT governance standards in order to meet compliance obligations.

There are few studies conducted locally which addressed some aspects of this study. Teferi, (2011) investigate the status of IT Governance at Commercial Bank of Ethiopia (CBE) using COBIT framework and found that IT Governance is at lower stage. The limitation of her study is that she had decided to focus on just one bank. She did not touch other commercial banks outside the CBE.

On the research "Auditing IT and IT Governance" by Bogale & Amoroso,(2015), the authors look at aspects that influence IT governance performance in their study. All IT competency-related factors have a favorable link with IT governance performance, according to the findings of the research. Internal auditing and IT auditing processes are inextricably linked to the success of IT governance. The researchers in this study did not reveal any challenges to IT governance adoption; instead, they focused on determining which factors had a connection to IT governance performance.

According to NBE, (2020/21) there are several initiatives in progress at the National Bank of Ethiopia (NBE) such as core banking and payment systems, a credit bureau system, and the coming applications including the new data center construction which are central systems with highly integrations and different financial operations. All financial institutions are regulated and managed using those systems. However, NBE does not have a structure in place that will permanently solve the breakdown of IT systems and the financial industry. In light of the preceding discussion of IT governance performance, the research answers the following research questions:

- What is the IT Governance practice in commercial banks in Ethiopia?
- What are the challenges for applying IT governance in banking sector of Ethiopia?

1.3. Objectives of the Study

This section indicates the general and specific objectives of this research work.

1.3.1. General Objective

The general objective of the research was to examine and describe the situation of IT Governance practices in commercial banks in Ethiopia.

1.3.2. Specific Objectives

- Explore the current status of IT Governance practices in commercial banks in Ethiopia
- Explore the challenges Ethiopian commercial banks have in implementing IT Governance.

1.4. Scope and Limitation of the Study

In this study, the banking sector is defined as commercial banks that are privately and publicly owned, excluding the National Bank of Ethiopia (NBE) because its banking operations differ from those of commercial banks. Ethiopia has currently nineteen banks, but only proportionally stratified selected respondents from two governments and eight private banks were considered in this study. Other financial sectors, such as insurance and microfinance were excluded from the scope of this research due to time and cost constraints.

1.5. Significance of the Study

The goal of this study was to investigate how Ethiopian commercial banks handle IT governance and how that affects their performance. The findings and recommendations of the study were designed to assist policymakers and system designers in improving the banking industry's organizational performance by implementing ITG. This research also provides a theoretical framework for Ethiopian banks to use in their IT governance practices. The findings were applicable across corporate sectors and government institutions, as IT Governance (ITG) has become a common denominator among businesses in many industries.

The concept of IT Governance is a relatively new, and the findings of this study will aid in understanding the current level of IT governance theory and will be valuable to future IT Governance scholars.

1.6. Organization of the Study

This research report was divided into five chapters. The study's background is discussed and presented in the first chapter, which includes an introduction to IT governance, the research problem, research questions, general and specific objectives, scope and limitations, and the study's significance. In Chapter 2, a review of related literature on key concepts in IT governance as well as practical research is offered. The research design and methodology, approaches, target population, sampling strategies, data collection and analysis methods, were addressed in chapter three. In chapter four, the acquired data is analyzed, findings are given, and a discussion is held. Finally, Chapter 5 gives the research's conclusion and recommendations, which are based on the findings.

CHAPTER TWO

2. LITERATURE REVIEW

2.1. Introduction

This section summarizes what various academics have said about the topic of IT governance. Several IT governance definitions, frameworks, and standards are introduced and briefly discussed. The focus areas of IT governance standards and IT governance performance outcomes are also described.

2.2. Defining IT Governance

To characterize IT governance, researchers have employed a variety of typologies. Since the mid-nineties, IT governance has gotten a lot of attention in both study and practice (Simonsson & Ekstedt, 2006). Many studies (Peterson et al., 2000) continue to focus on defining ITG, and as shown in Table 2.1, many definitions have been presented.

Table 1 Definition of IT Governance

Definition	Researcher
ITG decisions the locus of responsibility for IT functions	(Brown & Magill, 1994)
ITG is the degree which the authority for making IT decisions is defined and shared among management, and the processes managers in both IT and business organizations apply in setting IT priorities and the allocation of the IT resources	(Luftman, 2011)
ITG refers to the patterns of authority for key IT activities	(Sambamurthy & Zmud, 2000)
ITG is the organizational capacity by the board, executive management and ITM to control the formulation and implementation of IT strategy and in this way ensures the fusion of business and IT	(de Haes & van Grembergen, 2009)
ITG is about who is entitled to make major decisions, who has input and who is accountable for implementing those decisions. It is not synonymous with IT Management (ITM). ITG is about decisions rights,	(S Buckby et al., 2005)

whereas ITM is about making and implementing specific decisions	
ITG is the responsibility of the board of directors and executive management. It is an integral part of EG and consists of the leadership and organizational structures and processes that ensure that organization's IT sustains and extends the organization's strategies and objectives	(IT Governance Institute et al., 1998)
IT Governance is the strategic alignment of IT with the business such that maximum business value is achieved through the development and maintenance of effective IT control and accountability, performance management and risk management	(Webb et al., 2006)
ITG is the process by which decisions are made around IT investments. How decisions are made, who makes the decisions, who is held accountable and how the results of decisions measured and monitored are all parts of ITG	(Levstek et al., 2018)
The strategic alignment of IT with business, such that maximum business value is achieved through the development and maintenance of effective IT control and accountability, performance management and risk management	(Webb et al., 2006)
ITG is the preparation for, making of and implementation of IT-related decisions regarding goals, processes, people and technology on a tactical or strategic level	(Simonsson & Ekstedt, 2006)
ITG is the collection of management, planning and performance reporting and review processes with associated decisions rights, which establish control and performance metrics over key investments, operational and delivery services and new or change authorizations and compliance with regulations, laws, and organizational policies. It formalizes and clarifies oversight, accountability and decisions rights	(Selig, 2016)
The system by which the current and future use of IT is directed and controlled.	(*ISO/IEC 38500:2008(E)*, n.d.)
ITG is the process that ensures the effective and efficient use of IT in	(*Gartner*, n.d.)

enabling an organization to achieve its goals. The definition contain certain key concepts: • ITG is composed of processes with the inputs, outputs, roles and responsibilities that are inherent in a process definition. (However, the definition does not talk about how these process) • The role of ITG "ensures", as opposed to "executes". • The goal of ITG is defined as a business goal, not just IT-related. • Key performance measures, identified as effectiveness and efficiency, together represent business value	
Specifying the decision rights and accountability framework to encourage desirable behavior in the use of IT	(Weill, 2010)
Policies, procedures and systems for the allocation of design-rights to the key decision makers both within the organization as well as external vendors and/or partners responsible for IT management	(Venkatraman et al., n.d.)
IT Governance is the system by which an organization's IT portfolio is directed and controlled. IT Governance describes (a) the distribution of IT decision-making rights and responsibilities among different stakeholders in the organization, and (b) the rules and procedures for making and monitoring decisions on strategic IT concerns.	(Peterson et al., 2000)

According to these definitions, ITG is intended to ensure that the organization and its board of directors or governing body are aware of the importance of managing its IT investment responsibly, efficiently, and effectively. (Sherrena Buckby et al., 2008)

IT governance has many advantages, according to Baumgarten & Blanke (2017). These are as follows: alignment of business and IT strategies, increased efficiencies, increased support, and lower costs when implementing change, effective risk management and regulatory compliance, effective and efficient use of IT resources for asset utilization, business growth and flexibility, improved culture in adherence to company policies and procedures, and improved communication of the role of IT in a business (Baumgarten & Blanke, 2017).

Zhang and zhou (2014) say with good IT governance, a company can provide strategic guidance, ensure objectives are achieved, verify the proper management of risks and vary the responsibilities of the company's resources.(Zhang & Zhou, 2014)

Different names of IT Governance

The term "information technology governance" (ITG) is also used to refer to:

- Information and communication technology governance (ICT Governance)
- Corporate governance of information technology (CGIT)
- Corporate governance of information and communication technology (CGICT)
- Enterprise governance of information technology (EGIT) (*ITG - CIO Wiki.Pdf*, n.d.)

Table 2 Goals & advantages of ITG, Source: (Rodello & Pádua, 2014)

Goals of IT Governance:	IT Governance enables companies:
• **To facilitate** decisions about IT investments. • **To streamline** IT operations and/or IT services • To improve **the level of quality** of IT services • To establish and maintain **good relationships** with clients and suppliers • **To maximize** the use of resources. • **To optimize** costs. • To manage **risks** (to identify, analyze, and mitigate them) • To establish and maintain **conformity** with rules and regulations • To promote **integration** between Business and IT • To generate **value** for the company.	• To **measure and audit** the execution and quality of services • To make feasible **the follow-up** of internal and external contracts • To define conditions for the effective performance of management based on consolidated **quality** concepts. **Advantages of IT Governance:** • **Alignment of IT strategy** with business fields; • **Better quality and capacity** for new models of business or adjustments in the current models • **Maintenance of business risks** under control; • **Mediation and** ongoing improvement **of IT control**; • Better **transparency** of IT activities

2.3. IT Governance versus Corporate Governance

ITG is a component of corporate governance (CG) among researchers and practitioners (Grant et al., 2010). ITG and CG have similar key principles. Both terms refer to a set of responsibilities and practices carried out by the board of directors and executive management with the goal of

achieving organizational goals, increasing business value, ensuring risk management through appropriate internal controls and monitoring systems, and ensuring organizational stakeholders' interests are protected. The difference is one of emphasis: ITG focuses more on IT challenges, whereas CG focuses on enterprise-wide issues (Grant et al., 2010).

IT governance has strong corporate governance connections (Licht et al., 2005). IT management is an integral part of corporate administration (Licht et al., 2005). The division of strength and wealth within an enterprise and the system through which the organization is controlled and managed is defined as corporate governance. (de Haes & van Grembergen, 2009)

Corporate management means the process and structure of oversight of a company's leadership and administration in order to effectively deliver its mandate and aims (Zhang & Zhou, 2014).

Table 3 Corporate and IT governance questions

corporate governance questions	IT governance questions
How do suppliers of finance get managers to return some of the profits to them?	How do the board and executive management get their CIO and IT organization to return some business value to them?
How do suppliers of finance make sure that managers do not steal the capital they supply or invest it in bad projects?	How do the board and executive management make sure that their CIO and IT organizations do not steal the capital they supply or invest it in bad projects?
How do suppliers of finance control managers?	How do the board and executive management control their CIO and IT organization?

2.4. The difference between IT governance and IT management

IT management, not IT governance, according to Gevriye (2011), focuses on the internal effective provision of IT services and products, as well as the administration of current IT operations. IT governance, on the other hand, is significantly broader, focusing on reforming and performing IT to satisfy current and future company (internal focus) and consumer objectives (external focus) (Gevriye, 2011).

Gevriye (2011) In addition, IT governance is somewhat dependent on external regulatory demands, but this does not diminish the importance and complexity of IT management. The distinction between them may assist organizations in providing a better understanding of what IT governance is and who should make decisions to achieve IT governance goals (Gevriye, 2011).

2.5. Why IT governance?

In today's business environment, effective and efficient enterprise governance is critical to an organization's success. IT governance is a critical subset that facilitates information sharing and the application of technology. It provides opportunities for the enterprise to transform the way it does business and is strategic to the enterprise's growth. Because of the importance and reliance on IT governance, it has become an integral part of the enterprise's governance responsibilities, not only for investors but also for regulators and auditors. Businesses can no longer afford to ignore IT governance (Mueller et al., n.d.).

2.6. Five Key Focus Areas of IT Governance

The IT Governance Institute (IT Governance Institute et al., 1998) identified five focus areas for IT governance: strategic alignment, IT value delivery, IT resource management, IT risk management, and IT performance management. These five IT governance focus areas are based on the values of the stakeholders. The first three (strategic alignment, resource management, and performance measurement) are considered drivers, while the remaining two (value delivery and risk management) are considered outcomes. During IT implementation, the majority of IT governance models, frameworks, standards, and structures take these five focus areas into account (IT Governance Institute et al., 1998).

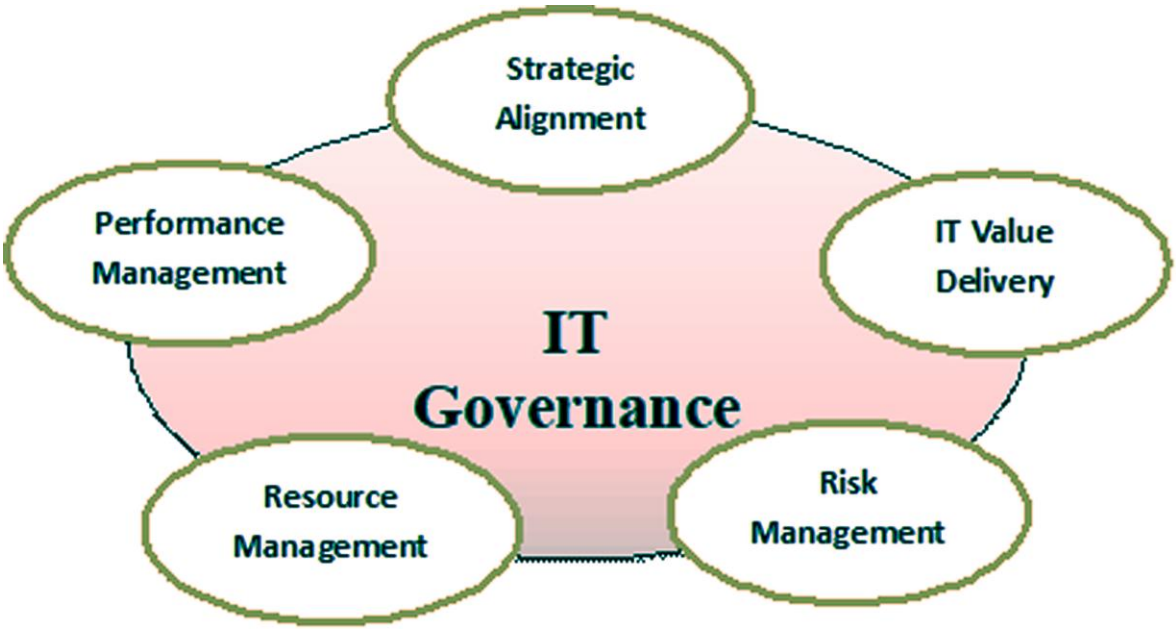

Figure 1: key focus areas of IT governance

2.6.1. Strategic alignment of IT with the Business

This area focuses on how board practice and structure can ensure the enterprise's IT investment is aligned with strategic objectives and IT operations are aligned with current enterprise operations (Fletcher, 2006) Monitoring the linkage of business and IT plans; defining, maintaining and confirming the IT value proposition; and aligning IT operations with enterprise operations. (Baumgarten & Blanke, 2017) It is relates to IT governance procedures which should result in aligning IT activities with strategic business objectives, namely through sound IT business value propositions and efficient IT operational excellence. (Vugec et al., 2017) Strategic alignment of IT with the business focuses on aligning with the business and collaborative solutions. (Iskandar & Mohd Salleh, 2010)

Ensures a link between business and IT plans, defines, maintains, and validates IT value propositions, and aligns IT and enterprise operations. The main source of concern is the integration of enterprise business and IT plans with operations (Aasi et al., 2017).

According to Gautam Ray (2000), the primary reason for the shortfall in project performance is missing focus that is these projects didn't have clear objectives or if they had clear objectives,

these objectives were not aligned with the business goals and strategy of the organization. This misalignment is actually very well illustrated by the Society for Information Management study.

2.6.2. The Value Delivery of IT

Focuses on how board practice and structure can ensure that IT deliverables are on-time, within budget, of appropriate quality, and provide the promised benefits, according to (Fletcher, 2006). Baumgarten & Blanke (2017) stated, Executing the value proposition throughout the delivery cycle; ensuring that IT delivers the promised advantages in accordance with the plan, focusing on cost optimization and demonstrating the inherent value of IT (Baumgarten & Blanke, 2017).

Methodologies and frameworks that aid in the implementation of value added IT initiatives, according to (Vugec et al., 2017). IT value delivery focuses on lowering costs and demonstrating IT's worth. (Iskandar & Mohd Salleh, 2010)

According to Asdi (2017), the implementation of value propositions via the delivery cycle ensures that IT provides the promised advantages in accordance with the strategy. Throughout the delivery cycle, the key focus is on cost optimization and demonstrating the intrinsic value of IT (Aasi et al., 2017).

2.6.3. The Management of IT Risks

The focus of this point is on how board practice and structure may ensure that an effective system of internal controls is in place to manage risks, and that risk management is integrated into the enterprise's operations (Fletcher, 2006). Having a clear grasp of risk appetite, knowing compliance needs, offering openness about key risks to the enterprise, and integrating risk management duties within the organization (Baumgarten & Blanke, 2017).

It is the ongoing use of a sound and efficient IT risk management system, particularly in terms of making senior executives aware of cyber risks and IT threats, defining an appropriate IT risk level (the "corporate IT risk appetite"), and assigning responsibilities for managing them (Vugec et al., 2017). The management of IT risks includes the protection of IT assets, catastrophe recovery, and business continuity (Iskandar & Mohd Salleh, 2010).

According to Aasi (2017), risk awareness is ensured by senior officers in the organization, there is clear transparency and understanding of the firm's desire for major risk and compliance needs, and risk management responsibilities are embedded in the organization. The fundamental issue is enforcing accountability in order to reduce major hazards (Aasi et al., 2017).

2.6.4. IT resources management

The focus of this area is on how board practice and structure may ensure the best investment, usage, and allocation of IT resources (people, applications, technology, facilities, and data) (Fletcher, 2006). Investing in and properly managing important IT resources, including as applications, information, infrastructure, and people (Baumgarten & Blanke, 2017). Clear protocols and proven approaches for managing IT investments and efficient management of all IT resources, including software, data, employees and their skills, technology, and related (Vugec et al., 2017). Knowledge and IT infrastructure are optimized through IT resource management (Iskandar & Mohd Salleh, 2010).

According to Aasi, (2017) IT resource management, ensures optimal investment and administration of vital IT resources such as applications, information, infrastructure, and people. Optimizing knowledge and infrastructure is the major concern. All four aspects are covered by the IT resource management section.

2.6.5. Performance Measurement of IT

The purpose of this ITG focus area is to outline how board practice and structure can help ensure that IT performance is appropriately measured (Fletcher, 2006). Tracking and monitoring, resource usage, process performance, and service delivery (Baumgarten & Blanke, 2017). Activities for monitoring the implementation of IT strategy, governing IT programs and projects, monitoring processes, and delivering IT services in compliance with strategic objectives (Vugec et al., 2017).

According to Aasi (2017), implementation of strategies and projects is tracked and monitored. This applies for resource allocation, process execution, and service delivery as well. The use of a Balanced Score Card (BSC), which translates strategies into action for achieving goals that are measurable beyond conventional accounting, is one example (Aasi et al., 2017).

2.7. IT Governance Decisions

IT governance, according to Romero (2014), is about delegating decision-making authority and accountability. There are three important elements to consider while making a decision:

- What are the key decisions?
- Who will be assigned accountability for governing those decisions?
- How will those decisions be governed? (Romero, n.d.)

2.7.1. What are the Key Decisions?

Weil & Ross identified the key decisions to define the scope of IT are

- **IT principles**: High level statements on the role of IT and how IT will be used. For example: Utilize industry standards; Rapid deployment of new applications; Reuse before buy, buy before build. (High level decisions about the role of IT) (Weill, 2010) Weil and Ross described the need for every enterprise to publish IT principles that "can be translated into specific policies, standards and guidelines." They define IT principles as "the related set of high-level statements about how IT is used in the business."
- **IT infrastructure strategies**: Strategies for the base foundation, centrally coordinated services; how should these be priced; how to keep these up to date. E. g., network, shared data, etc. (Centrally coordinated, shared IT services that provide the foundation of the organization's IT capabilities) (Weill, 2010)

The main goal of the IT infrastructure and the services it provides is to enable the rapid implementation of future business initiatives. IT governance allocates responsibility for defining, providing, and pricing IT shared services. As with each of the decision areas of IT governance, these decisions should not be unilaterally made by IT. Business unit accountability and participation in these decisions will greatly increase the IT infrastructure's potential for being aligned with the business, delivering value and appropriately managing risk, resources, and performance. (Romero, n.d.)

- **IT architecture**: Set of technical choices that guides the organization. The architecture is a set of policies, principles and rules that direct the use of IT, including technology, data,

applications, etc. (An integrated set of technical choices, directions and policies for the organization) (Weill, 2010)

IT architecture refers to what are the key business processes in the organization and what are the key data elements in the organization? What key technologies serve these processes and data requirements? IT architecture also deals with which business processes need to be standardized across the organization and what is the level of data integration that is required across the organization? (Overview et al., n.d.)

- **Business application needs**: Coordinating, specifying the needs and requirements to meet business practices and operations. This covers both purchased and internally developed systems. (It's important to note that "business" for academia includes academic, research and business operational areas.) (Weill, 2010) Governance of business need decisions allocates ownership and accountability for identifying the business need, developing the business case, ensuring successful implementation, and delivering required business value. (Romero, n.d.)
- **IT investment**: Decisions about how much and where to invest in IT including project approvals, justification techniques, and post implementation continued review of value to the organization. (How much and where in the organization to invest in IT) That is, how much should the firm invest in IT? Which IT projects need to be funded? (Overview et al., n.d.)

2.7.2. Who Makes the Decisions?

Weil and Ross have undertaken detailed research into IT governance structures and decision-making methods. They distinguish six 'archetypes' of IT governance.

- **Business monarchy**: One or more members of the business executive management are in charge of making decisions. Decisions are made by business leaders (CEOs), but IT management is excluded from the process.
- **IT monarchy**: One or more members of IT executive management are in charge of making decisions in this scenario. There is a central figure in this archetype as well. The important IT decisions are made by senior IT executives alone or as a group.
- **Federal**: Executive management, business unit management, and typically IT executive management are all involved in joint decision-making. The important IT choices are made by business unit leaders or functional managers.

- **IT 'duopoly'**: IT and business management are the two specific groups that make IT decisions. Key IT choices are made collaboratively by senior executives and business groups.
- **Feudal**: Decentralize business unit management or process owners are heavily involved in decision-making in this case. These are relatively self-contained 'kingdoms.'
- **Anarchy**: There is no institutional governance, only ad hoc decision-making by individuals. Each user determines what is suitable for them, and they are responsible for their own IT decisions (Overview et al., n.d.).

2.7.3. How IT Decisions are Made

The final component of the Weill and Ross model is how governance is implemented; what institutions, processes, and supporting structures are in place? This transforms the framework into an operational structure. It is congruent with the committee and subcommittees structure of the organization. (eg. executive committee, IT steering committee, IT policy board) (Weill, 2010)

Table 4 Organizational Structure of ITG

Structure	Objectives
Board (Accountable to Evaluate, Direct and Monitor (EDM) IT Governance processes)	• Ensure the establishment and maintenance of a governance framework • Ensure that risk is minimized • Make resource optimization a priority. • Ensure that benefits are delivered • Make Stakeholder Transparency a Priority
IT Governance Committee (Established to support the Board of Directors in relation to Governance of Enterprise IT practices.)	• Ensure that the business and IT strategic plans are in alignment. • Create and manage innovation • Determine that the ecosystem and infrastructure are in place to allow for proper service delivery. • Encourage accessibility and efficient program and project management. • Ensure that IT activities are audited independently.
IT Steering Committee (Established to support the IT Governance	• Ensure that IT strategic goals are met. • Ensure that IT programs and projects are properly prioritized and carried out in accordance with the business's strategic goals (s).

Committee in relation to the Management of Enterprise IT.)	• Make the most use of IT resources. • Improve IT risk management.
Senior Executive Management **(**Responsible for implementing the Board's vision and strategy)	• Aligning, planning, and organizing IT goals and efforts in accordance with the Board's business and IT strategic direction and vision. • Creating, purchasing, and deploying the infrastructure, applications, and services that are required. • Managing and sustaining the company's existing services. • Assessing the performance and compliance of all IT-related processes, procedures, and activities by monitoring, reviewing, and assessing their performance and compliance.

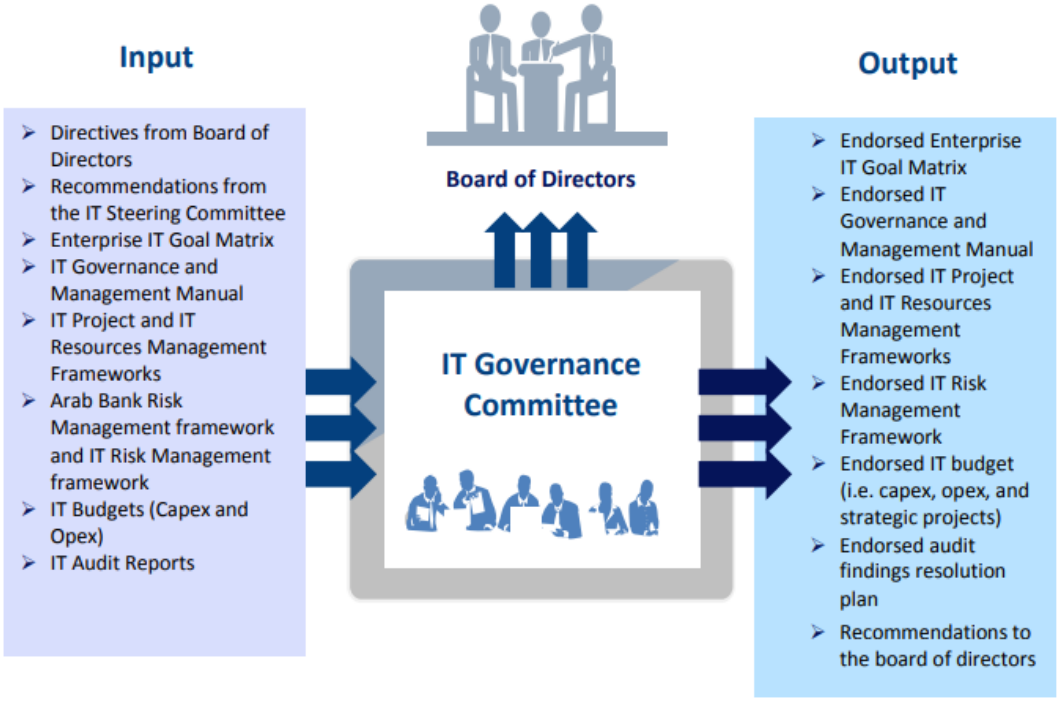

Figure 2: IT Governance Committee Typical Inputs and Outputs

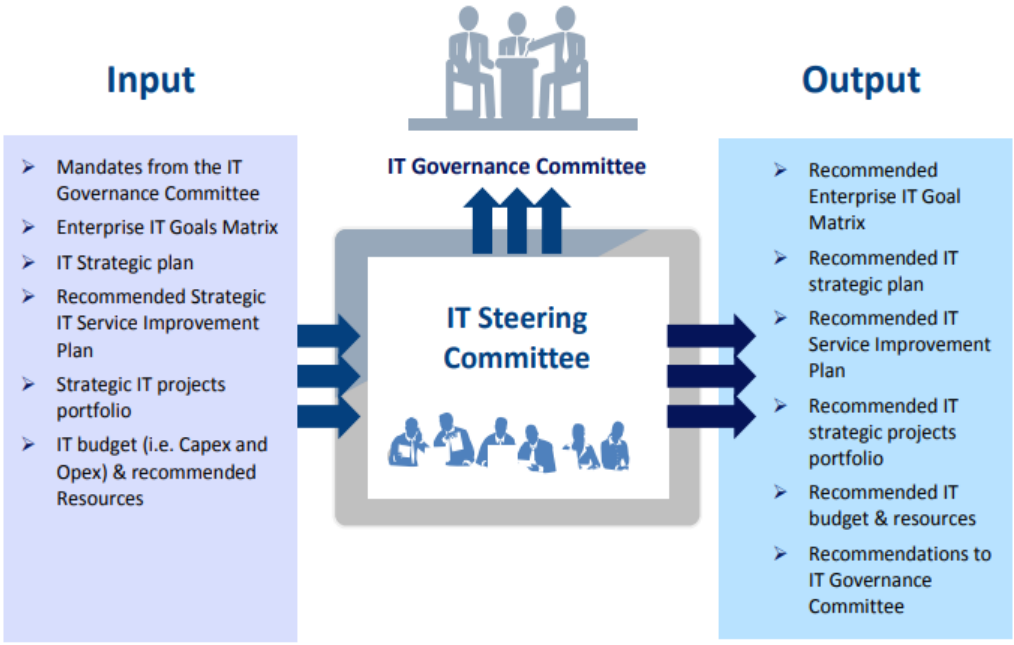

Figure 3: IT Steering Committee Typical Inputs and Outputs

2.8. IT Governance frameworks

IT governance framework, according to Westland (2019), is a plan that specifies how a company implements, manages, and reports on IT governance (Westland, 2019). According to Levstek (2018), the ITG framework helps the board and management comprehend the issues and strategic importance of IT, as well as assisting the company in continuing to operate and implementing the strategies needed to expand its activities in the future. It ensures that IT goals are realized and risks are mitigated (Levstek et al., 2018).

There are various ITG frameworks and standards on the market, and this section will cover four of them in order to emphasize the focus and goal of each framework in terms of ITG implementation. COBIT, ITIL, CMM, and ISO/IEC 38500 are the ITG frameworks.

2.8.1. COBIT

The Information Systems Audit and Control Association (ISACA) developed Control Objectives for Information and Related Technologies (COBIT) in 1996, and the IT Governance Institute (ITGI) now issues and maintains it as a framework for providing control mechanisms over the information technology domain. (Symons et al., 2005)

COBIT is the only complete process-oriented standard for governing and reviewing IT-activities, according to Gevriye (2011). In this area, the framework is a single compiled best-practice document. COBIT is intended to assist the board of directors in ensuring that IT adds value and is aligned with the overall company objectives, with resources provided to manage risks (Gevriye, 2011).

COBIT characterizes IT activities as process-oriented in four areas using a general process model. These are the domains:

- **Plan and Organize (PO)**: This domain encompasses strategy and tactics, and is concerned with determining how IT can effectively help to the achievement of business goals. In addition, the implementation of the strategic vision must be developed, communicated, and managed from several viewpoints. Finally, an appropriate organizational structure as well as technology infrastructure must be established (Gray, 2005).
- **Acquire and Implement (AI)**: IT solutions must be identified, created, or acquired, as well as implemented and integrated into the business process, in order to execute the IT strategy. This domain also covers updates to existing systems and their maintenance to ensure that the life cycle of these systems is maintained (Gray, 2005).
- **Deliver and Support (DS):** This domain is responsible for the actual delivery of essential services, which might range from traditional operations to security and continuity concerns to training. The essential support processes must be established before services can be delivered. The actual processing of data by application systems, which is commonly classed under application controls, falls under this domain (Gray, 2005).
- **Monitor and Evaluate (ME):** All IT processes must be evaluated for quality and compliance with control standards on a regular basis. This area so addresses management's oversight of the organization's control process, as well as independent assurance obtained from internal and external audit or other sources (Gevriye, 2011).

COBIT's key benefits in an IT governance framework are as follows: Provides linkage of IT goals to Business goals, it is compatible with all other standard IT governance frameworks and is coordinated with them, IT goals and functions were simply understood by management, a clear division of ownership and responsibility for each of the company's divisions (John, 2013).

2.8.2. ITIL

The IT Infrastructure Library (ITIL), created by the Office of Government Commerce (OGC) in the United Kingdom, is gaining traction as a framework for IT governance around the world (Symons et al., 2005). The ITIL framework serves as a solid platform for delivering higher-quality and more efficient IT service management. A standardized methodology, consistent processes and language, and industry-supported tools and technology are all part of ITIL (Selig, 2016). Many ITIL literatures (Cervone, 2008), (Potgieter, 2004) have emphasized the following advantages to users.

- Improved customer and user satisfaction
- Increased income and profitability as a result of improved service availability.
- Cost savings from less rework, better resource management, and utilization • Better decision-making and risk management
- Improved third-party service delivery (John, 2013)

2.8.3. CMM

The Capability Maturity Model (CMM) is widely regarded as the gold standard for developing and improving various software development processes (*Brand, Koen, Boonen, Harry:* n.d.). The Software Engineering Institute (SEI) of Carnegie Mellon University created the CMM paradigm, which was designed to progress from one maturity level to the next through five levels. Initial, repeatable, defined, managed, and optimized are the five tiers. The CMM model has been implemented in a number of ICT-related areas, including software acquisition, system engineering, integrated product development, and ICT services (Tavalea & Cusack, 2009).

2.8.4. ISO/IEC 38500

The International Organization for Standardization (ISO) and the International Electrochemical Commission (IEC) collaborated to establish ISO/IEC 38500, an international standard for information technology corporate governance based on the Australian standard AS8015: 2015. This framework and its recommendations help people at the top of businesses, such as owners, directors, board members, and partners, understand and fulfill their legal and ethical obligations for the effective use of technology. (Tavalea & Cusack, 2009).

The goal of the standard, according to Dayal (2014), is to encourage effective, efficient, and acceptable IT use in all companies by:

- Ensuring stakeholders that the organization's IT corporate governance can be trusted if the standard is followed, educating and advising directors on how to govern their organization's use of technology, and establishing a foundation for impartial IT corporate governance evaluation (Dayal, 2014).

It expresses preferred behavior to guide decision making, according to Dayal (2014), and it lays forth six criteria for good corporate governance of IT: responsibility, strategy, acquisition, performance, conformity, and human behavior.

2.8.5. Comparison of the IT Frameworks

Four significant standards and frameworks utilized in the industry to improve corporate governance were covered in the preceding sections. COBIT is the most significant and vital framework that any organization should implement, based on the examination of the applications of each of these frameworks. COBIT is a framework for managing and governing all IT practices. ITIL, on the other hand, appears to be the best choice for service-oriented industries. ITIL is better appropriate for service design, operations, and transitions. CMM will offer the most comprehensive software development strategy (John, 2013).

2.9. Information Technology Governance in Banking Sector

According to Soliman (2018), banks are currently facing a risky environment and never-ending technological advancements in order to get the best potential results. Information technology is critical for banks to be able to develop, execute, and provide new services and products, but it also poses substantial hazards. Banks must have proper IT governance in order to obtain results that are long-term sustainable (Soliman & Zaky, 2018).

Effective governance in banks may raise accountability, give quantifiable criteria, and improve planning for IT services, according to Gupta, but it also improves the bank's capacity to support its strategy and create value (Gupta, 2015).

The IT Governance and Management Manual for the Arab Bank (2017) states that the core principles of the IT governance and management system of the banks are founded on corporate IT governance as follows:

- Satisfying stakeholder needs by generating value for them and striking a balance between risk minimization, resource utilization, and benefit realization,
- Separating governance and management responsibilities by defining roles and responsibilities for each level and committee.
- End-to-end coverage of the business, which necessitates the following commitment from the Board and Management:
  - At the Board level, through a stable IT governance structure, with the goal of meeting stakeholder needs
  - The Management level, which includes implementing Board-level directives, operating and executing agreed-upon objectives, and reporting to the Board on the status of operations and execution activities.
- Using a single integrated framework that is compliant with relevant international standards and best practices. (Arab Bank, 2017)

2.10. Summary

This section summarizes what different scholars have said about IT governance. Several definitions, frameworks, and standards for IT governance are provided and briefly reviewed. Researchers have used a variety of typologies to characterize IT governance. Since the mid-1990s, IT governance has received a great deal of attention in both research and practice.

Among researchers and practitioners, ITG is a component of corporate governance. IT governance is intertwined with business governance. Corporate governance is defined as the division of power and wealth inside a corporation, as well as the mechanism by which the organization is controlled and managed.

IT governance, on the other hand, is much broader, concentrating on reforming and performing IT to meet current and future company and consumer goals. Gevriye Furthermore, IT governance

is somewhat reliant on external regulatory needs, although this does not decrease the relevance or complexity of IT management.

Strategic alignment, IT value delivery, IT resource management, IT risk management, and IT performance management are the five IT governance priority areas. These IT governance priority areas are based on the stakeholders' values. The majority of IT governance models, frameworks, standards, and structures take these five core areas into account during IT deployment.

There are numerous ITG frameworks and standards available, and this section will focus on four of them (COBIT, ITIL, ISO/IEC 38500, and CMM) to highlight the focus and goal of each framework in terms of ITG implementation.

According to Gevriye, COBIT is the only comprehensive process-oriented standard for governing and reviewing IT-activities. In this case, the framework is a single best-practice paper that has been compiled. COBIT is meant to aid the board of directors in ensuring that IT contributes value and is aligned with broader company objectives, with risk management resources offered. Using a broad process model, COBIT categorizes IT operations as process-oriented in four areas.

ITIL is gaining popularity as a framework for IT governance all over the world. The ITIL framework provides a solid foundation for providing higher-quality, more effective IT service management. ITIL has a standardized approach, consistent processes and vocabulary, and industry-supported tools and technology. It is more suitable for service design, operations, and transitions.

Banks must have strong IT governance in place in order to achieve long-term sustainable results. According to Gupta, effective governance in banks not only increases accountability, provides quantitative criteria, and enhances IT service planning, but it also improves the bank's capabilities to support its strategy and produce value.

CHAPTER THREE:

3. METHODOLOGY

The research methodology and designs for the thesis on IT Governance practices in Ethiopian commercial banks are discussed in this chapter. The research design, research method, data source, target population and sample design, data collection, study sample, measurement instrument, data collection procedures, measurement scale, data analysis, and ethical consideration were all covered in this chapter.

3.1. Research Design and Approach

The steps that an investigator was taken from the beginning to the end of a research project are referred to as research design. According to Mugenda (2008), a descriptive study design was used in this study. Descriptive research entails gathering data about events, organizing, tabulating, depicting, and describing the information gathered. This design will allow data to be collected within the context of the respondents, and data analysis to be conducted inductively, building from specific to general concepts, with the researcher interpreting the data's meanings.

The research approach focuses on qualitative method with the view assessing the practice of IT Governance of commercial banks in Ethiopia and exploring the challenges and problems faced by the banks. Qualitative research is more relevant in the context of discovery and thus be able to get access to what was never known before.

3.2. Data Source

Data sources can be divided into two categories: primary and secondary data. Among the primary data sources are information collected and processed directly by the researcher. Secondary data sources, on the other hand, include information retrieved from previous sources. This includes searching the Internet, various research articles, journals, or libraries. For the analysis and discussion of the targeted objective, the researchers used primary data sources, observation and questionnaire collected by the researcher himself.

3.3. Target population and sample design

Population is the total number of subjects targeted by the study or the group of elements to which the researcher wants to make inference (Mundia et al., 2015). Accordingly, IT department executives in all banks were be considered as source of population. Thus, the researcher took those IT executives of the banks as a study population to the intended research. The target population, in which the study wishes to make inference in Ethiopia, includes nineteen banks of which 17 were private and 2 state owed. Of the total bank branches, the share of state owned banks was 28.7 percent and that of private banks 71.3 percent. (NBE, 2020/21)

The sample frame of this research was eight private banks and two government banks. The target populations of this study are IT authorities in those ten banks. According to the National Bank of Ethiopia 2020/21 Quarterly report, the headquarters of all banks and about 34.2 percent of the total bank branches were located in Addis Ababa. (NBE, 2020/21) The geographical coverage of this research was in Addis Ababa. The reason for selecting this study setting is the target respondent i.e. directors, managers and senior officers are located in headquarters of the bank.

Table 5 Bank's respondent's information

	Name of the Bank	Ownership	No. of Respondents
1	Commercial Bank of Ethiopia (CBE)	Government	5
2	Development Bank of Ethiopia (DBE)	Government	5
3	Awash International Bank	Private	6
4	Dashen Bank	Private	5
5	Wegagen Bank	Private	6
6	Abysinniya Bank	Private	6
7	United Bank	Private	5
8	Nib International Bank	Private	5
9	Oromia International Bank (OIB)	Private	4
10	Corporative Bank of Oromia (CBO)	Private	5
Total			52

3.4. Sampling Technique

For this research the sample used by eight selected banks from nineteen commercial banks in Ethiopia. Purposive sampling technique to choose the required sample of banks from all banks operated in the country. The selection criteria are based on their time of formation. The eight

banks were established 20 years ago, and the two banks (OIB & CBO) are more than a decade old.

It is clear that all banks have an IT department. The study focused on IT executives at each bank. purposive sampling was used by the researcher to find people who are well experienced and familiar in the topic.

3.5. Data Collection

A questionnaire was used for data collection in this study. The questionnaires had six sections; Section A was be used to collect background data of the respondents, section B focused on IT strategic issues, section C helped collect data on IT governance issues. Section D was be used to collect data about ITG decision making hierarchy, section E focused on IT Project Risks and section F other related issues.

3.6. Sample of the Study

Sampling frame is the set of source materials from which the sample is selected. Since the total number of the target population is well defined (Complete sampling frame) and small the researcher took all the target population as a sample who are IT authorities in ten banks in Addis Ababa. Even though the researcher took all purposively selected target populations who are directly related to the research topic (Directors, Managers, Senior officers are located in headquarters of the bank), care need to be given when generalizing the result.

3.7. Instruments and Procedures of Data Collection

Data collection method was involved in gathering information through questionnaires. Besides, the required data for the completion of the study will be collected from primary and secondary sources. Hence the primary sources of data were the Directors, Executive Managers, Senior Officers, along with other important documents which are relevant to the study was analyzed. The principal source of data for the research is primary data. Pretesting of the questionnaire was conducted before the questionnaire is distributed to the Respondents. Then the questionnaires were distributed in person to the selected banks and collected for further analysis.

Totally 52 questionnaires were prepared; distribute and enough time was given to complete the questionnaires and return them to the researcher on time; then the researcher was recollect the responses through representative personnel assigned in the organization. Collected data from the questionnaires was coded and tabulated. This was to facilitate analysis using descriptive statistics. The findings were presented using tables, frequencies and percentages. This aided presenting vital information on IT Governance Practices in Commercial Banks in Ethiopia.

3.8. Measurement scale

The scales used in this thesis were adopted from different researchers with modification from researchers consult with advisor.

Table 6: Questionnaires measurement scale

Section	Category	No of question	source
B	**Questions Related to IT Strategic Issues**	9	(*Lunardi, G. L., Macada, 2014*)
C	**IT Governance Issues**	21	(*Ali, S., 2006)*
D	**ITG decision making hierarchy**	5	
E	**IT Project Risks Related issues**	9	(*Lunardi, G. L., Macada, A. C., & Becker, J. L., 2014)*
F	**IT Investment related Issues**	2	

3.9. Data Analysis

The information gathered from the questionnaires was coded and tabulated. This was done to make descriptive statistics easier to use. The findings were presented in the form of tables with frequencies and percentages, as well as graphs. This aided in the presentation of critical information on IT Governance Practices in Ethiopian Commercial Banks. Section A was analyzed through tables and graphs to depict a pattern. It covered information on demographics from the commercial banks covered in the study.

Section B, C, D, E & F helped to understand IT Strategic and IT Governance issues, ITG decision making hierarchy, IT Project Risks and related Issues. It involved analysis of the extent of adoption of IT governance best practices by the commercial banks in Ethiopia through tables with percentages and graphs.

Due to the quantitative nature of data gathered, Statistical Package for Social Sciences (SPSS) and Excel as the most suitable tools to analyze the data was used.

3.10. Ethical Considerations

The legal and moral principles were considered seriously. For this research work, the respondents were briefed about the research topic and they were clearly identifying the research. The study considered the voluntary consent of the respondents while collecting data. Moreover, data collected from the respondents was used for academic research purpose only and will not be revealed to the third party. This study paid attention to avoided plagiarism practices and properly recognize the previous studies. The complete information about the previous writers was mentioned both in the text and reference list in accordance with American Psychological Association (APA) guide line.

CHAPTER FOUR

4. ANALYSIS AND PRESENTATION OF DATA

4.1. Introduction

In this section, we presented the data analysis and results in the case of the 2 governmental and 8 Private commercial banks. And it presents a brief analysis of the data, results of the survey instrument along with a discussion of each research question.

The objectives of the study were used by the researcher as a guide in analyzing the findings obtained from the field work. With the research objectives, the findings of the study were categorized into the following:

Background Information, Questions Related to IT Strategic Issues, IT Governance Issues, ITG Decision Making Hierarchy, IT Project Risks Related issues, IT Investment related Issue, Other issues

4.2. Background Information

Background Information Focus areas include the gender of the respondents, the level of education and the type of education, their experience in the banking sector, especially in the ICT area, and ownership of the institution in which they work. It also looks at their current position and roles and responsibilities.

4.2.1. Classification of ownership of the Banks

Table 7 The ownership of banks

Type	Frequency	Percent
Government	10	19.2
Private Share Company	42	80.8
Total	52	100.0

The Table above shows that the ownership of the banks was government banks at 64.0% and private, with a response of 36.0%.

4.2.2. Gender of Respondents

Table 8 Sex of respondents

	Frequency	Percent
Male	43	82.7
Female	9	17.3
Total	52	100.0

As shown in the table above, the total number of respondents from the two public and eight private banks is fifty-two, forty-three males and nine females. Of these, 82.7% are males and 17.3% are females.

4.2.3. Educational Level of Respondents

Table 9: The highest level of respondent's education

	Frequency	Percent
MSc	30	57.7
BSc	14	26.9
MBA	8	15.4
Total	52	100.0

Observing the respondent's educational background focuses on the highest level of their education. As can be seen in the table above, most or more than half of the respondents have an MSc 57.7%. Respondents in the second level have a BSc 26.9%, and the minimum number of respondent's highest level of education is MBA 15.4%.

4.2.4. Educational Fields of Respondents

Table 10: Fields of education

	Frequency	Percent
IT	31	59.6
Business & Economics	16	30.8
Engineering	5	9.6
Total	52	100.0

As can be seen in the table above, 59.6% of respondents field of education is IT. 30.8% of respondent's field of education is Business & Economics, and the minimum number of respondents field of education is Engineering, that is 9.6%.

4.2.5. Current position of the respondents

Table 11: Current position of the respondents

Distribution level of respondents	Frequency	Percent
Director	35	67.3
Manager	11	21.2
System Administrator	3	5.8
Senior Software Developer	3	5.8
Total	52	100.0

From Table 11, majority of respondents are in the level of Director representing a 67.3% of responses. Another 21.2% fall in the Manager position, as reported by the respondents, while 5.8% are in the position of System Administrator and Senior Software Developer.

4.2.6. Work Experience of the respondents

Table 12: The respondent's Years of work experience

	Frequency	Percent
1-5 years	19	36.5
6-10 years	23	44.2
11-15 years	10	19.2
Total	52	100.0

From the Table 12, majority of respondent's banks have been in operation between 6-10% years with a 44.2%. Another 36.5% have been in operation between 1-5 years, only 19.2% of respondents have been in operation between 11- 15 years.

4.2.7. ITG/ IT strategy/ IT Management Units

Table 13: Banks with ITG/ IT strategy/ IT management units

	Frequency	Percent
Yes	52	100.0

From the table 13, although the names vary, there is no bank without an ITG/ IT strategy/ IT Management units or departments. All participants in the two public banks and the eight private banks confirmed this.

4.2.8. Roles and responsibilities of respondents

In most banks, the IT department is divided into six directors. The respondents are from these groups. These are their responsibilities and roles in the table below.

Table 14: Roles & responsibilities of respondents

Name of Directorates	Roles and responsibilities
IT Service Operations Management Department	• Responsible for ensuring that all services and applications are stable and available for use by the business.
Core Banking and Office Automation Department	• Responsible for setting up and ensuring that equipment run efficiently at data centers. To manage data center operations in such a way that operations are optimal, in terms of stability (minimum down-time), adhering to SLAs, cost effectiveness, security and ensuring business operations' uptime is maximized.
Electronic Payment Operations Department	• Responsible for the day to day card services business performance working cross-functionally to oversee operational execution of a plan that meets commercial objectives. • Be responsible for the commercial and technical card services road map, collaboratively preparing business cases with finance colleagues where needed.
IT Infrastructure Department	• Plan, organize, and manage infrastructure staff, developing, maintaining, supporting, and optimizing network infrastructure, server infrastructure, data communications, data center facilities and telecommunications systems.
Database Administration Department	• Responsible for the usage, accuracy, efficiency, security, maintenance, administration and development of a bank computerized databases, providing support to all departments.

4.3. IT Strategic Issues

4.3.1. The Banks with Strategic Information Plan

Table 15: The Banks with Strategic Information Systems plan

	Frequency	Percent
Yes	48	92.3
No	4	7.7
Total	52	100.0

From Table 15, most respondents stated that their bank has a plan. This is represented by a 92.3% response. Only a very small number of participants responded negatively with a 7.7% response. This result confirms that the management of all the banks management has a strategic information systems plan in place.

4.3.2. The management monitors and updates of strategic information systems plan

Table 16: The management monitors and updates

		Frequency	Percent
Valid	Yes	48	92.3
	No	4	7.7
	Total	52	100.0

From Table 16, most respondents believe that the management will provide the necessary monitors and updates for the strategic information systems plan.. This is represented by a 92.3% response. Only a very small number of respondents responded negatively with a 7.7% response. This result confirms that the management of all banks provides the necessary monitors and updates for the strategic information systems plan.

4.3.3. Prioritization of information technology projects

Table 17: Prioritization of information technology projects

		Frequency	Percent
Valid	Yes	50	96.2
	No	2	3.8
	Total	52	100.0

From Table 17, most respondents believe that the strategic information systems plan form the basis for the annual plans, annual and long-term budgets and the prioritization of information

technology projects. This is represented by a 96.2% response. Only a very small number of respondents responded negatively with a 3.8% response. This result confirms that strategic information systems plan of the banks form the basis for the annual plans, annual and long-term budgets and the prioritization of information technology projects.

4.3.4. Procedures through which the bank tracks latest technological developments

Table 18: Procedures through which the bank tracks latest tech. developments

	Frequency	Percent
Yes	28	53.8
No	24	46.2
Total	52	100.0

From Table 18, majority of respondents did agree Due to the Procedures through which the bank tracks latest technological developments by a 53.8% response rate. The rest of the respondents not agree with the statement that any appropriate procedure through which the organization tracks latest technological developments with a 46.2% response. This confirms to the study with a slight balance in response by those who agreed and those that disagreed.

4.3.5. Emergence of new technologies in the industry

In this question to the respondents tries to grasp those techniques implemented by the banks subjected for the inquiry. As of the respondents, different procedures have been implemented in order that they can be aware of the emergence of the new technologies in the industry. The following are among these techniques and procedures.

1. **Receive update of IT strategy:**

The respondents refer this technique as a major tool to update their current status in using technologies. Major vendors of technologies have an updating access to their clients and getting connected with these vendors lets the banks to access the newly developed IT technologies.

Update reception is not a mere act to be installed without proper evaluation. Expert critique and evaluation is pointed as a prerequisite duty by the respondents.

2. **Internal IT assessment:**

Continuous expert appraisal is among the main tools listed on the top priorities by many respondents. The banks have permanent staffs which are entitled to accomplish these duties of assessment. Review and assess the adequacy of IT oversight charter is part of these duties.

3. Expert – Board meetings

Those experts who are engaged in the assessment process of the bank disclosed that their continuous assessment of the sector and the internal sphere is, at last, to be presented for the governing body of the bank as a formal report. Arranging formal meetings and documenting the minutes of the discussions are taken as inputs to identify the gap created and the need for additional technologies basically in terms of risk management. The experts also use these meetings to present their evaluations for the board so that the board reconsiders the need for new technologies and additional assessment can be permitted. As many respondents endure, these meeting are so important to investigate the newly emerged technologies and concise agenda setting and scheduling are done with due attention.

4. The role of Experts

The role of experts is mentioned by the respondents as a function of Design and customizing technologies in order to make it compatible with the existing system and creating platform to improve customer benefit. Experts are usually entitled to promote effective IT governance, Oversee processes of third parties, Receive critical IT-related updates. They convince the board for approval of new technology purchase, oversee IT expenditures, assess and report IT related risk and organizational impacts. They participate in strategic formulation and implementation of agenda setting, preparing for rational and informed decision making process. IT priorities to enable the bank have to balance its improvement goals with available resources in alignment with the bank's strategic goals and mission.

5. Consultation:

The banks are also having a practice of getting advice through senior IT Management team, and external authoritative consulting professionals and institutions about new technologies and IT strategy or programs review, IT operations, proposals and projects to advise the CIO advise and control how digitalize the company should be.

4.3.6. Key performance indicators and drivers

Table 19: Key performance indicators and drivers

		Frequency	Percent
Valid	Yes	52	100.0

From Table 19, all respondents say identified key performance indicators and drivers of the IT department been determined.

4.3.7. Monitored from time to time

Table 20: Monitored from time to time

		Frequency	Percent
Valid	Yes	31	59.6
	No	21	40.4
	Total	52	100.0

From Table 20, majority of respondents agreed to the key performance indicators and drivers of the IT department monitored from time to time. This is represented by a 59.6% response. The rest of the respondents did not agree with the statement that the key performance indicators and drivers of IT department monitored from time to time with a 40.4% response. This confirms to the study with a slight balance in response by those who agreed and those that disagreed.

4.3.8. Benchmarked against industry standards

Table 21: Benchmarked against industry standards

	Frequency	Percent
Yes	46	88.5
No	6	11.5
Total	52	100.0

From Table 21, most respondents stated that the key performance indicators and drivers of the IT department benchmarked against industry standards. This is represented by a 88.5% response. Only a very small number of participants responded negatively with a 11.5% response. This result confirms that the key performance indicators and drivers of the IT department benchmarked against industry standards in most banks.

4.3.9. Management identified the required information technology expertise

The respondents listed out many techniques that the management of their bank used to identify the required information technology expertise. I have organized their response in the following manner.

1. **By getting the support of consultants:** Many respondents disclosed that the management gets Consultations from experts from within the bank and outside.
2. **Observation and experience:** Empirical inquiry through observation and experience are mentioned among the many tools to identify the IT expertise. As the banks are familiar with the technology, the management has been considered by the respondents with significant capabilities to discern the useful IT expertise.
3. **Certifications:** Respondents mentioned the status of certifications as a useful tool to identify specific IT expertise. They also mentioned standards set by experts that are capable of selecting one among the many other alternatives. Certifications give guide by setting the standards that can be used to identify the competent IT expertise.
4. **Strategic plan:** Some adhere that they have strategic plan and the selection process is done according to the need set in the strategic plan. In addition to the strategic plans, other standards are also set to be used as criterion for the management to identify and select the proper one.
5. **Researches:** Seeking information from different sources and conducting research is also mentioned as important tool of identification by the respondents. During the course of the research making assessment, Compatibility test, certification, and others are considered as important factors.
6. **Separate sections:** Many of the respondents assure the presence of one separate section or department aligned to execute this specific task. “There is a unit called IT innovation & project Mgt. This unit is subjected to study & propose new technological alternatives”
7. **Using other parties’ participation:** Respondents also mentioned other parties which have big grand role in identification and selection of technologies. Suppliers are the first to recommend new technologies while other stakeholders demand came next. Customer satisfaction is major criteria for selection.

4.4. IT Governance Issues

4.4.1. Board members of IT professionals

Table 22: Board members of IT professionals

		Frequency	Percent
Valid	Yes	37	71.2
	No	15	28.8
	Total	52	100.0

From Table 22, most respondents answered yes to the question of whether there are IT professionals like CIO and senior IT executives in your banks who are board members. This is represented by a 71.2% response. The rest said no with 28.8% response.

4.4.2. Board members role

Respondents described the role of IT board members in different ways. The researcher compiled their answers as follows.

A. **Monitoring or Oversight:** Reviews IT operations, proposals and projects to advise the CIO on demand management, strategic alignment, value delivery, policy/procedure development, and risk management.
B. **Advisory role:** They convince the board for approval of new technology purchase and defend IT budget, getting approval for new system acquisition it the price is over the limit of the CEO.
C. **Strategic technology scanning:** Receive update of IT strategy and critique it, review internal IT assessment, evaluate IT Department effectiveness

4.4.3. IT Project Implementation Fails

Table 23: IT Project Implementation Fails

Valid	Frequency	Percent
Change CIO, CEO and other top management	8	15.4
Change in operational level personnel	7	13.5
Based on the situation	31	59.6
Other	6	11.5
Total	52	100.0

From Table 23, the respondents were asked what decision they would make if the IT project failed. 59.6% respondents responded based on the situation. These respondents are of the

opinion that the decision will be known only after a decision has been made on the nature of the project, the relevant part, and the factors that led to its failure. And figure out why your project is failing (Complexity, external, financial, operational, organizational, schedule or technology). Once we understand the nature and cause of the problem, we will take appropriate action.

15.4% respondents chose Change CIO, CEO and other top management, while 13 respondents said Change in operational level personnel. The rest have different opinions. For example:

- First of all why it's fail? We all IT team sit together and identified the root cause of the issue and then we proceed the implementation after correct the problematic area.
- So far, we're not encountered an IS project failure once their implementation has started. But, there are circumstances where the project getting delayed which the management has entertained.
- IT projects has failed so far. But appropriate measures of resolving the situation
- There is no project failed as far as I know. If it happens the action will depends on the level of the project failed. This is represented by 11.5% response, also illustrated by figure 4.16.

4.4.4. IT steering committee

Table 24: Banks with IT steering committee

Valid	Frequency	Percent
Yes	48	92.3
No	4	7.7
Total	52	100.0

From Table 24, most respondents confirmed that there is an IT steering committee in the banks where they works. This is represented by a 92.3% response. The rest said no with 7.7% response. They say that no permanent IT committee; however, a temporary IT committee will be set up as needed. But once it achieves its goal, it will not continue.

4.4.5. Roles of IT steering committee

Respondents described the role of IT steering committee different ways. The researcher compiled their answers as follows.

- Providing advice on budget, identify priorities of the project, identify potential risk
- Communicate goals and objectives through IT strategy
- Discuss with stakeholders on IT issues and pass resolutions
- reviews of major initiatives, and operational service performance
- reviewing key project status, address identified challenges & monitor the program
- Assist the CEO and IT department to effectively discharge their responsibilities in respect of the technology-related investments, operations, strategies.

4.4.6. Assigned to a person in a senior management position

Table 25: Assigned to a person in a senior management position

Valid	Frequency	Percent
Yes	42	80.8
No	10	19.2
Total	52	100.0

From Table 25, majority of respondents agreed the responsibility for IT corporate governance been assigned to a person in a senior management position. This is represented by 80.8% response. The rest of the respondents did not agree with the statement that the responsibility for IT corporate governance been assigned to a person in a senior management position with a 19.2% response.

4.4.7. Senior IT Managers focus

Table 26: Senior IT Managers focus

a. How will IT change the basis of competition in the industry	52
b. How can IT help to win against traditional and new competitors?	36
c. How can we use IT to enter new markets?	48
d. What should we take advantage of new opportunities?	24
e. Does our business plans reflect the full potential of IT to improve performance?	50
f. Do we have the capabilities required to deliver value from IT?	39
g. Do we have the human capital to leverage the opportunities that IT provides?	47

h. Who is responsible for realizing value from IT?	29
i. Is our IT investment portfolio aligned with opportunities and threats?	52

From Table 26, Respondents were asked what the attention of the senior IT managers in their banks was. Most respondents chose all of the tasks listed. Others have chosen a different course of action. As a result, most of the functions of the senior IT manager are as follows understandably.

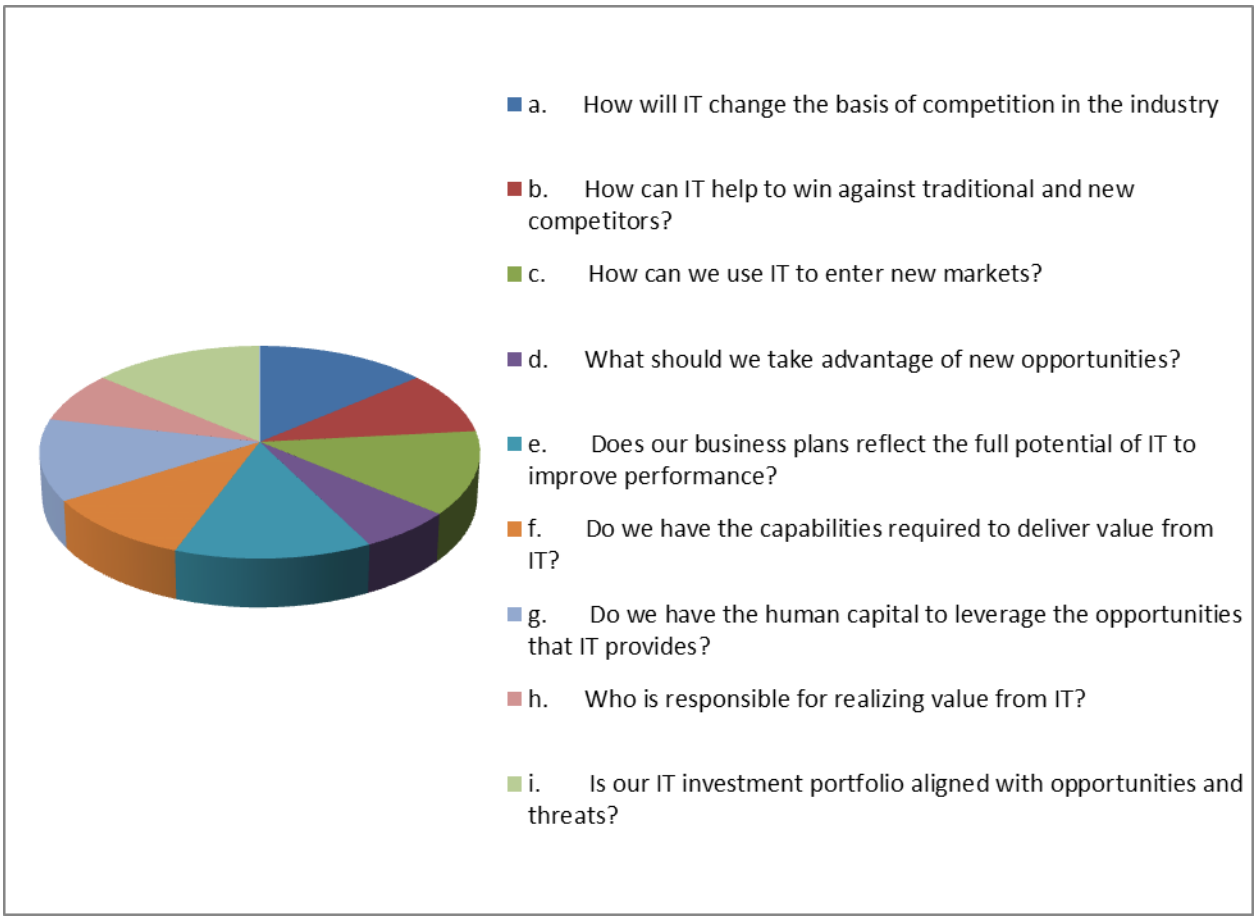

Figure 4: Senior IT Managers focus

4.4.8. Main objective of IT

Table 27: The main objective of IT in the bank

	Frequency	Percent
Help the firm to be innovative and creative	34	65.4

Help the firm to differentiate its products and services	18	34.6
Total	52	100.0

From Table 27, majority of respondents say the main objective of IT in their bank is To help the firm to be innovative and creative. This is represented by a 65.4% response. The rest of the respondents say to help the firm to differentiate its products and services with a 34.6% response.

4.4.9. Systems that are initiated and implemented in the Bank

Table 28: Systems that are initiated and implemented in the Bank

	Frequency	Percent
demand driven	29	55.8
supply driven	11	21.2
minimize operational costs	6	11.5
Both	6	11.5
Total	52	100.0

From Table 28, respondents were asked to consider IT systems that are initiated and implemented by the banks in which they operate. This could be (ERP, SCM, KMS, HR, tax, internet based procurement systems, mobile/ agency banking etc). When asked to choose how these systems will be initiated, 55.8% of respondents select demand driven. Which means user department requested the systems.

21.2% of respondents select Supply driven, which means the organization has pushed the system to user departments to use it. 11.5% respondents select minimize operational costs, the rest 11.5% felt that a combination of demand driven, supply driven and minimize operational costs.

4.5. ITG Decision Making Hierarchy

4.5.1. Who makes what decision

Table 29: who makes what decision

	CEO	Senior IT executives	Business unit leaders	Senior business executives and business units together	IT executives and business executives together	Each individual user
IT principle	0	44	0	0	10	38
IT architecture	0	0	0	15	36	0
IT infrastructure	10	8	4	0	0	0
Business applications	0	0	48	37	6	14
IT investment	42	0	0	0	0	0
Total	52	52	52	52	52	52

42 respondents said the CEO decides on IT investment and 10 respondents chose IT infrastructure. 44 Respondents said Senior IT executives decides IT principle and 8 respondents chose IT infrastructure. 48 respondents said business unit leaders are based on business applications and 4 respondents chose IT architecture. 37 respondents' senior business executives and business units together decided on business applications and 15 respondents chose IT infrastructure. 36 respondents said IT executives and business executives together decided on IT architecture, and 6 respondents chose Business applications. 38 Respondents each individual user decides on IT principle and 14 respondents chose Business applications. This is also illustrated by figure 4.20 b.

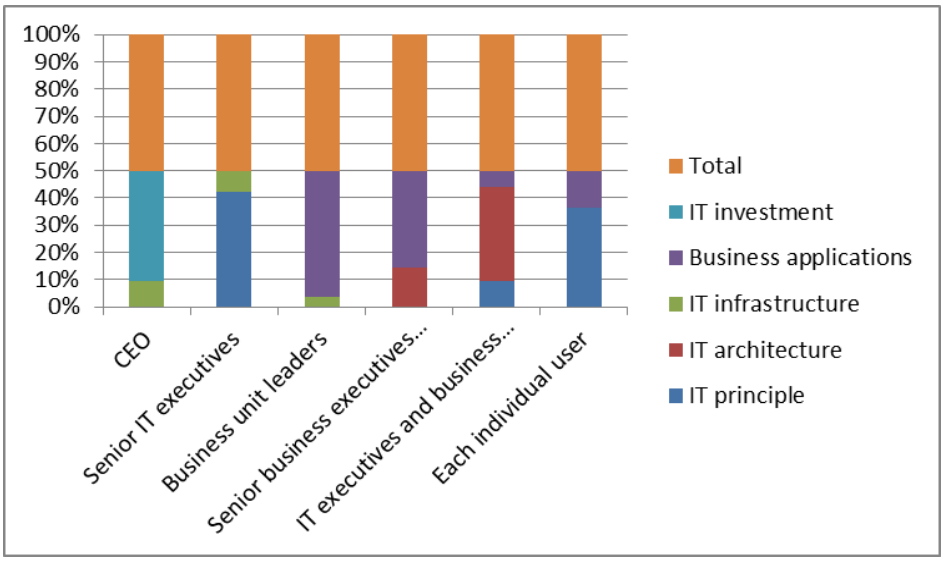

Figure 5: Decision hierarchy

4.6. IT Project Risks Related issues

4.6.1. Common IT Project Risks

Table 30: Common IT project risks

Development risk	Can the IT department develop the proposed system?	2
	does the IT department understand the domain	18
	Is the technology mature?	0
	Can the personnel implement the requirements with available technology at hand?	19
	Both	13
Total		**52**
Organizational risk	are users ready to change,	31
	Is there top management support?	13
	Both	8
Total		**52**
Market risk	Are clients, customers, and suppliers prepared for the changes the new system requires?	23
	is there a risk of emergence of superior technological alternatives that will compromise the returns that the client is expecting	19
	Both	10
Total		**52**

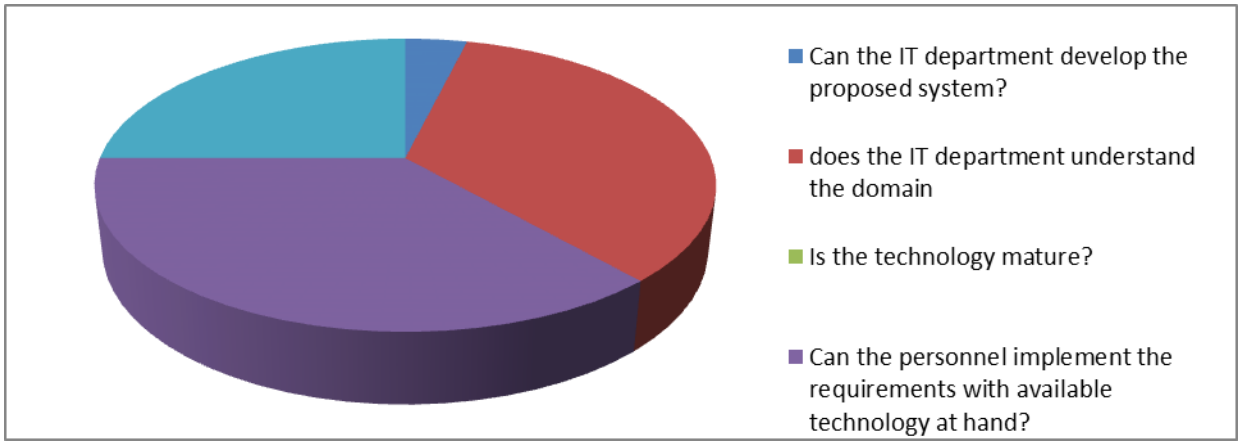

Figure 6: Development Risk

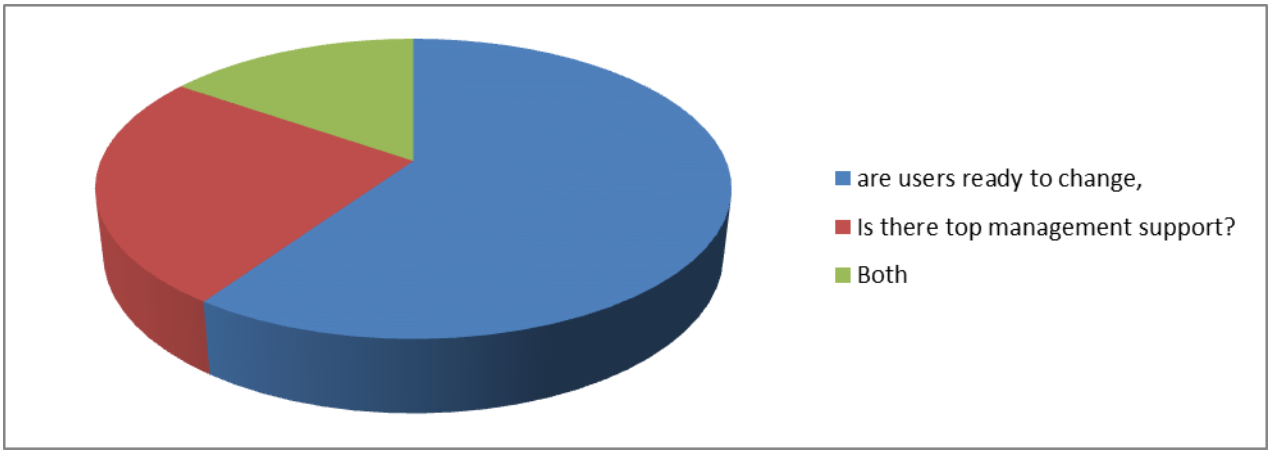

Figure 7: Organizational Risk

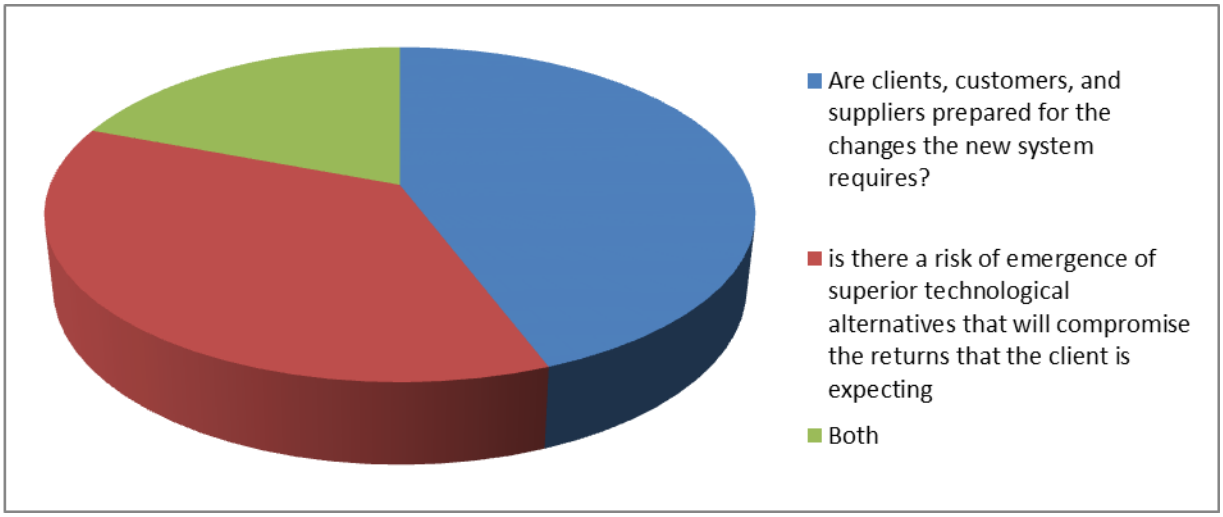

Figure 8: Market Risk

4.6.2. Management's plan to periodically conduct risk

Table 31: Management's plan to periodically conduct risk

Valid	Frequency	Percent
Yes	25	48.1
No	27	51.9
Total	52	100.0

From Table 31, majority of respondents did not agree to management have a plan to periodically conduct risk assessments covering the organization's use of information technology. This is represented by a 51.9% response. The rest of the respondents agreed with the statement that the management have a plan to periodically conduct risk assessments covering the organization's use of information technology with a 51.0% response. This confirms to the study with a slight balance in response by those who agreed and those that disagreed.

4.6.3. The results of the risk assessments

Table 32: The results of risk assessments

Valid	Frequency	Percent
Yes	25	48.1
No	27	51.9
Total	52	100.0

From Table 32, majority of respondents did not agree to the results of the assessments acted on where appropriate or required? This is represented by a 51.9% response. The rest of the respondents agreed with the statement 51.0% response.

4.6.4. Arrangements of the banks for the regular review and audit of its systems

The respondents listed out many arrangements does the organization have for the regular review and audit of its systems to ensure risks are sufficiently mitigated and controls are in place to support the major processes of the business.

The researcher organized their response in the following manner: The bank has implemented operational risk assessment which can be done quarterly, provide appropriate training on risk management to all users, use periodic review on risk level identified, all systems audit online if the risk occurs solve immediately, running tests regularly, risk plan is prepared, support and following up, monitor project quality, develop policies and governance procedures, quarterly

assessments of system on the policies, procedures and best practices, provide advice or direct input on budgeting including asset (such as people, money, quality…), understand the total cost to provide the End-User Product or Service and communicate that to the Executives and Customers.

4.6.5. Responsibility for privacy policy, privacy legislation and compliance

Table 33: Responsibility for privacy policy, privacy legislation and compliance

Valid	Frequency	Percent
Yes	41	78.8
No	11	21.2
Total	52	100.0

From Table 33, majority of respondents agreed the responsibility for privacy policy, privacy legislation and compliance therewith been assigned to a person. This is represented by a 78.8% response. The rest of the respondents did not agree with the statement that the responsibility for privacy policy, privacy legislation and compliance therewith been assigned to a person with a 21.2% response.

4.6.6. Legislative and regulatory requirements

Table 34: Responsibility for privacy policy, privacy legislation and compliance

	Frequency	Percent
Yes	35	67.3
No	17	32.7
Total	52	100.0

From Table 34, majority of respondents agreed the bank identified the set of legislative and regulatory requirements for protecting personal information and developed a policy and procedures for monitoring compliance with them. This is represented by a 67.3% response. The rest of the respondents did not agree with a 32.7% response.

4.6.7. Implemented effective controls

Table 35: Implemented effective controls

	Frequency	Percent
Yes	41	78.8
No	11	21.2
Total	52	100.0

From Table 35, majority of respondents agreed the bank implemented effective controls to provide reasonable assurance that systems and data are available in conformity with availability policies. This is represented by a 78.8% response. The rest of the respondents did not agree with a 21.2% response.

4.6.8. IT departments deal with maintenance and service costs

Table 36: IT departments deal with maintenance and service costs

Valid	Frequency	Percent
Beneficiary departments will cover the costs IT department incurred	27	51.9
Beneficiary departments over the cost the IT department incurred	9	17.3
Beneficiary departments are charged market equivalent price by the IT department	16	30.8
Total	52	100.0

From Table 36, there was a high response from those who select that the beneficiary departments (units) will cover the costs IT department incurred, which will be transferred to corporate costs/expenses by a response of 51.9%. Another group of respondents select that Beneficiary departments (units) are charged market equivalent price by the IT department by a response of 30.8%. The rest 17.3% select Beneficiary departments (units) cover the cost the IT department incurred.

4.7. Other issues

A. Respondents' recommendation to universities teaches their students

In this section, the respondents are asked if there was a knowledge gap between what the bank industry needs and what universities produce / graduate. All respondents agreed. They also offered a variety of ideas based on their experience and role. It is widely suggested that universities should focus on industry-required technologies rather than on courses offered as a whole.

They also suggested various topics that should be given to IT students. These are: Banking Information System, IS Auditing, Controls and Assurance, Cloud computing & virtualization, Cyber Space, Artificial Intelligence, IT Security, System Administration and IT Infrastructure, Mobile Banking technology, SaaS, Virtualization, Algorithm development & analysis, Storage and backup administration, Network design and Implementation, IT Governance & Policy related topics, Digital Banking, Data and Cyber Management, Cloud Engineering, Information Security Management, Business Intelligence & Analytics, particularly on Unix/Linux platform, Software defined infrastructure …

B. Most important the management issues

Their questionnaire also includes asking respondents about the most important the management issues that they face. Alignment of IT with the business and Security privacy had been the top IT management issues.

The options offered were Security / cyber security / privacy, Alignment of IT with business, Data analysis/data management, IT cost control (reduction), Compliance and regulation, Cots control/reduction of business, Innovation and Digital transformation. All respondents have their own order. The overall result is shown in the table and graph below.

Table 37: Ranking the most concern issue

	Security privacy	Alignment IT with Business	Data analysis	IT cost control	Compliance & regulation	Cost control /reduction of business	Innovation	Digital transformation
1	17	34	1	0	0	0	1	1
2	32	18	3	0	0	0	3	0
3	3	0	12	2	8	1	5	23
4	0	0	15	1	6	6	19	6
5	0	0	4	14	15	1	7	8
6	0	0	11	7	14	11	3	5
7	0	0	6	21	5	17	7	0
8	0	0	0	7	4	16	7	9
Tot	52	52	52	52	52	52	52	52

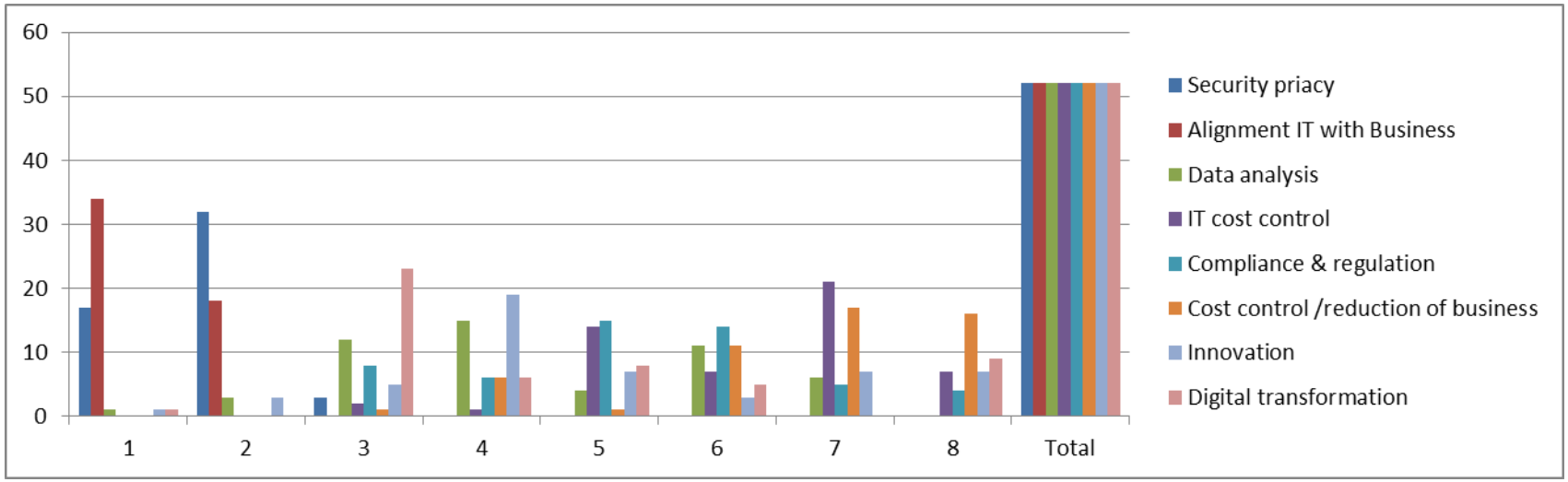

Figure 9: Ranking the most concern issue

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATIONS

5.1. Introduction

This research had two objectives. The first was to identify the IT Governance practices in commercial banks in Ethiopia. It also aimed to identify the challenges that Ethiopian commercial banks face in implementing IT Governance. As IT governance has become a common denominator across enterprises, the main purpose was to build a theoretical framework that Ethiopian banks could employ to make IT governance more practical.

5.2. Conclusion

The purpose of this study was to investigate the importance of IT Governance practices in commercial banks of Ethiopia. The specific objectives were to explore the current status of IT Governance practices in commercial banks in Ethiopia and explore the challenges Ethiopian commercial banks have in implementing IT Governance. In doing so the study tried to analyze data that have been gathered through both primary sources.

In response to the research question of what is the IT Governance practice in commercial banks in Ethiopia, The researcher received a number of points from the respondents.

- According to the study, Ethiopian commercial banks have a unanimous opinion on the value of IT governance policies. The addition of benchmark processes to IT governance improved the bank's operations significantly. ITG has a significant impact on the banking industry and the wider financial sector, assisting with business decisions, generating business value from IT-enabled investments, achieving operational excellence through reliable and efficient technology application, reducing IT-related risk, and optimizing the cost of IT services and technology.

- Discovers two ways of application for establishing mechanisms for implementing ITG based on the findings of the research. The first demonstrates how the banks have built up their strategic plan, organizational structure, and IT management committee. However, there is a gap in the details of the activities, roles and responsibilities of each group and its members. The emphasis of senior management and the board of directors is the second

outcome. As a result, regular trainings, meetings, and visits are held. This aided in the improvement of the IT application's efficiency.

- The study also indicated that the highest ranked motivator and desired consequence of IT governance processes is IT and business alignment, with the majority of respondents believing they are familiar with the bank's IT strategy. There is evidence that IT governance has a significant impact on Ethiopian banks' business processes and operations.

- The alignment of IT with the business was mentioned in the literature review in Chapter two. This is verified by the survey. The survey asking respondents about the most important the management issues that they face and remarkably, alignment of IT with the business has been the top IT management issues.

Next, in response to the research question of what are the challenges for applying IT governance in banking sector of Ethiopia, The researcher received a number of points from the respondents.

- One of the greatest challenges to Ethiopian banks adopting an IT governance framework was a shortage of trained individuals who could affect IT governance understanding. This was due to a lack of sufficient institutions to train on IT strategy in order to implement IT governance processes. It is apparent that the board and executive management's lack of IT concept and expertise is a barrier to the banks' compliance with basic IT governance standards.

- Lack of external pressure to apply formal ITG practice is another obstacle to formal ITG implementation. According to the findings of the study, the National Bank does not enforce the use of a formal ITG framework or standard.

- One of the issues identified by this research is a lack of top management support. As a result of the findings, it can be concluded that top management and board members in the banking industry are not appropriately allocating resources, sharing vision and articulation, and formulating strategy for the implementation of formal IT governance. As a result, the most frequently mentioned obstacles are a lack of financing, a lack of

documentation and instruction, a lack of commitment from top management, and obsolete knowledge.

- Raising awareness about the necessity of ITG in Ethiopian banks is another challenge. Furthermore, the following factors in communication mechanisms have received the greatest attention: ICT is largely reactive, lack of communication between ICT and end-users, incorrect perceptions on ICT's functions, and lack of ICT training for end-users.

These might be the most affecting factors in ITG implementation, based on the most discussed factors. As a result, both ICT and senior management must focus on these most frequently mentioned aspects and assess their impact on ITG implementation.

5.3. Recommendation

The IT Governance practices and the challenges that banks face on implementing ITG in Ethiopia have been tested and proven from the research data. The process of implementing ITG is being attempted by all banks but has not reached the desired level. In line with this fact and study findings the following recommendation are forwarded:

- Focus on structure, Processes and Communications to address the challenges and make the implementation effective.

  - Under Structure include the following: ICT should be addressed at a strategic level, with proper processes for deciding ICT budget, a plan for ICT strategy should be in placed, decision-making committees such as the ICT steering committee and the ITG strategic committee, and the role and duties of ICT clearly stated.

  - Under Processes include the following points: Mechanisms for seeking and receiving funds, approving ICT initiatives, and managing ICT projects should all be in place. All critical processes in ICT should be documented, and all documents and manuals in ICT should be updated as needed.

  - And in Communication the following are included: Formal committees such as the ICT steering committee and divisional committee should be put in place, appropriate mechanisms for end-user training such as web-based portals, internal magazines, and one-on-one training should be set up, appropriate communication tools such as email,

telephone, and help desk should be used for communication between ICT and end-users, and ICT should collaborate with end-users.

- Banks should plan carefully and allocate resources to ensure that IT projects are completed on time and under budget. They should also put in place a suitable resource management and monitoring system to ensure that IT solutions are provided on time and without failure. This helps to alleviate the poor performance in IT performance management that has been noted.

- The findings show that banks in Ethiopia use IT governance processes that are developed on their own initiative and the compulsion of the international competition framework and there is currently no authority body in Ethiopia for IT governance. In order to maintain the integrity of consumer and transactional data across the board, the financial sector needs an IT governance regulatory body. This will alleviate the fundamental problem of the ITG that the banks are implementing in a fragmented and unorganized manner.

- NBE is the main regulator of all banks. It is also a good idea to monitor the implementation of the ITG, as it is guided and supervised by other standard functions. By issuing laws and regulations by NBE, the banks will be able to evaluate the challenges they face in implementing ITG, and will be guided by them.

5.4. Limitation and Suggestions for Further Research

Only banks were used in this research. It would be preferable to do the same with other financial organizations, such as insurance firms, if time and other resources are not limited.

Additionally, the research's target population was primarily at the senior executive level of the banks, with contributions from the operational level being excluded. Contributions from all levels of the organization are required for good ITG. Everyone in the organization is affected by the impact of ITG. Although governance is primarily concerned with decision makers, the people who carry out decisions are also critical to the success of ITG implementation. Without the implementers, those decisions will be ineffective. However, further research can be done with the inclusive of participants from all levels in the banks to provide better insights into the factors influencing ITG implementation.

In summary, the fundamental restriction of the research is the lack of time and financial resources. These restrictions, on the other hand, provide chances for further research, as detailed in the next section.

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Appendix A

Survey Questionnaire

Addis Ababa University

College of Business and Economics

Masters of Business Administration Program

Questionnaire

Dear Sir/Madam

My name is Henok Abrham, a postgraduate student at Addis Ababa University College of Business and Economics. I am researching on "Information Technology Governance (ITG) practices in the industry in Ethiopia". The objective is to explore issues related to IT planning, strategy, risk, IT structure and IT management committee, their roles compositions … etc. The purpose of the questionnaire is to collect primary data to conduct the study for the partial fulfillment of MBA. This is purely for academic purpose and the information you provide will be kept strictly confidential. Hence, I kindly request you to fill questionnaire genuinely.

If in case you have any question, feel free to contact me: **0912 13 83 93** or abrhenok@gmail.com

Note: Please put a tick mark (✓) in the appropriate box of your answer.

A. Background Information

1. What is your gender……
2. Name of your organization:……..
   Government, private, share company, NGO, other (pls underline)
3. What is the highest level of formal education you have attended/ attending…….
4. What is (are) your fields of education: business & economics, IT, engineering, social science, other (pls underline)
5. Do you have ITG/ IT strategy/ IT management units at your organization……..(Y/N)
6. What is your current position? ……..
7. What are your (3 major) roles and responsibilities

8. How long have you been working on ITG/ IT Mgt/ IT strategy areas (topics)…….

B. Questions Related to IT Strategic Issues

9. Does management have a strategic information systems plan in place? ……..(Y/N)
   a. Is it monitored and updated as required?.....(Y/N)
   b. Does this strategic information systems plan form the basis for the annual plans, annual and long-term budgets and the prioritization of information technology projects?.....(Y/N)
   c. Is there any appropriate procedure(s) through which the organization tracks latest technological developments?...(Y/N)
   d. How does your organization learn about the existence or emergence of new technologies in the industry?

e. Have key performance indicators and drivers of the IT department been determined?.....(Y/N)
f. Are they monitored from time to time ……(Y/N)
g. Are they benchmarked against industry standards?.....(Y/N)
h. How has management identified the required information technology expertise?

C. <u>IT Governance Issues</u>

10. Do you have IT professionals like CIO and senior IT executives in your organization's board members?....(Y/N)
11. What is their role as member of the board

12. If a certain IT project implementation fails, which of the following actions can be taken in your organization, pls underline)

    a. Change existing board members, like bring in MORE New board members with IT knowledge?
    b. Change CIO (Chief information officer), CEO and other top management
    c. Change in operational level personnel
    d. Nothing will be changed
    e. Other (please mention)

13. Does your organization have an IT steering committee?.....(Y/N)
14. If yes, what are the key roles of the steering committee?

15. Has the responsibility for IT corporate governance been assigned to a person in a senior management position?...(Y/N)

16. Which of the following issues do senior IT managers focus on more?, tick all that applies.

a. How will IT change the basis of competition in the industry	
b. How can IT help to win against traditional and new competitors?	
c. How can we use IT to enter new markets?	
d. What should we take advantage of new opportunities?	
e. Does our business plans reflect the full potential of IT to improve performance?	
f. Do we have the capabilities required to deliver value from IT?	
g. Do we have the human capital to leverage the opportunities that IT provides?	
h. Who is responsible for realizing value from IT?	
i. Is our IT investment portfolio aligned with opportunities and threats?	

17. What is the **main** objective of IT in your organization **(select only one)?**

    a. Help the firm to be innovative and creative
    b. Help the firm to differentiate its products and services

18. Consider IT systems that are initiated and implemented in your organization. This could be (ERP, SCM, KMS, HR, tax, internet based procurement systems, mobile/ agency banking etc). How do these systems initiated? Select all that appears to be the case.

    a. User department requested the system(s) (demand driven)
    c. The organization has pushed the system to user departments to use it (supply driven)
    d. To help the firm to minimize operational costs?

D. ITG decision making hierarchy

19. With respect to the key management team members, who makes what decision? In the following table, please match column B with Column A

Column A: Personnel	Column B: Key Decisions
i. CEO ii. Senior IT executives individually or as a group iii. Business unit leaders or functional managers iv. Senior business executives and business units together v. IT executives and business executives together vi. Each individual user	A. IT principle: objective of IT (Innovate, enhance efficiency/ cost reduction) of the organization B. IT architecture (key business processes, key data elements, technologies, business processes standardization, data integration?) C. IT infrastructure (computing power, networks, storage services, applications, infrastructure services D. Business applications (software applications that directly serve business needs. Here, the key decisions are which business requirements need applications at the corporate level? Which business requirements and applications are decided at the business unit level?) E. IT investment (how much should the firm invest in IT, which IT projects need to be funded?)

E. IT Project Risks Related issues

20. The following are common IT project risks. Please tick the risks you consider while evaluating IT projects:

Development risk	Can the IT department develop the proposed system?	
	does the IT department understand the domain	
	Is the technology mature?	
	Can the personnel implement the requirements with available technology at hand?	
	are users ready to change,	

Org risk	Is there top management support?	
Market risk	Are clients, customers, and suppliers prepared for the changes the new system requires?	
	is there a risk of emergence of superior technological alternatives that will compromise the returns that the client is expecting	

21. Does management have a plan to periodically conduct risk assessments covering the organization's use of information technology……(Y/N)
22. If management does have a risk assessment plan, are the results of the assessments acted on where appropriate or required?.....(Y/N)
23. What arrangements does the organization have for the regular review and audit of its systems to ensure risks are sufficiently mitigated and controls are in place to support the major processes of the business?

24. Has the organization assigned someone the responsibility for privacy policy, privacy legislation and compliance therewith?.....(Y/N)
25. Has the organization identified the set of legislative and regulatory requirements for protecting personal information and developed a policy and procedures for monitoring compliance with them?.....(Y/N)
26. Has the organization implemented effective controls to provide reasonable assurance that systems and data are available in conformity with availability policies?.....(Y/N)

27. IT department incurs costs in implementing projects and then supporting operations. During this time, IT departments incur some costs. How does the IT unit (departments) in your organization deal with these maintenance and service costs? Please select that is the case in your organization.
    A. Beneficiary departments (units) will cover the costs IT department incurred, which will be transferred to corporate costs/expenses
    B. Beneficiary departments (units) **cover the cost** the IT department incurred
    C. Beneficiary departments (units) are charged market equivalent price by the IT department

F. Other issues

28. In relation to your role and experience on IT management, IT strategy, IT governance, IT policy, IT risks etc, do you think there is a skill and knowledge gap between what the industry need and what universities produce/ graduate? ……(Y/N)
29. In relation to your role and experience, what IT topics do you recommend universities teach their students?

30. Among the following, which issues concern you the most? Please rank them (from 1st -7th).

• Security/ cyber security/ privacy • Alignment of IT with business	• Data analysis/ data management • IT cost control (reduction) • Compliance and regulation	• Cots control/ reduction of business • Innovation • Digital transformation • Other (please list)

Thanks for your cooperation

If you are interested to participate on the work related to the findings of this study, please write your e-mail here:

Your e-mail: ……