



**ADDIS ABABA UNIVERSITY  
COLLEGE OF BUSINESS AND ECONOMICS  
DEPARTMENT OF ACCOUNTING AND FINANCE**

**Accounting Information Systems and Business Performance:  
The Case of Commercial Bank of Ethiopia**

**BY  
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**ADDIS ABABA, ETHIOPIA**

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**A Thesis submitted to College of Business and Economics Department of  
Accounting and Finance in partial fulfillment of the requirements for the  
Degree of Master of Science in Accounting and Finance**

**By  
Abraham Kebede**

**Advisor:  
Dr. Habtamu Berhanu**

**ADDIS ABABA, ETHIOPIA  
JANUARY 2021**

## Declaration

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This is to confirm that this research paper is an original work presented by me and has not yet been offered for a degree award in the university. No part of this research should be replicated without my permission or that of Addis Ababa University.

Student

Signed.....

Date:.....

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This project paper has been presented for examination with my approval as University Supervisor.

Signed.....

Date:.....

Dr. Habtamu Berhanu

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## List of Acronyms

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AIS	Accounting Information Systems
BSC	Balanced Scorecard
CBE	Commercial Bank of Ethiopia
ERP	Enterprise Resource Planning
HRM	Human Resource Management
HRM	Human Resource Management
IS	Information Systems
IT	Information Technology
MSQ	Minnesota Satisfaction Questionnaire
SAQ	Self-Administered Questionnaire
SPC	Service-Profit-Chain
SPSS	Statistical Package for the Social Sciences
VIF	Variance Inflation Factor

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## Abstract

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*The purpose of the study was to identify the relationship between information system success and business performance as well the extent of moderating effect of Accounting Information System effectiveness on the above relationship of Commercial Bank of Ethiopia (CBE). The researcher used both primary and secondary data and used the explanatory research design. The researcher used a random sampling technique and an online questionnaire through the google platform to the CBE branch staff and customers and used Pearson correlation, multiple regression, and moderate regression to justify the objective of the study. The primary data are were collected through online based structured questionnaires and based on valid and complete sample responses of 108 employees and 108 customers of CBE selected based on stratified random sampling method. The finding of this study showed that IS success has a positive and significant impact on business performance and AIS effectiveness has a positive and moderate effect in affecting the relationship between IS success and business performance based on Service Profit Chain (SPC) model. Therefore, the researcher recommends companies should integrate information quality, service quality and system quality in designing IS framework design in a holistic approach and take into consideration the effectiveness of AIS as moderating factor to benefit the level of business performance expected from the IS model.*

*Key Words: IS Success, Service Profit Chain Model, business performance, employee satisfaction*

## CHAPTER ONE: INTRODUCTION

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This chapter highlights the research background, the problem statement, the research objective (general and specific objectives), and the research question. In addition, it also incorporates hypothesis statement, significance of the study, and the scope of the study.

### 1.1. Background of the Study

The purpose of designing and implementing Information systems is to enhance organizational impacts in the sector they are engaged in. The advancement and dynamic change of technology, nature of the business environment, as well as varying demand from customers, has changed the way businesses are done both at the technical level as well as the strategic level of the organization (Shagari, Abdullah, & Saat, 2017).

Accounting information systems have been recognized as one of the effective system tools for achieving not only internal dynamics but also external organizational dynamics. As such, most business firms, but particularly the banking sector, are left with no other option but to invest in the latest technology such as Accounting Information Systems (AIS) to satisfy the needs of their customers and compete to the fullest in the competitive environment.

The Ethiopian banking sector had undergone a significant transformation over the last two decades with respect to the adoption and usage of technological innovations. Commercial Bank of Ethiopia (CBE) as well as Private Commercial Banks in Ethiopia have increased their investments in information systems (IS) as a fundamental e-banking tool, capable of yielding significant contributions to their business performance. (Tesfay, 2016)

From a strategic perspective, IS makes it possible to exploit the opportunities offered by technology such as AIS to expand and improve products and services offered to bank customers to increase the quality of work processes and save costs by virtualization of banking services. Some of the strategic initiatives that are implemented by the Commercial bank include Enterprise Resource Planning (ERP), CBE Birr, and Contact centers. These strategic tools have paramount importance to enhance the realization of the Bank's strategic themes of business growth and operational excellence (Tesfay, 2016) (Soudani, 2012).

Efficiency and effectiveness in the banking system enhance improved profitability, ensure stability, and enhances customer loyalty. In addition, it improves better service quality to customers, prompts liquidity, and distributes resources efficiently in a more organized way and leads also better decision making (Sufian & Chong, 2008).

Effective Information systems are believed to improve organizational outcomes. However, banks are faced with an IS crisis, which has resulted in an increase in operational costs, uneconomical utilization of resources, errors in financial reports, maintenance issues, technical problems, underutilization, and the waste of valuable organizational resources. Moreover, users have complained of persistent system failure due to a large amount of data being processed, a lack of system stability, operating system crashes, and undetected data transmission errors (Shagari, Abdullah, & Saat, 2017).

Thus, having an information system with IS success parameters in place, can influence the business performance of companies including the banking sector. Incorporating the AIS effectiveness as a moderating variable in turn improves the effect of IS success on business performance (Fekade, 2017).

## **1.2. Statement of the Problem**

Many studies have been conducted over the years on how to measure IS success. These studies have contributed to IS literature by investigating the direct effects of DeLone and McLean's quality-related factors: information quality, system quality, and service quality. Although these studies have increased the understanding of the success factors, more attention seems to be placed on evaluating general IS rather than specific IS such as the AIS (Delone & McLean, 2016).

With the objective of building an effective and efficient financial platform, the National Bank of Ethiopia has been went through various level of reforms and introduce major actions in order to modernize the banking sector. The reform actions introduced, have attracted private investors in the banking sector and created a modest environment that addresses the requisite for wide-ranging financial services in the economy. The definitive effect is a break for the escalation in the number, size, and extensiveness of the financial system (Tesfay, 2016).

As a part in the management control mechanism, Performance measurement played a major role in evaluating the effectiveness of the organization. Thus, it is vital to place an effective and reliable performance measurement that should evaluate the status of the bank, and predict its future with respect to financial as well as non-financial position. So, this calls for implementing proper performance measures that boost the competitive environment the industry as well as the banking sector (Fekade, 2017).

Previous studies show that financial measures are dominating during the evaluation of the performance of the banking sector. However, various empirical studies and results pointed out that depending only on the financial performance measurements may lead to a perceptual bias. In addition, using only financial aspect only is criticized being focused on past data and based on short focused perspective. So, designing and implementing performance measurement frameworks that integrates financial as well as non-financial parameters in a holistic and dynamic approach is vital in maintaining a healthy as well as stable banking system (Khan, 2017).

Quite a number of progresses are made in developing performance measurement frameworks. So, sector wise the most widely accepted frameworks for performance measurement are the Service-Profit-Chain (SPC) and the Balanced Scorecard (BSC) framework. Both frameworks are targeting with giving an emphasis for non-financial component in order to achieve the ultimate growth and operational excellence (Xu & Geodegebuure, 2005).

The Commercial Bank of Ethiopia introduced the BSC framework and started to use it to evaluate the Corporate's annual performance from 2018, and two annual performance reports are delivered via BSC until July 2020. It further focuses on linking performance measures on casual effect approach (Fekade, 2017).

However, SPC connects performance beginning from the internal service quality and ends up with financial performance of an organization. It is a type of framework that scans how the variables or indicators of employee satisfaction are interlinked with the corresponding indicators of customer satisfaction and how in the end affects the profitability of the organization. Thus, it will show the overall effect of employees as well as customer satisfaction on the profitability index measurements adopted by the company (Xu & Geodegebuure, 2005).

But the SPC model is not implemented and evaluated in the Ethiopians' banking sector as a performance management tool.

Based on the researcher's knowledge, a limited study was conducted on using system quality, information quality, service quality measures, and their antecedents, as well as their combined effects on AIS effectiveness (Shagari, Abdullah, & Saat, 2017) and no research, is conducted that interlink AIS success through Effectiveness of AIS towards the business performance of banks in the Ethiopian context.

In view of the above discussions, the researcher is inspired to find out the relationship of AIS success via IS model, which leads to AIS effectiveness that further enhances business performance via the SPC Model.

### **1.3. Research Questions**

In order to address the problem statement, the following overall and detailed research questions are postured.

#### **1.3.1. General Question**

What is the affiliation between AIS success and business performance in the banking sector considering the moderating effect of AIS effectiveness?

#### **1.3.2. Specific Questions**

1. What is the causal relationship between AIS success and business performance?
2. What is the effect of AIS effectiveness as a moderating variable on the causal relation between AIS success and business performance?

### **1.4. Research Objective and Hypothesis**

#### **1.4.1. General Objective**

The overall objective of the study is to define the relationship between AIS success and business performance by considering AIS effectiveness as a moderating effect.

#### **1.4.2. Specific Objectives**

1. To find out the effect of AIS success on the business performance of CBE.
2. To understand the moderating effect of AIS effectiveness on the relationship between AIS and business performance of CBE.

### 1.5. Significance of the Study

The research study will be relevant for practitioners as well as for CBE management in developing alternative frameworks such as SPC framework and analyze with the existing BSC framework. In addition, it gives an insight into how the moderating effect of AIS effectiveness can lead to better business performance if incorporated in the strategic development of performance management frameworks.

### 1.6. Scope of the Study

The study focused on investigating the relationship between AIS success and business performance of CBE, AIS effectiveness as a moderating effect. The study was also limited to CBE banks at North District and based in Addis Ababa, Ethiopia. Furthermore, the study focuses on the banking sector by considering the CBE bank among the Commercial banks monitored by the National Bank of Ethiopia. In addition, the conceptual scope of the study is by considering IS model to measure AIS success, and the SPC model to measure the business performance of the CBE bank, and the methodological scope of this study is limited to the Organizational level.

## CHAPTER TWO: REVIEW OF RELATED LITERATURE

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### 2.1. Introduction

The chapter provides literature review of the most important concepts and empirical studies regarding AIS success and business performance considering AIS effectiveness as a moderating effect; the formulation of hypotheses and the conceptual framework. It further provides an insight into these concepts by focusing on previous research in this area and presents reviewed literature relevant to this study.

### 2.2. Theoretical Literature

#### 2.2.1. Accounting Information System

Evaluation of AIS has been a prevalent research topic for the last number of years in terms of success and effectiveness, which are used interchangeably. An accounting information system can be described as a set of interdependent activities, documents, and technology designed to collect, process, and report information for the purpose of decision making (Hurt, 2016).

In addition, AIS are believed not only improve the effectiveness and efficiency of business processes and reduce cost but also to provide reliable real-time data on demand, facilitating global knowledge and new reporting tools, as well as the integration and collaboration between areas of risk and business operations (Shagari, Abdullah, & Saat, 2017).

Empirical research on IS has been carried out across different organizations and contexts, but most previous studies related to IS success focus on the general concept on IS than to a specific context. According to the empirical studies conducted in US and Europe, in the area of IS, the researchers identified the emergence of three group of constructs that influence IS effectiveness: (1) systems quality and information quality, (2) perceptual measures on net benefit about IS use, and (3) IS behavior (Seddon, Graeser, & Willcocks, 2002).

While acknowledging the contributions of these studies to IS literature, emphasis seems to have been placed on general IS assessment. Furthermore, most studies have investigated IS effectiveness at the technical level by examining one or two of the success measures (information and system quality). However, evaluation of IS effectiveness would be incomplete without the inclusion of service quality measures (Delone & McLean, 2016).

### 2.2.2. Types of Accounting Information Systems

An accounting information system offers managers transaction processing services, reporting, and information for effective decision-making purposes. As explained by , (Hall, 2011) AIS comprises three main subsystems: (1) the transaction processing system that supports organizations in recording of daily business activities and produces reports to various users for decision making; (2) the general ledger/financial reporting systems that assists organizations in producing traditional financial statements that include income statements of cash flow, balance sheets, and other reports mandated by law; and (3) the management reporting system that provides special-purposes information (reports) to internal managers for effective decision making.

### 2.2.3. IS model

The IS success model was first introduced by DeLone and McLean, which is an IS research framework for measuring the system success in an organization. They identified six major interrelated dimensions regarding Information System IS success; the dimensions are system quality, information quality, user satisfaction, individual impacts, use and organizational impacts (DeLone & McLean, 1992).

DeLone and McLean's updated model was designed to increase its usefulness by considering the rapid changes in Information Technology (IT), to which they added service quality as a key dimension of IS success. The addition of service quality was made to emphasize the importance of service and support in successful e-commerce system (Petter, DeLone, & McLean, 2008).

The application of the IS success models in different context and settings through various empirical studies reveals that the model is well accepted by scholars in the field of IS. Therefore, this study adopts the updated IS success model to the Ethiopian banking sector. The current study focuses on the three quality measures (system quality, information quality, and service quality); these measures are considered essential for evaluating the effectiveness of AIS in Nigeria where there are reports of persistent system failure (Petter, DeLone, & McLean, 2008).

#### 2.2.4. Performance Management

A firm can be expressed as like a human being that hunt for endurance in its complex and competitive environmental setup. Once a firm grows and expands and handling more than one manager then arise the need for implementation performance measurement and additional control systems as an instrument of a manager (Franco-Santos, Lucianetti, & Bourne, 2012).

Performance measurement system is one of the pillars that can help firms to align with their corporate strategies, goals as well as objectives (Teeratansirikool, Sununta Siengthai, Badir, & Charoenngam, 2013). The main objective of designing performance management frameworks is to cope up with the dynamic change of the business environment in which the firm operates in. But also, performance measurement systems must be in effect so that they can reveal the “as-is” business situation and guide employees and their supervisors towards the right directions in order to achieve the objectives defined by the organization.

Measuring the performance of a business is a vibrant research theme of academics as well as practitioners in the field. Even though, the demand for in the drivers of workable performance measures in the working domain, there is an increasing concern over the robustness of the theoretical grounds of measuring as well managing performance within the academic circle.

Researchers in the field of strategic management, human resource management, management accounting, production and operations management, marketing and organizational behavior, stated that an incorporated theory for performance measurement and management has failed to appear. The main reason is the multidisciplinary nature of the performance management (Franco-Santos, Lucianetti, & Bourne, 2012).

#### 2.2.5. Frameworks and Models: Performance Management

Quite a number of performance management frameworks are introduced and implemented; in addition, they are originated from various sources and advanced over time to measure the performance of the business. Czyż-Gwiazda (2013) evaluated and consulted numerous literatures and presented the various performance management models developed for a number of organizations. Form the presented models, some gone through empirical testing while the others have gone through at a level of theoretical foundation.

The two popular performance management models: BSC and SPC are performance management models that link the management, employees, customers and financial performance. The BSC incorporates holistic approach towards organizational performance that begins with the process bearing the end in mind. The BSC scorecard incorporates four perspectives so that each dimension should be effectively managed. The SPC model begins with by focusing on the organizational end goal i.e. profitability and traces the chain in a backward direction. The main theme behind SPC is that profit is pretended mainly by customer loyalty which is an immediate effect of customer satisfaction. Customer satisfaction, in turn is highly influenced by the perspective of the customer towards value, which is again generated by a satisfied, loyal and productive employees of the organization (Fekade, 2017).

Both BSC and the SPC models fundamentally show an existence of cause and effect relationship between the lagging and the leading indicators. Thus, one can hypothesize that if the growth and learning perspectives are improved, it will create an enabling environment for internal process and innovation perspectives improvement. Efficient process aids in production of quality products and services which lead to improved level of customer satisfaction; and in turn, increased customer satisfaction leads to improved profitability through the moderating effect of customer loyalty variable (Abu-Suleiman & Priest, 2006).

#### **Balanced Scorecard Model**

BSC is conceptually introduced first after financial measures fails to evaluate firm's performance. Kaplan and Norton (1992) popularized the BSC as a combination of non-financial and financial measures of performance and on the belief that it brings all the strategic objectives of management into a single and comprehensive performance model.

#### **Service Profit Chain Model**

Business firms have a unique set of processes to add value and it turn generate financial profit. The general service profit chain model hypothesizes on the connection between employee satisfaction, quality service, customer satisfaction and profitability as major facets. Thus, SPC is a conceptual framework that helps to analyze the firm's value chain (from input to delivery). The Service-Profit Chain model bonds on previous studies and recommends a comprehensive model of causal effect connecting of internal service quality, employee satisfaction, external service quality (values), customer satisfaction, customer loyalty and profitability (Xu & Geodegebuure, 2005).

### 2.2.6. Attributes of SPC Model

Attributes of the SPC are factors of the internal operations that facilitate an organization to serve its customers. Heskett et al. (2008) observed that employee satisfaction and employee retention are the two important attributes within the organization setting. Kamakura et al. (2002) divide interpositions the operational attributes into two groups: personnel efforts and equipment/material efforts. Personnel efforts incorporates various types of Human Resource Management (HRM) initiatives carried out within the organization to develop quality work, training opportunities, reward and recognition, work design, and other initiatives that advance employee's motivation and satisfaction level.

Equipment/material efforts are interventions and investments made in equipment/ material, including additional branch locations, more ATMs, expansion of an electronic banking system, etc. so as to augment customer satisfaction. In aggregate, these attributes can be related to the learning and growth perspective of the balanced scorecard by Kaplan & Norton (1992).

The following listed attributes are helping the organization to evaluate the business performance from the employee as well as from customer perspective based on SPC model (Tefay, 2016).

#### (i) Employee Job Satisfaction

There are various approaches in the literature to measure the employee job satisfaction. The most popular approach is Minnesota Satisfaction Questionnaire (MSQ). It is designed to measure an employee's satisfaction with his or her job. The MSQ provides more specific information on the aspects of a job that an individual finds rewarding than do more general measures of job satisfaction (Xu & Geodegebuure, 2005).

The short-form MSQ is composed of twenty facets, each facet represented with just one satisfaction item. The short-form MSQ measures three satisfaction scales, namely intrinsic satisfaction, extrinsic satisfaction, and overall job satisfaction. Intrinsic satisfaction refers to occupational conditions (how people feel about the nature of the job's tasks), and extrinsic satisfaction refers to environmental conditions (how people feel about features of the job that are external to the work) (Sanera & Eyupoglu, 2014).

#### (ii) Customer Perceptions

The two approaches of customer perception from the foundational framework of SPC are perception of customers on the employee and perception on other components of the organization. Even though various facets of perception exist in literature, courteousness, helpfulness, knowledge, and ability to answer questions are the common facets of customer perception towards the organizations' personnel (Kamakura, Mittal, Rosa, & Mazzon, 2002).

The second dimension is linked to the quality of the office building, equipment, sufficient parking lot, displays /posters used and other related facets. In addition, convenience of time and locations and ease of access to service are also perceptions of the service delivery quality (Kamakura, Mittal, Rosa, & Mazzon, 2002).

#### (iii) Customer Intentions

The third attribute in the framework of SPC model is Customer's intention. It is closely interconnected with customers' behavior. Intentions are centered on the perceptions of the service received by one. Perceived service quality is dedicated to an attribute of performance-perception and is used as a predictor of overall customer satisfaction. In other words, customers develop some intentions regarding their future relationship with the organization depending on their perception's level and satisfaction levels of the service they obtained from (Kamakura, Mittal, Rosa, & Mazzon, 2002).

#### (iv) Customer Loyalty

The fourth attribute in SPC model is customer loyalty. It connects the current performance to the future prospects of the customer. It can be captured by the measuring parameters such as retention rates and referrals. Customer retention and customer acquisition that originated from referrals are measured through customer loyalty which in turn to ultimately lead to generating higher margin profitability in the long run (James L. Heskett, Jones, Loveman, W. Earl Sasser, & Schlesinger, 2008).

#### (v) Profitability

The fifth component in SPC model is profitability – which can be associated to the financial perspective dimension of the balanced scorecard of Kaplan and Norton (1992). An increase in customer retention (based on retention rate) and customer acquisition rates have been appealed to have a substantial positive effect on profitability of an organization.

In conclusion, service quality is a predecessor of customer perceptions and determinations employed in the providing of quality service/product will have no effect on customers' behavior and eventually on the revenues of an organization as long as customers failed to perceive the alteration in the added value of quality. Thus, service enhancements and expansions including installation of additional ATMs, the change in the efficiency of the front desk employees, and the ultimate achievement of efficient services have to be perceived by the customers as having an effect on their satisfaction and corresponding intention (Kamakura, Mittal, Rosa, & Mazzon, 2002).

## 2.3. Empirical Literature

### 2.3.1. Information Quality and Business Performance

There are various researches are undertaken on the information systems effect and employed measures of organizational performance as their dependent variable (Bernroider, 2008; J. Chang & King, 2005; Chervany & Dickson, 1974; Gorla, Somers, & Wong, 2010).

In one more large company's research, Rivard & Huff (1984) requested managers to evaluate the cost decreases and company profits as an outcome of application programs developed by specific user. Hamilton & Chervany (1981) findings show that improvement of income of company could also be by computer-based information systems while Bender (1986) examined the information processing financial impact. Using their respective measures, all of them found information quality to have a positive significant influence on organizational performance.

The review showed significant relationship between information quality and performance among ERP systems users (Kositanurit, Ngwenyama, & Osei-Bryson, 2006), and considering the knowledge management system context, (Kulkarni, Ravindran, & Freeze, 2007) found perceived content quality does not have a direct relationship with perceived usefulness. A study carried out by Hong, Thong, & Wai-Man Wong (2002) on digital libraries discovered that relevance of information retrieved had a significant effect on perceived usefulness.

At the level of organization, the relationship among information quality and benefits has found mixed results, depending on the way by which net benefits are measured. Nonetheless, to reach a conclusion on this relationship, more research is needed. From another end, Kharuddin, Ashhari, & Nassir (2010) investigated the impact of AIS on SME performance also reported a significant improvement in performance when compared with non-adopters.

Therefore it is hypothesized that;

*Hypothesis 1.1.: Information quality positively influences business performance.*

### **2.3.2. Service Quality and Business Performance**

The comprehension of IS service quality influence can be gotten from the firm's service quality influence on the firm performance. Delivering service quality is a factor for business success that leads to loyalty of customer, larger profitability, lessen cost (Fekade, 2017).

Consequently, IS service quality is positively relevant to market information support, service/product enhancement, and internal organizational efficiency. Furthermore, successful service quality prospects to costs decrease and productivity increment.

This finding as with Kesuma, Hadiwidjojo, Wiagustini, & Rohman (2013) and Nazeer, Zahid, & Azeem (2014). Kesuma et al. (2013) present that outstanding service quality assists in generating better revenue which gradually yields greater profitability and Nazeer et al.(2014) indicated that service quality has a strong positive influence respondents loyalty to the organization.

Also, Chi & Gursoy (2009) in his research of the relationship in between customer retention and perceived quality documented that technical quality, functional quality, and also general product characteristics as service quality dimensions, were significantly influenced.

Duncan & Elliott (2002) reported that for the case of financial firms, there is a positive relationship between service quality and financial performance. In other research of them, they also found that there is a strong positive and significant relationship among service quality and organizational performance, using respective measurements, consist of Weerakoon & Wijavanayake (2013); Khan & Fasih (2014) which examined organizational performance as customer loyalty all of them identified that its dimensions are positively and significantly relevant to service quality.

Wei (2012) reported that a positive relationship is available among service qualities and IS organization impact. Literatures noticed that some research have examined the direct positive link among service quality and organizational performance throughout the perspective of traditional service delivery. Thus it is hypothesized in this study that;

*Hypothesis 1.2: Service quality positively influences business performance.*

### 2.3.3. System Quality and Business Performance

The system quality can influence use, user satisfaction and individual performance, and consequently effect organizational performance (Delone & McLean, 2016). The essential prerequisites for generating organization benefits are a well-designed, developed, and implemented system. All those benefits that could be derived consist of cost reduction, increased revenues, and improved process efficiency (Bakos & Treacy, 1986).

In order to produce firm's business value via its information systems, the system must ensure IS efficient delivery by way of the attributes of system such as documentation availableness and ease of use (Salmela , 1997). Firm competitive benefits are directly relevant with software high quality (Slaughter, Harter, & Krishnan, 1998).

Commonly, the association among system quality and net benefits has been documented slightly by literature. Although the relationship among perceived ease of use as a system quality measure and perceived usefulness has varying results. Most research reported that system quality is positively related with organization's benefits as Wixom & Todd (2005), Hsieh & Wang (2007) and Gorla et al. (2010).

In other research, Kositanurit et al. (2006) identified a significant relationship among perceived ease of use along with performance, but no relationship between reliability and performance for individual ERP systems users.

Therefore it is hypothesized in this study that;

*Hypothesis 1.3: System quality positively influences organizational performance.*

### 2.3.4. AIS effectiveness as a moderating variable

The effectiveness of an AIS contribution is embedded in its ability to provide appropriate and timely information so that positively affect the decision making process. AISs play an important role in enhancing organizational effectiveness in the global competitive environment.

The effectiveness of AIS is "the information system's ability to achieve the organization's goals". Using the same concept, the effectiveness of AISs can be defined as the degree of accounting system contribution to the provision of information, which is characterized by convenience and reliability, in order to support and assist decision makers from both inside and outside the organization in achieving its goals (Okour, 2016).

For an organization to achieve the effectiveness of AIS it is required to identify factors affecting the AIS and its outputs along with the decision related to adjusting the current system or using new one. Moreover, the organization is required to assess the system by studying its operations as well as data flows in order to identify strengths and weaknesses in the flow of data and internal audit system.

Consequently, the effectiveness of AIS stems from its design suitability with the method adopted by the organization for managing and implementing its business operations, and its ability to provide reliable timeliness accounting information for decision-making process. According to Sambasivam & Assefa (2013), there is a relationship between good design and implementation of AIS and the effectiveness of internal control system.

Therefore it is hypothesized in this study that;

*Hypothesis 2: AIS effectiveness moderates the relationship between AIS success and business performance.*

In summary, BSC and SPC models were designed and introduced by Kaplan & Norton (1992) and Heskett et al. (2002) respectively in order to measure in aggregate the relationship of performance measures with the dimensions of financial, customer, learning and growth, and internal business processes perspectives. In addition, numerous researchers have been taken part in conducting their research by including the long-term perspective of performance evaluation of BSC to provide a broader perspective towards the performance of the bank.

#### 2.4. Literature Gap

Based on the above literature review and empirical studies, the research will fill the gap that considers AIS effectiveness as a moderating factor to explain the relationship between AIS success and business performance in perspective of SPC model.

#### 2.5. Conceptual Framework

The conceptual framework describes the relationship between AIS Success as independent variable based on IS model (Delone & McLean, 2016) and the business performance as dependent variable based on SPC model as introduced by Harvard Research Group and implemented mostly in the banking sector (Karimi, Sajedinejad, & Hassannayebi, 2014).

The moderating effect of AIS effectiveness is measured by the constructs used by most banking sectors in order to understand the relationship with AIS success (Shagari, Abdullah, & Saat, 2017).

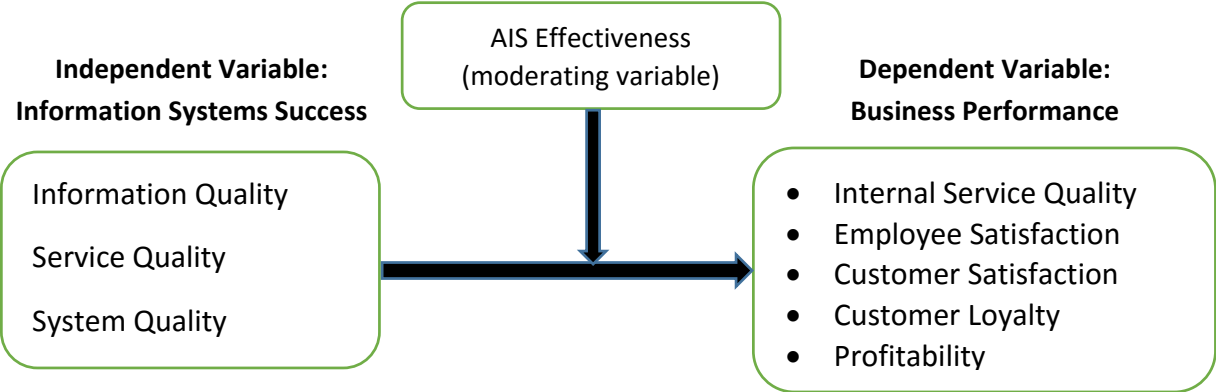


Figure 1: Conceptual Framework (Delone & McLean, 2016) , (Karimi, Sajedinejad, & Hassannayebi, 2014)

## CHAPTER THREE: RESEARCH METHODOLOGY

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### 3.0. Introduction

This chapter sets out the detailed methodology applied in this research. It includes the research design, the target population, sampling techniques, and sample size determination, the data measurement to be used, the procedures to be followed for gathering data, and how the data will be analyzed and presented.

Research methodology is an approach solving the problem in a systematic manner under research. Thus, a research methodology considered as a terminology that describes structure of conducting research. In sum, there are many different types research methodologies used in various types of research and the term constitutes research design, data gathering and data analysis (Kothari, 2004).

### 3.1. Research Design

Research design is a strategic framework for action that serves as a bridge between research questions and the execution, or implementation of the research strategy (Durheim, 2004). The researcher followed Saunders (2011) process for research design. A deductive approach was chosen for a robust design that includes both existing theory and new empirical evidence.

Thus, the design is explanatory in such a way that it is conducted to understand the problem more effectively and adapt oneself to new data and the new insight that he/she discovers as he/she studies the subject. A research strategy of the survey was chosen to collect quantitative data in a cross-sectional manner from a wide variety of individuals, in order to gain the widest coverage of the resulting theory.

### 3.2. Target Population

The total number of commercial banks as at June 30, 2020, remained 17, of which 16 are private and 1 public. The public Commercial bank i.e. CBE has 359 branches in Addis Ababa with four districts: North Addis, South Addis, West Addis, and East Addis Districts (Commerical Bank of Ethiopia, 2018).

Thus the sampling frame for this research is employees and customers of CBE for North District. The researcher ensured that the sampling frame is unbiased, current, and accurate.

### 3.3. Sample size and Sampling Techniques

A stratified sampling technique is used for CBE employees of North District in this study. The process involves dividing the population into two or more relevant and significant strata based on one or a number of attributes. In stratified sampling approach, the target population is divided into several smaller group populations that are homogeneous individually than the total population and then items are selected from each stratum to constitute the target sample.

The strata attribute was based on occupational classification relevant for this research. A random simple was drawn from each of the strata. The sample includes all active employees' including executive management, senior management, middle level management, operational level management, experienced professional, professional and junior level staffs related with the purpose of the study.

Customers of the CBE are selected at random through random sampling based on the availability of the customer at the point of the service counter.

Since the statistics population is unlimited for customers of the CBE, based on reviewed literatures on determination of sample size for unlimited number of respondents available, the researchers' proposed the following approach described below:

They suggested that the sample size (N) need be  $50 + 8(k)$  in order to test a fully pledged regression model structure or  $104 + k$  when testing individual predictors where k indicates the number of underlying variables (Tabachnick & Fidell, 2007). Therefore, the sample size can be computed as follows:  $50 + 8(5)$  for full regression model and if individual predictors are considered it will be:  $104 + 4 = 108$ . Thus, the sample size is taken as 108 as a sample size for CBE customers.

To determine the sample size applicable to the employees of CBE, one should consider the size of the population, the margin of error i.e. the percentage that tells you how much you can expect your survey results to reflect the views of the overall population and the sampling confidence level i.e. the percentage that reveals how confident you can be that the population would select an answer within a certain range.

Thus by considering a population size of 2984 employees excluding clerical and service workers, at 7.5% marginal error and 95% confident level, the sample size will be calculated using the formula:

$$\text{Sample size} = \frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p(1-p)}{e^2 N}\right)}$$

Where: N = population size, e = Margin of error (percentage in decimal form), and z = z-score.

The z-score can be described as the number of standard deviations a given proportion is that is deviated from the mean. To find the right z-score to use, refer to the table below:

Desired confidence level	z-score
90%	1.65
95%	1.96
99%	2.58

Table 1: Desired Confidence level and z-score value

Thus based on the sample size for employee respondents calculated amounted to 162, the sample size that is taken from each occupational classification is calculated proportionally by taking the percentage of each share from the total population size of employees (excluding clerical and service workers) in North Addis District.

District	Occupational Classification	Population Size	% of share	Sample Size
North Addis	senior management	1	0.03%	1
	middle level management	59	1.98%	3
	experienced professional	468	15.68%	25
	operational level management	317	10.62%	17
	professional	1634	54.76%	89
	junior level	505	16.92%	27
	Total	2984	100%	162

Table 2: Summary of employees based on occupational classification (CBE Performance Report: 2020)

### 3.4. Source of Data and collection techniques

Data collection is conducted based on primary and secondary sources of data. A worldwide cross-sectional questionnaire is used to collect quantitative data for generalizable results.

The principal data collection tool used for this research is self-administered questionnaire. The use of self-administered questionnaires has been credited for its suitability in gathering data on behavior, attitudes, opinions and beliefs (Tuli, 2010). One of the verbal ratings Scale is the Likert scale i.e. incorporated in the questionnaire. It is a commonly implemented rating scale that is totally dependent on the respondents in specifying the level of their agreement as well as disagreement with five response types oscillating from ‘strongly disagree’ to ‘strongly agree’.

The use of structured questions also ensured that respondents got identical questions hence ensuring standardized data (Oates, 2006). A Self-Administered Questionnaire (SAQ) was chosen because it enables one to reach out to a large audience even where respondents are widely spread out geographically. It is relatively free from the interviewer’s bias, gives the respondents time to answer questions, and it is suitable for very large samples making the results reliable and dependable, it can also be used to reach out to respondents who are generally considered unapproachable (Kothari, 2004).

The questionnaire included five sets of questions. The first set collected the respondents' demographic information; the second set included information about AIS effectiveness; the third set evaluates AIS success via Information quality, service quality and system quality with the guideline of IS model (Delone & McLean, 2016). The last two sets depict business performance from employees’ as well as customers’ perspective by the help of the standard SPC model (Xu & Geodegebuure, 2005). The questionnaire followed the suggestions of (Cooper & Schindler, 2011) to ensure that the scales, criteria, and wording were consistent and clear.

A five-point Likert scale was used for the structured questionnaire. A pilot test was done with ten respondents. Based on the feedback, minor wording changes were made for understandability. The pilot answers were not used in the analysis. In addition, the questionnaire is designed in an electronic format (See Appendix A).

The questionnaire was administered online via Google docs for employees as well as customers (at the counter window spot) of CBE. An electronic questionnaire was uploaded onto Google documents and respondents were invited to participate by sending them an e-mail which contained a link to the questionnaire (See Appendix A).

### 3.5. Model Definition/Representation

The model design for basic regression model is depicted as:

$$y_n = \alpha + \beta x_n + \epsilon_n \dots\dots\dots(Equation 1)$$

Where, y represents a dependent variable and  $\alpha$  denotes intercept term, x represents independent variables while  $\beta$  is regression coefficient. The functional representation of the study models and their respective equivalent regression structures are depicted as follows:

- Hypothesis 1.1.: Information quality positively influences business performance.
- Hypothesis 1.2.: Service quality positively influences business performance.
- Hypothesis 1.3.: System quality positively influences business performance.

Hypothesis 2: AIS effectiveness moderates the relationship between AIS success and business performance.

Model I: Business Performance = f (Information Quality, Service Quality, System Quality)

$$BP = \alpha + \beta IQ_n + \beta SERVQ_n + \beta SYSQ_n + \epsilon_n \dots\dots\dots(Equation 2)$$

Where, BP represents business performance, IQ represents Information quality, SERVQ represents service quality and SYSQ represents system quality while  $\epsilon$  is the error term.

Model II: Business Performance = f (IS Success, AIS effectiveness, Interaction between IS success and AIS effectiveness) .....(Equation 3)

### 3.6. Method of Data Analysis

After the primary data gathering procedures are completed, the collected data is passed throughout the different phases (editing, coding, data entry and data analysis). Quantitative data analysis techniques employed. The SPSS statistical package is used to analyze the data gathered using the questionnaire quantitatively. The Analysis was carried out following the guidelines from (Hair, Black, Babin, & Rolph, 2010).

Data is checked for normal distribution (skewness and kurtosis between of  $\pm 2$ ), thus eligible for the techniques will be used. Outliers are removed because t-tests will show that the answers from these respondents were significantly different from the rest of the sample. Analysis was done in three steps:

1. Descriptive analysis allows giving explanation of different pieces of data with a few indices. Some of the tools used in the research are mean, standard deviation, range, skewness and Kurtosis.
2. Regression analysis to test the correlation between the independent constructs (information quality, service quality, system quality) and the dependent construct (business performance) and the moderating variable (AIS effectiveness).

### 3.7. Validity and Reliability of Data

Reliability refers to the consistency of a measure. Psychologists consider three types of consistency: over time (test-retest reliability), across items (internal consistency), and across different researchers (inter-rater reliability). The researcher will check the internal consistency which is the consistency of people's responses across the items on a multiple-item measure. It can only be assessed by collecting and analyzing data.

Perhaps the most common measure of internal consistency used by researchers is a statistic called Cronbach's  $\alpha$  (the Greek letter alpha). Conceptually,  $\alpha$  is the mean of all possible split-half correlations for a set of items. Again, a value of  $+0.70$  or greater is generally taken to indicate good internal consistency (Price, 2013).

Thus, based on the primary data collected from employees as well customers of CBE at North District, Table 7 below summarizes the Cronbach's alpha value for each dependent and independent variable in data analysis and results section of chapter four.

Validity of the findings, data collected, the instrument used in data collection and the research design is of important concern in social research. Similar to reliability, the issue of validity transcends methodological boundaries. For the case of quantitative research, validity denotes to the capability of the mechanism or the instrument in place to measure what it is thought to measure (Price, 2013).

The most commonly used validity test is face validity test. The instrument (for example, questionnaire or a scale) is accepted as valid if it appears valid for the researcher. Here researcher, as a professional, makes a judgment about the validity of the instrument. It is a casual review of the questions or items incorporated in the instrument.

### 3.8. Research Ethics

Ethics refers to the appropriateness of behavior in relation to the rights of those who become the subject of your work, or are affected by it. According to Blumberg (2005), ethics is defined as:

*“The moral principles, norms or standards of behavior that guide moral choices about our behavior and our relationships with others”.*

Anonymity refers to concealing the identity of the participants in all documents resulting from the research; and confidentiality is concerned with the right of access to the data provided by individual participants and, in particular, the need to keep these data secret or private. With this appreciation of the value of ethical considerations in field work practice, the researcher was guided by benchmarked professional and moral standards associated with good research practice.

Participation in the study was voluntary and the research objectives explained to all informants who participated in the research project. Informed participant consent and exclusive use of proffered research information are upheld in all data gathering process. Also in the design of Self-Administered Questionnaire, care was taken to assure the confidentiality of information provided by the respondents.

## CHAPTER FOUR: DATA PRESENTATION, ANALYSIS AND DISCUSSION

This chapter involves data analysis, results and discussions of findings. Thus it is structured into the following sections; Section 4.1 involves summary of the statistics on the demographics information of respondents, section 4.2 focuses on the data results and analysis based on the empirical model, and finally section 4.3 gives a discussion on the major findings.

### 4.1. Demographic Information of Respondents

Part of the questionnaire constituted of four items about demographic information of the respondents. The questionnaire covered the demographic data of employee respondents including: their gender, age, number of years' experience in banking sector and their current position in the bank. The following subsequent tables below summarized the total demographic characteristics of the employee respondents. The Response rate towards the questionnaire is 66.7%.

Table 3: Gender of CBE Employee Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	74	68.5	68.5	68.5
	female	34	31.5	31.5	100.0
	Total	108	100.0	100.0	

As depicted in Table 3, from the total respondents most of them (68.5%) were from male respondents and the remaining portion (31.5%) are female. The data urges for empowering women to hold managerial positions and increase their involvement in the banking sector. It promotes for equal participation of gender at workplace.

Table 4: Age Distribution of CBE Employee Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 30	2	1.9	1.9	1.9
	Between 30 and 39, inclusive	65	60.2	60.2	62.0
	Between 40 and 49, inclusive	37	34.3	34.3	96.3
	Between 50 and 59, inclusive	4	3.7	3.7	100.0
	Total	108	100.0	100.0	

Table 5: Experience in banking Sector of CBE Employees

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 5 years	5	4.6	4.6	4.6
	5-9 years, inclusive	35	32.4	32.4	37.0
	10 - 14 years, inclusive	43	39.8	39.8	76.9
	15 years and above	25	23.1	23.1	100.0
	Total	108	100.0	100.0	

According to Table 5, most of the respondents have a working experience of 5 -14 years (78%). This data indicated that respondents have humble work experience to respond to the questionnaire regarding the AIS effectiveness, information system quality and facets of business performance of the bank.

Table 6: Positions held by CBE respondents

Current Position Held	frequency	%
Senior Manager	1	1%
Middle level Manager	2	2%
Operational level Manager	14	13%
Experienced Professional	11	10%
Professional	62	57%
Junior level	18	17%
	108	100.0%

As per the summary displayed in Table 6, the current position held by respondents at their branch can be summarized as follows: most of the respondents (57%) held Professional post, and the next level of respondents hold junior post (17%). The data indicated that respondents are in the lower level of management; thus, they are exposed to the routine and day-to-day operational activities of the bank. This helped for detail response to the questions in the questionnaire regarding the overall activities related with AIS activities.

The next section describes the major results through data analysis, the results obtained from the analysis and their corresponding interpretation.

## 4.2. Other Results

The primary data collected from employees of and customers of CBE respondents through questionnaire is, analyzed and presented in the sections below with the help of tabular form. The descriptive statistics section is presented and analyzed based on the results of the Likert scale questions responses regarding questions that depict AIS effectiveness, information quality, service quality, system quality and facets of business performance (customer satisfaction, customer loyalty, employee job satisfaction, internal service quality, and profitability), as presented in the structured questionnaire.

### 4.2.1. Reliability Test Results

Cronbach's alpha is a representation of evaluating the Pearson correlation based on internal consistency. It is most commonly used when you have multiple Likert questions in a survey/questionnaire that form a scale and you wish to determine if the scale is reliable.

Table 7: Reliability Test: Summary of measures

Variable	No. of Items	Cronbach's Alpha Result
Information quality	7	0.774
Service quality	3	0.573
System quality	12	0.662
AIS effectiveness	7	0.691
Employee Job satisfaction	20	0.933
Internal service quality	22	0.918
Customer Satisfaction	7	0.868
Customer loyalty	4	0.668
Profitability	1	-

Based on Table 7, the alpha values of Information quality (0.774), system quality (0.662), AIS effectiveness (0.691), employee job satisfaction (0.933), internal service quality (0.918), customer satisfaction (0.868) and that of customer loyalty (0.668) are shows that there is internal consistency of the number of items in each facet. In the case of service quality (alpha value of 0.573), the internal consistence is below the accepted level i.e. 0.70. The justification behind that is due to few number of items (3) in the facet. According to research literatures, adding more items will improve the internal consistency (Cooper & Schindler, 2011).

#### 4.2.2. Univariate Analysis

In this Section, descriptive statistics summary is explained in the form of mean, standard deviation, skewness and Kurtosis, to summarize the variables used in the research.

Table 8: Scale descriptive for the variables used in the research

	N		Mean	Std. Deviation	Skewness	Kurtosis
	Valid	Missing				
AIS Effectiveness	108	0	3.6971	.52760	.168	.254
Information Quality	108	0	3.1733	.49720	.206	1.283
Service Quality	108	0	2.6481	.63611	-.010	.320
System Quality	108	0	3.5409	.45962	.194	.219
Employee's Satisfaction	108	0	3.2889	.50721	.256	.597
Internal Service Quality	108	0	3.2622	.47489	.173	.626
Customer Satisfaction	108	0	3.2513	.59365	-.292	1.748
Customer Loyalty	108	0	3.3472	.54240	.431	-.034
Profitability	108	0	3.76	.906	-.425	.548

Table 8 shows the mean and standard deviation and range of each of the variables: AIS effectiveness. IS success dimensions (information quality, service quality and system quality), facets of Business Performance (employee satisfaction, internal service quality, customer loyalty, customer satisfaction and profitability). The skewness and Kurtosis values of all dimensions and sub-dimensions and of the data shows that the data is normally distributed since skewness and Kurtosis is between  $\pm 2$  (Cooper & Schindler, 2011).

#### 4.2.3. Correlation Analysis

A correlation coefficient ( $r$ ) summarizes and signifies the strength of the relationship between two selected variables. The coefficient value is bounded between +1 to -1, inclusive and according to the recommendation proposed by Pallant (2010), the correlation coefficient is indicating the strength of the relationship between two variables is can be categorized based on the following ranges:

- $r \in [0.10,0.29]$  or  $r \in [-0.10,-0.29]$  is considered as weak correlation;
- $r \in [0.30,0.49]$  or  $r \in [-0.30, -0.49]$  is considered as medium correlation; and
- $r \in [0.50,1.0]$  or  $r \in [-.050,-1.0]$  is considered as high correlation.

Correlation coefficient (r) does not depict the speed at which the dependent variable changes when instantaneously influenced by one or more independent variables. Thus, one should employ multiple regression analysis to find exactly how much of the variance (represented in percentage) in the dependent variable is elucidated by other independent list of predictors included in that specific study.

#### 4.2.3.1. Pearson Correlation: Information quality and business performance

The result of the correlation analysis presented in Table 9 showed that the P-value is 0.000 which is less than 0.05. Therefore, the null hypothesis will be rejected which means information quality have significant relationship with business performance since it has positive association with information quality (r = .689, p=0.01). For most organizations including the banking sector, information is a precarious resource and an important asset in day to day business operations as well as structuring the “as-is” business processes.

Table 9: Information quality positively influences business performance

		Information Quality	Business Performance
Information Quality	Pearson Correlation	1	.689**
	Sig. (1-tailed)		.000
	N	108	108
Business Performance	Pearson Correlation	.689**	1
	Sig. (1-tailed)	.000	
	N	108	108

\*\* . Correlation is significant at the 0.01 level (1-tailed).

#### 4.2.3.2. Pearson Correlation: Service quality and business performance

Table 10 summarizes the Pearson correlation using two-tailed test; the result showed that the P-value is 0.000 which is less than 0.05. Therefore, the null hypothesis will be rejected which means service quality have significant relationship with business performance since it has positive association with service quality (r= .472, p=0.01). On various marketing focused research areas, it is confirmed that higher level service quality tops superior revenues and produce higher profitability. Thus, service quality utilizes a positive effect on performance of the business. (Rust, Zahorik, & Keiningham, 1995).

Table 10: Service quality positively influences business performance

		Service Quality	Business Performance
Service Quality	Pearson Correlation	1	.472**
	Sig. (1-tailed)		.000
	N	108	108
Business Performance	Pearson Correlation	.472**	1
	Sig. (1-tailed)	.000	
	N	108	108

\*\* . Correlation is significant at the 0.01 level (1-tailed).

#### 4.2.3.3. Pearson Correlation: System quality and business performance

The correlation analysis result presented in Table 11 showed that the P-value is 0.004 which is less than 0.05. Therefore, the null hypothesis will be rejected which means system quality have moderate relationship with business performance ( $r = .272$ ,  $p = 0.01$ ). Quality influences business performance through mediating factors such as reputation and satisfaction, which are subject to many other influences. Thus the direct contribution of system quality is limited as it depends on various factors including information quality, customer satisfaction and customer loyalty (Hardie, 2018).

Table 11: System quality positively influences business performance

		System Quality	Business Performance
System Quality	Pearson Correlation	1	.272**
	Sig. (2-tailed)		.004
	N	108	108
Business Performance	Pearson Correlation	.272**	1
	Sig. (2-tailed)	.004	
	N	108	108

\*\* . Correlation is significant at the 0.01 level (2-tailed).

#### 4.2.3.4. Pearson Correlation: IS Success and business performance

The result of the correlation analysis presented in Table 12 showed that the P-value is 0.000 which is less than 0.05. Therefore, the null hypothesis will be rejected which means information systems success have significant relationship with business performance and has a positive association with correlation coefficient ( $r = .553$ ,  $p = 0.01$ ). Provided that it is implemented according to the strategic objective of the organization, an information system, which was integrated into business processes of an enterprise, is one of the major factors that increase business performance; however, benefits of a specific information system could differ from one company to another, depending on an economic sector, in which the enterprise operates, and business processes, for which the IS was procured (Lipaj & Davidavičienė, 2013).

Table 12: IS Success positively influences business performance

		IS Success	Business Performance
IS Success	Pearson Correlation	1	.553**
	Sig. (2-tailed)		.000
	N	108	108
Business Performance	Pearson Correlation	.553**	1
	Sig. (2-tailed)	.000	
	N	108	108

\*\* . Correlation is significant at the 0.01 level (2-tailed).

#### 4.2.3.5. Pearson Correlation: AIS effectiveness and business performance

Table 13 shows the result of the correlation analysis: it depicted that P-value is 0.000 which is less than 0.05.

Therefore, the null hypothesis will be rejected thus AIS effectiveness have significant relationship with business performance with positive association value ( $r = .418$ ,  $p = 0.01$ ). If AIS design can be linked to financial performance and financial performance is linked to organizational performance, then one can argue that AIS design and its effectiveness can have positive effects on organizational performance through ROA and ROE (Soudani, 2012).

Table 13: AIS Effectiveness positively influences business performance

		AIS Effectiveness	Business Performance
AIS Effectiveness	Pearson Correlation	1	.418**
	Sig. (2-tailed)		.000
	N	108	108
Business Performance	Pearson Correlation	.418**	1
	Sig. (2-tailed)	.000	
	N	108	108

\*\* . Correlation is significant at the 0.01 level (2-tailed).

#### 4.2.4. Multiple Regression Analysis

Multiple linear regression analysis makes *several key assumptions*:

- The existence of relationship between the dependent variable and the independent variables in a linear fashion/form;
- Multivariate Normality: the assumption of normal distribution curve of the variables.
- No Multicollinearity: Independent variables are not highly interconnected with each other and the testing tool for no Multicollinearity is Variance Inflation Factor (VIF) statistic.
- Homoscedasticity: This assumption requires that the variance of error terms is alike across the independent variables.

##### 4.2.4.1. Multiple Regression Analysis: IS Success and Business Performance

**Model I:** Business Performance = f (Information Quality, Service Quality, System Quality)

Where, BP represents business performance, IQ represents Information quality, SERVQ represents service quality and SYSQ represents system quality while  $\epsilon$  is the error term.

Multiple regression analysis is run on SPSS to establish the relationship between IS success and business performance. IS success variable is composed of three components: information quality, service quality and system quality. Multiple regressions are used to analyze the effect three independent explanatory covariates on a dependent response variable.

Table 14: Multiple Regression Analysis: IS success and Business Performance

<b>Model Summary</b>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.717 <sup>a</sup>	.515	.501	.37836

a. Predictors: (Constant), System Quality, Information Quality, Service Quality

According to the findings from the data, the following results which are shown in Table 14 were established by use of SPSS. The multiple regression result showed that  $R = 0.717$  and  $R^2 = 0.515$  which indicates that the combined effect of the three independent variables explain 51% of the variability of the dependent variable and the remaining portion i.e. 49% are described by other variables that are not incorporated in this model.

Table 15: IS success and Business Performance: ANOVA table

<b>ANOVA<sup>a</sup></b>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.778	3	5.259	36.739	.000 <sup>b</sup>
	Residual	14.888	104	.143		
	Total	30.667	107			

a. Dependent Variable: Business Performance

b. Predictors: (Constant), System Quality, Information Quality, Service Quality

Table 15 depicted that the summary of ANOVA table shows that the P- value is 0.000 which is less than 5%; thus, this indicates that our model is a better predictor of the outcome than the mean and it also shows that the combined effect of the three independent variables (Information quality, service quality and system quality) have an impact on the dependent variable (Business Performance).

The result shows that IS success increases business performance of the organization. If information system is in place based on the strategic objective of the organization, and integrated into business processes of an enterprise, it is one of the major driver which increases the business performance; but the level of benefit depends on economic sector, in which the enterprise operates, and business processes, for which the IS was procured (Lipaj & Davidavičienė, 2013).

Table 16: the coefficients of the three independent variables

		Coefficients					Collinearity Statistics	
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Tolerance	VIF
		B	Std. Error	Beta				
1	(Constant)	.654	.288		2.272	.025		
	Information Quality	.576	.078	.585	7.432	.000	.752	1.329
	Service Quality	.122	.060	.161	2.040	.044	.751	1.332
	System Quality	.122	.066	.130	1.861	.066	.951	1.052

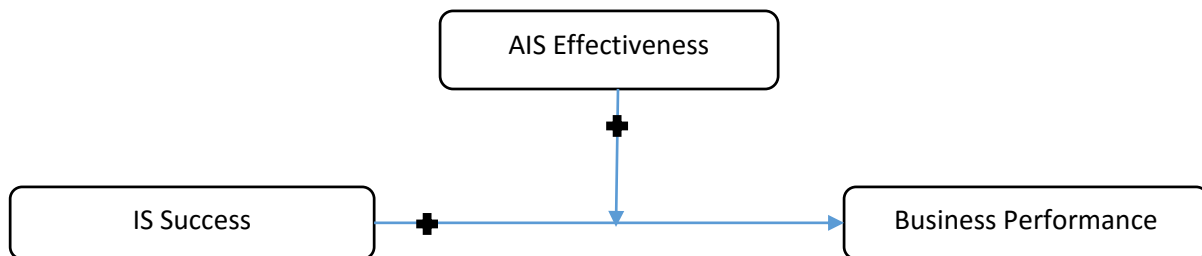
a. Dependent Variable: Business Performance

Regarding multicollinearity, since the tolerance level of all the variables is greater than 0.001 and VIF value is closer to one (ranging from 1.052 to 1.332); there is no issue of multicollinearity. For multicollinearity to exist the tolerance level is less than 0.001 and the VIF is much greater than 10. A significant model ( $p < 0.000$ ) with an R-square of 0.515 and no issue with multicollinearity ( $VIF < 2$ ) was obtained.

As depicted in Table 16, Information quality (highest predictor), service (next predictor) of business performance at a significance level of less than 0.05 but system quality is not statistically significant (p-value of 0.066). The direct contribution of system quality is limited as it depends on various factors including information quality, service quality, customer satisfaction and customer loyalty (Hardie, 2018).

#### 4.2.4.2. Moderating Regression Analysis

Model II: Business Performance = f (IS Success, AIS effectiveness, Interaction between IS success and AIS effectiveness)



In correlation, a moderator is a third variable that affects the correlation of two variables. In a causal relationship, if x is the predictor variable and y is an outcome variable, then z is the moderator variable that affects the casual relationship of x and y.

Thus, the researcher introduced another variable called: IS\_Success\* AIS\_Effectiveness in SPSS to show the moderating effect of AIS effectiveness on the relationship between IS success and business performance.

Table 17: Moderating effect of AIS effectiveness: ANOVA table

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	1.032	.355		2.904	.004					
	IS Success	.501	.123	.433	4.083	.000	.553	.372	.328	.575	1.740
	AIS Effectiveness	.140	.082	.164	1.711	.040	.418	.165	.138	.700	1.429
	Interaction: IS success and AIS effectiveness	.121	.179	.062	.677	.050	.315	.066	.054	.765	1.307

a. Dependent Variable: Business Performance

The result as depicted in Table 17 showed that the beta value is 0,121; thus, AIS effectiveness moderates significantly in the same direction, between IS success and business performance.

## CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

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This chapter contains of the summary of findings, conclusion of the study, recommendation for the study, limitation of the study and suggestions for future sections.

### 5.1. Summary of Findings

The study is conducted to identify the relationship between IS success and business performance and to identify the level of moderating effect of AIS effectiveness on the influence of IS success on business performance. Thus, the study is conducted on CBE North District branches by involving employees as well of customers at the counter. IS Success included three sub-variables: information quality, service quality and system quality.

In correlation analysis, we estimate a sample correlation coefficient, more specifically the Pearson Product Moment correlation coefficient. The sample correlation coefficient, denoted by  $r$ , lies between -1 and +1 and tells the direction and strength of the linear association between the two variables. The correlation coefficient's amount shows and explains the strength of the association between the two variables.

In this study the research also used multiple regression analysis. It is a set of statistical methods used for the estimation of relationships between two sets of variables: dependent variable and independent variable(s). It can be utilized to assess the strength of the relationship between variables and for modeling the future relationship between them.

Based on the research result, the researcher found that there is a positive association between information quality, service quality and system quality with business performance in isolate and in aggregate. The result also showed that the aggregate effect of the three independent variables towards business performance through multiple regression showed that 51.5% of the dependent variable is explained by the aggregate effect of the three components of Information System success. This result in aligned with the other researched done on relating IS Success with organizational as well as business performance (Hurt, 2016).

In addition, the study also observed the moderating effect of AIS effectiveness in the relationship between IS success and business performance of the CBE. The result showed that employing AIS effectiveness in combination with IS success affects differently and in positive direction on business performance. Thus, including AIS effectiveness as a component together with IS success parameters, enhances the level of business performance than not including it (Okour, 2016).

## 5.2. Conclusion

The purpose of the study was to assess the relationship between IS success and business performance using SPC model in the context of Commercial Bank of Ethiopia (CBE). The research paper considered linear regression models (one dimensional) as well as multivariate approach (two or more dimensions) in order to answer the objectives of the study.

The hypothesis statements are formulated by considering the human capital as an important asset in driving the organization towards profitability as well enhancing its business performance. Thus, based on this, many scholars exert various efforts on identifying factors that motivate employees as well as customers and the relationship between the two pillars. Different theories are designed based on motivation so that motivating people will enhance the level of their performance. Thus, contented employees are interested to perform in a much better way that in turn lead to work quality and service delivery enhancement, in order to meet customers' expectation. These cumulative effects, in turn, increase organizational profitability.

Leadership skill is vital in selecting the right motivational tool and implementing in the appropriate work force, which will lead to exercising the motivational approach in a better way. No matter which of the approaches to motivation in the workplace you choose to run with, once motivation and morale are high, you stand to experience many benefits in any sector including banking sector. Take time to observe results as you apply different theories to see which of these benefits you notice most: momentum, productivity, job satisfaction, loyalty, commitment, focus, customer satisfaction, ease of teamwork and profit.

### 5.3. Recommendations

Based on the major findings that have been discussed so far, the following points are recommended for the CBE North District regarding projects handled in- house or commissioned to various firms:

- Managers influencing the design of IS should integrate the overall effect of information quality, service quality and system quality. So, they should approach the IS framework design in a holistic approach and including the dynamism of the system. Thus, they should mind map and identify casual loop diagrams supported by simulation model in order to understand the level of effect by each IS success factors.
- Managers should empower employees that are working towards the effectiveness of AIS and IS success, so that they will be the change agents in driving the bank towards the target business performance that comes due to the proper use of AIS system.
- The Management should introduce a benchmark of using AIS as a standard to the banking sector and evaluate based on standard indicators used of the leading banks in the world. In addition, introduce a strong adaptation mechanism to incorporate tools that enhance the motivation as well capacities of the employees of CBE.
- The Management should recognize the need of comparative study by introducing SPC framework to the banking sector and evaluate against the current BSC framework to fulfill the need for exploring the strengths and opportunities of using the two frameworks.

### 5.2. Limitations of the study

The research study delivered empirical and theoretical perspectives keen on the relationships between IS success and business performance. In addition, it identified the moderating effect of AIS effectiveness on the relationship between IS success and business performance for the case of CBE North District. Nevertheless, the study was not free from limitations. Thus, some of the limitations are summarized below:

- The study engaged quantitative research design based on the survey data collected from employees as well as customers of CBE to test the proposed hypothesis, thus restraining the methodology selection.
- The data were also analyzed based on the personal experiences and perceptions of the respondents (employees as well as customers of CBE). Thus, the research study might be affected by the response bias initiated from the subjectivity of the respondents.

- The sample size of the study for employee respondents was 162 and the study was geographically bound to the banks in North Addis of CBE branches; so. It is difficult to generalize the result to CBE as a whole and to other settings of Private Banks.

## 5.2. Suggestions for Future work

Acknowledging the limitations of the study, the research paper proposes the extension of future work based on the findings and results obtained during the survey study:

- Supplement the study financial performance indicators of the bank to predict the business performance. In addition, it is also advisable to extend the data collections instruments and engaging key players in the sector. These triangulation approaches inject comprehensive data and significantly improve the results as well as the findings.
- The other perspective is to work on comparative analysis of BSC and SPM models on CBE as well as other private banks and develop a comprehensive model of business performance measurement framework at isolate or hybrid level.

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## Appendix A: Questionnaire

# AIS and Business Performance: the case of Commerical Bank of Ethiopia

## Participant Information Sheet

Dear respondent:

My name is Abraham Kebede Gizaw, Masters of Science in Accounting and Finance postgraduate student at the School of Faculty of Business and Economics, Addis Ababa University. I am working on my MSc-ACFN dissertation titled: Accounting Information System (AIS) and Business Performance - the case of Commerical Bank of Ethiopia. This instrument is sent to you in order to assess your experiences, views, and attitudes on Accounting Information Success, AIS effectiveness, and the business performance of CBE within branches of the North Addis district.

Your responses to questions in this instrument shall provide the study with the chance to generate balanced and objective findings on the subject matter. I pledge that the responses you provide here will be used for no other purposes than those specified above; your anonymity shall be maintained; and that the outputs of the study will not be manipulated towards any end whatsoever. As a primary stakeholder, your cooperation shall be of great meaning to the process and outcomes of this study and is duly appreciated.

The questions in this instrument are organized in FIVE sections:

PART I: Demographics

PART II: AIS effectiveness

PART III: Accounting Information System success

PART IV: Business Performance of CBE (Employees' Perspective)

PART V: Business Performance of CBE (Customers' Perspective)

Should you have any queries on this questionnaire, please feel free to contact me at [calcmx711@yahoo.com](mailto:calcmx711@yahoo.com) or call me on Ext. 4199.

To proceed to the questionnaire, please click the link below:

[https://docs.google.com/forms/d/e/1FAIpQLSd1wOM8pHVCpcn7ObI9\\_dYxZNz9BfUxs2oGOHXkZAwT-IJdtQ/viewform](https://docs.google.com/forms/d/e/1FAIpQLSd1wOM8pHVCpcn7ObI9_dYxZNz9BfUxs2oGOHXkZAwT-IJdtQ/viewform) and when you have completed it, simply click on "SUBMIT" to return your questionnaire.

Thank You for Your Cooperation!

### Part I: Demographics Information

Please indicate your demographic background by ticking the appropriate option:

1. Gender:

*Mark only one oval.*

Male

Female

2. Age:

*Mark only one oval.*

- Below 30 years
- 30 -39 years
- 40 - 49 years
- 50 -59 years
- 60 years and above

3. Please indicate your bank industry experience:

*Mark only one oval.*

- Below 5 years
- 5 - 9 years
- 10 - 14 years
- 15 years and above

4. Which position are you held currently?

*Mark only one oval.*

- Senior Manager
- Middle level Manager
- Operational level Manager
- Experienced Professional post
- Professional Post
- Junior level Post

Part II: Accounting  
Information  
System  
effectiveness

Please indicate the extent of your agreement with each of the following statement by selecting the appropriate option using the scale below. Please note that AIS stands for Accounting Information System.

5. The AIS assists our bank in achieving a competitive advantage.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

6. The use of AIS helps in satisfying our customers.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

7. The use of AIS facilitates effective integration between departments in our bank.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

8. The use of AIS assists in reducing cost.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

9. The use of AIS issues periodic reports on all the organization activities for decision making.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

10. The use of AIS allows our bank to save a lot of time.

*Mark only one oval.*

1      2      3      4      5

---

Strongly Disagree                  Strongly Agree

---

11. The use of AIS enables us to manage our tasks effectively.

*Mark only one oval.*

1      2      3      4      5

---

Strongly Disagree                  Strongly Agree

---

**Part III:  
Accounting  
Information  
System  
Success**

This section shows the attributes of Information quality, service quality and system quality from the perceptions of employees as well as customers of CBE in North Addis District. Please indicate the extent of your agreement with each of the following statement by selecting the appropriate option using the scale below:

**Information Quality (IQ)**

12. AIS provide me with accurate information.

*Mark only one oval.*

1      2      3      4      5

---

Strongly Disagree                  Strongly Agree

---

13. AIS provide me with relevant information.

*Mark only one oval.*

1      2      3      4      5

---

Strongly Disagree                  Strongly Agree

---

14. AIS provide me with the necessary information in a timely manner.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

15. The information contained in our website is timely and regularly updated.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

16. The information provided from AIS improves the quality of my work.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

17. AIS provide sufficient information related to my tasks.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

18. AIS provides me with comprehensive information to complete my tasks.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree



23. Auto logout is enabled after a period of inactivity online.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

24. The antivirus software does prevent the systems from being attacked by virus.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

25. Our AIS is regularly examined and maintained by IT unit staff.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

26. The user interface of our bank information systems is easy to use.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

27. The tutorials or instructions provided by our AIS help me to use the system easily.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

28. The user interface design by AIS team is user friendly.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

29. I understand every function of the AIS.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

30. I am familiar with the interface of our AIS.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

31. The user interface items of our AIS are easy to understand.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

32. AIS greatly facilitates my work efficiency.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

33. The processing speed of the AIS assists me in accomplishing my work very fast.

Mark only one oval.

1      2      3      4      5

---

Strongly Disagree                  Strongly Agree

---

**Part V:  
Business  
Performance  
of CBE  
(Employees'  
Perspective)**

This section deals with your opinion on the expectations and opinions regarding the performance of your bank via the Service Profit Chain (SPC) Model. The model evaluates employees' satisfaction. It is only filled by the Employees of CBE. (at the draft level): based on Minnesota Satisfaction Questionnaire(MSQ)

**Job Content**

The following questions will capture Employees filling on their present job in respect to the Job Content.

34. Being able to keep busy all the time

Mark only one oval.

1      2      3      4      5

---

Very Dissatisfied                  Very Satisfied

---

35. The chance to work alone on the job

Mark only one oval.

1      2      3      4      5

---

Very Dissatisfied                  Very Satisfied

---

36. The chance to do different things from time to time.

*Mark only one oval.*

	1	2	3	4	5	
Very Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Satisfied

37. Being able to do things that don't go against my conscience.

*Mark only one oval.*

	1	2	3	4	5	
Very Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Satisfied

38. The chance to do things for other people.

*Mark only one oval.*

	1	2	3	4	5	
Very Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Satisfied

39. The chance to tell people what to do

*Mark only one oval.*

	1	2	3	4	5	
Very Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Satisfied

40. The chance to do something that makes use of my abilities

*Mark only one oval.*

	1	2	3	4	5	
Very Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Satisfied

41. The chances for advancement on this job

*Mark only one oval.*

	1	2	3	4	5	
Very Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Satisfied

42. The freedom to use my own judgment

*Mark only one oval.*

	1	2	3	4	5	
Very Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Satisfied

43. The chance to try my own methods of doing the job

*Mark only one oval.*

	1	2	3	4	5	
Very Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Satisfied

44. The praise I get for doing a good job

*Mark only one oval.*

	1	2	3	4	5	
Very Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Satisfied

45. The feeling of accomplishment I get from the job

*Mark only one oval.*

	1	2	3	4	5	
Very Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Satisfied

## Job Context

The following questions will capture Employees filling on their present job in respect to the Job Context.

46. The chance to be "somebody" in the community

*Mark only one oval.*

	1	2	3	4	5	
Very Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Satisfied

47. The way my immediate supervisor handles his/her workers

*Mark only one oval.*

	1	2	3	4	5	
Very Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Satisfied

48. The level of competence of my supervisor in making decisions

*Mark only one oval.*

	1	2	3	4	5	
Very Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Satisfied

49. The way my job provides for steady employment

*Mark only one oval.*

	1	2	3	4	5	
Very Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Satisfied

50. The way company policies are put into practice

*Mark only one oval.*

	1	2	3	4	5	
Very Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Satisfied

51. My pay and the amount of work I do

*Mark only one oval.*

	1	2	3	4	5	
Very Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Satisfied

52. The working conditions in the premises of the Bank

*Mark only one oval.*

	1	2	3	4	5	
Very Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Satisfied

53. The way my co-workers get along with each other

*Mark only one oval.*

	1	2	3	4	5	
Very Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Satisfied

**Part IV:  
Business  
Performance  
of CBE  
(Customers'  
Perspective)**

This section deals with your opinion on the expectations and opinions regarding the performance of your bank via Service Profit Chain (SPC) Model. The model evaluates the Internal service quality, customer satisfaction and Customer loyalty that leads to Revenue growth and profitability: only filled by the Customers of the CBE.

### Interval Service Quality (Using SERVQUAL method)

\*\*\* Filled only by Customers of the CBE.

54. The bank has modern looking equipment.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

55. The physical facilities at the bank are visually appealing.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

56. The employees have a neat, professional appearance.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

57. Materials associated with the service (pamphlets or statements) are visually appealing.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

58. The bank provides services as promised.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

59. The bank has dependability in handling customers' problems.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

60. The bank performs services right the first time.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

61. The bank keeps customers informed about when the services will be performed.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

62. The bank maintain error free records.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

63. Employees of the bank tell customers exactly when services will be performed.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

64. Employees give prompt service to customers.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

65. Employees of are always willing to help customers.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

66. Employees are ready to respond to customers' requests.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

67. The behaviour of employees in the bank instils confidence in customers.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

68. Banks make customers feel safe in transactions.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

69. Employees are consistently courteous with customers.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

70. Employees have the knowledge to answer customers' questions.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

71. The bank gives customers individual attention.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

72. The bank maintains convenient branch location and operating hours to its customers.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

73. The bank has employees who deal with customers in a caring fashion.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

74. The bank has customer's best interest at heart.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

75. The employees of the bank understand the specific needs of their customers.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

### Customer Satisfaction

76. I am satisfied in dealing with my bank.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

77. I am satisfied with the way service is provided.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

78. I am satisfied with the overall services of the bank.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

79. I am satisfied with the workers' skill in providing services.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

80. I am satisfied with the courteousness of the workers.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

81. I am fully satisfied with the speed of providing services.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

82. I am satisfied with the facilities and materials the bank provides.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

### Customer Loyalty

83. I am satisfied with the overall service of the banks.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

84. I would say good things about this bank.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

85. My usage to the service of this bank will continue.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

86. I would recommend this bank to my relatives and friends.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

### Profitability

87. I am satisfied by the overall profitability of the bank.

*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

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