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The Effect of Business Intelligence Tools on Strategic Decision-Making: The Case of Ethiopian Banks

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A Thesis Submitted to Addis Ababa University School of commerce in Partial Fulfillment of the Requirement of the Degree of Master of Business Administration and Information system

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By: Marishet Solomon

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By Marishet Solomon

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DECLARATION

I declare that the project work entitled "**The Effect of Business Intelligence Tools on Strategic Decision-Making: The Case of Ethiopian Banks"** is my original work and all sources used in the study have been properly acknowledged.

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ACRONYMS AND ABBREVATIONS

ANOVA – Analysis of Variance

BI – Business Intelligence

CBE – Commercial Bank of Ethiopia

CEO – Chief Executive Officer

CMB – Common Method Bias

CRM – Customer Relationship Management

DSS – Decision Support System

EFA – Exploratory Factor Analysis

ERP – Enterprise Resource Planning

ETL – Extract, Transform, and Load

HR – Human Resources

IBM – International Business Machines

IS – Information System

IT – Information Technology

KMO – Kaiser-Meyer-Olkin Measure of Sampling Adequacy

MIS – Management Information System

OLAP – Online Analytical Processing

PLS – Partial Least Squares

SEM – Structural Equation Model

SPSS – Statistical Package for the Social Sciences

TOE – Technology-Organization-Environment Framework

VIF – Variance Inflation Factor

ABSTRACT

Today, banks use many technologies, and business intelligence (BI) is one of those tools that helps banks and many other industries to transform their raw data into information they can use to make their decisions. The main objective of this study is to examine the effect of BI tools on strategic decision-making and organizational performance in Ethiopian banks. To achieve this objective the researcher used quantitative research approach. Primary data were collected from employees of the five selected banks; Commercial Bank of Ethiopia, Enat Bank, Hibret Bank, Abay Bank, and Dashen Bank, using a five point Likert scale questionnaire. 192 response were returned from the distributed 200 questionnaires with 40 questionnaires to each bank. The data were analyzed using descriptive statistics, correlation analysis, multiple regression, and mediation analysis using SPSS version 27.

The finding of the study revealed that system quality and BI usage were significantly and positively associated with decision-making quality, while information quality and service quality showed no significant direct association. The mediation analysis shows that BI maturity was significantly associated with the quality of decision-making. BI maturity partially mediates the relationship between system quality and decision-making quality, and fully mediates the relationships between information quality, service quality, BI usage, and decision-making quality. Furthermore, decision-making quality was found to be significantly associated with organizational performance.

Keyword: System quality, BI usage, BI maturity, Information quality, service quality, Decision-making quality, Organizational performance

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

According to (Eckerson, 2003) organizations use Business Intelligence (BI) to get insights about their operations, customer behaviors, supply chain activities and overall financial performance. In the banking sector, BI is used in many ways like fraud detection, credit assessment, branch performance analysis, customer segmentation, and strategic planning. These institutions depend on BI to stay competitive in the market (Rahman, 2023).

Researchers discussed about how BI analytics help improve decision-making in financial institutions (Elbashir, Collier , & Davern, 2008)**.** Most of research works focus on technological implementation, system success factors, or BI adoption frameworks, often using models such as the DeLone and McLean IS Success Model ((Paradza & Daramola, 2021) and the Technology–Organization–Environment (TOE) framework (Jaradat & Al-Dmour, 2022), (Touil, & Jabraoui , 2023).

Banks in Ethiopia have expanded their digital services through core banking systems, mobile banking platforms, and electronic transactions (Eyasu, 2020) . Banks use core banking systems to generate large amount of data, making the deployment of BI System like TEMENOS Insight and Oracle BI EE necessary (Fekade, 2021). Even if Ethiopian Banks are showing growth on their digital services and the use of BI, empirical research on BI's impact on decision-making remains limited. Studies in Ethiopia have focused on implementing BI systems, the adoption factors or the system usage within a specific bank (Eyasu, 2020). While these studies contribute important understanding of BI research within Ethiopian banks, they offer a limited insight on how BI systems contribute to strategic decision-making and organizational performance across the banking sector in Ethiopia.

BI Maturity is considered to be foundation to BI success in the literature. According to (Langer, 2025) BI maturity is how systematically an organization integrates BI into its decision processes,

from basic reporting to advanced analytics and predictive modeling. Higher BI maturity helps organizations to get more accurate insights and support higher-quality strategic decisions. Although BI Maturity has been examined in research from different national contexts, the findings may not fully apply to Ethiopian banks due to differences in organizational culture, decision-making practices, and the level of digital infrastructure. In Ethiopia, banks are still developing their data-driven decision-making capabilities, and the role of BI Maturity in shaping strategic-level decisions has not yet been sufficiently examined in the Ethiopian banking context.

This research aimed to address this gap by assessing how BI Maturity mediates the relationship between BI success factors which are system quality, information quality, service quality, and BI usage and strategic decision-making on banks in Ethiopia. By doing so, the study found relevant insights on the Ethiopian banking context and contribute to understanding of how local factors influence the effectiveness of BI systems.

1.2 Problem Statement

Financial organizations face a lot of pressure to make timely, accurate, and data-driven strategic decisions because large amount of financial and operational data is being generated daily. While having access to this much of data helps in decision making, the complexity and volume of data make management approaches very overwhelming. BI tools have become a solution for such problems by transforming large and complex raw data into knowledge that supports decision-making (Rahman, 2023).

The author of (Mudzana & Maharaj, 2015) argues that effective utilization of BI systems in strategic decision-making is influenced by several critical factors. According to (Delone & McLean, 2003), information system success including BI systems is influenced by four key success factors. One is Information quality, it is an information that is accurate, complete, consistent, relevant, and reliable. Information quality is important because it directly determines the quality and effectiveness of decisions made by managers. System quality is the second factor, as system quality shows how well the system functions with respect to ease of use, reliability, accessibility, flexibility, and response time. The third is service quality, this one shows how support provided to users, such as IT help, training, and responsiveness, and it also influences

usage and satisfaction. Finally, BI usage, which shows how much users interact with the system or intend to use it, in turn affects the net benefits found from the system.

Additionally, BI Maturity is mentioned in the literature as foundational to BI success. According to (Popovič, Jaklič, Ray, & P. Coelho, 2012), BI Maturity is the level of stages how an organization uses BI tools to make decisions.

Although numerous studies have examined BI success factors as key determinants of BI system effectiveness, the literature offers limited evidence of research that has investigated BI Maturity as a mediating variable between BI success factors and strategic decision-making. Within the Ethiopian banking context specifically, existing studies have focused primarily on BI adoption and implementation (Fekade, 2021) without examining the mediating role of BI Maturity on strategic decision-making outcomes. Adding BI Maturity as a mediator extends existing frameworks such as the DeLone & McLean IS Success Model, and provides better understanding of how BI adoption translates into improved decision quality and overall organizational performance.

1.3 Research Question

This research tried to answer the following questions, based on statement of the problem

- In what extent BI tools are associated with strategic decision-making and organizational performance in Ethiopian banks?
- What is the effect of BI success factors on strategic decision-making in Ethiopian banks?
- How does BI Maturity mediate the relationship between BI success factors and strategic decision-making?

1.4 Objectives of the Study

General Objective

The main objective of this study is to assess the effect of BI tools on strategic decision-making and organizational performance in Ethiopian banks.

Specific Objectives

- To review literature on BI systems, BI success factors, BI Maturity, and strategic decision-making in the banking sector.
- To design and prepare the data collection instruments, including structured questionnaires for managers and IT staff working on BI system.
- To collect and analyze data from selected banks using the prepared instruments.
- To examine how BI success factors affect strategic decision-making and organizational performance in Ethiopian banks.
- To examine the mediating role of BI Maturity in the relationship between BI success factors and strategic decision-making in Ethiopian banks.
- To provide recommendations for improving BI system adoption, data quality, and strategic decision-making in Ethiopian banks.

1.5 Research Hypothesis

The following hypotheses have been formulated for this study:

H1: BI success factors (system quality, information quality, service quality, and BI usage) positively influence strategic decision-making quality in Ethiopian banks.

H2: BI Maturity mediates the relationship between BI success factors and strategic decision-making.

H3: Enhanced quality of strategic decision-making positively influences overall organizational performance in Ethiopian banks.

1.6 Significance of the Study

This study is important because it looks at how BI tools help top-level decision-making and performance in Ethiopian banks. While previous research focused on BI use in a single bank or challenges in adopting it, this study explores how BI systems impact strategic decisions and overall success on multiple banks. And so this study contributes empirical evidence on a topic that remains underexplored in the Ethiopian banking context.

Furthermore, this research extends existing theoretical frameworks of the DeLone and McLean IS Success Model, by adding BI Maturity as mediating factors. Adding these variable offers a better understanding of BI adoption and its role in improving decision-making and organizational performance. This contribution is important for both academics and practitioners who want a better understanding of the full potential of BI systems beyond basic implementation and usage.

From a practical perspective, the study provides useful insights for Ethiopian banks. By identifying which factors improve BI system's decision quality and organizational performance, and this helps mangers and decision-makers make informed choices on BI investments, system improvements, and data management strategies.

Finally, the findings of this research are expected to encourage further studies in related areas, such as BI adoption, data-driven management practices, and the strategic use of information systems in emerging markets. By providing a foundation for future research, this study contributes to the broader understanding of BI's role in improving organizational decision-making and performance.

1.7 Scope and Limitation

This study assessed how BI success factors system quality, information quality, service quality, and BI usage are associated with strategic decision-making quality, and the mediating role of BI Maturity in those relationships. The study was conducted across five selected banks in Ethiopia and relied on primary data collected through structured questionnaires. Respondents were limited to individuals in managerial, director, executive, and BI specialist roles who directly use BI systems in decision-making processes. The study did not assess BI implementation processes, technical system development, or customer-level BI usage.

Several limitations should be considered when interpreting the findings of this study. First, the use of purposive sampling across five banks limits the external validity and generalizability of the results to the broader Ethiopian banking sector. The findings are best interpreted as exploratory evidence applicable to the sampled institutions rather than as conclusions representative of all Ethiopian banks. Second, the total population of BI users across the five selected banks could not

be precisely determined, as the banks do not publicly disclose staffing breakdowns by role or system access level. This restricts a formal assessment of sample representativeness. Third, the cross-sectional design of the study restricts causal inference; the findings reflect associations among variables at one point in time and cannot confirm causal relationships without longitudinal or experimental designs. Fourth, as data were collected through self-reported questionnaires, the findings may be subject to response bias, as participants may overstate or understate their experiences or perceptions

1.8 Definition of Terms

Business Intelligence (BI):

A set of technologies, tools, and processes used to collect, integrate, analyze, and present data to support managerial and strategic decision-making (Turban, Sharda, & Delen, 2011)

BI Success Factors:

A key dimensions that determine the effectiveness of BI systems, including system quality, information quality, service quality, and BI usage, as proposed by the DeLone and McLean IS Success Model (Delone & McLean, 2003).

System Quality:

The author of (Delone & McLean, 2003), defines system quality as “the assessment of technical performance and usability of a system.”

Information Quality:

According to (Wang & Strong, 1996), Information Quality is “data that are fit for use by data consumers”

Service Quality:

The author of (Pitt L.F., 1995), defines Service Quality as “the comparison between perceived expectations of a service and perceived performance”

BI Usage:

The frequency of users using BI systems to perform analytics and decision-making tasks (Delone & McLean, 2003).

BI Maturity:

Shows how well a company is using BI systems (Tunowski, 2015).

Strategic Decision-Making:

A process where a business makes decision based on its long term goals (Mintzberg, 1994).

Banks:

Financial institutions that accept deposits from the public and provide loans and other financial services, playing a central role in financial intermediation (Mishkin, 2020)

1.9 Structure of the Research

The study is organized into five chapters. Chapter One included the background of the study, problem statement, research objectives, research questions, significance of the study, scope and limitations.

Chapter Two reviews relevant literature, the theoretical and empirical foundations of the study and develops the research hypotheses and conceptual framework.

Chapter Three describes the research methodology, including the research design, population and sample size determination, sampling technique, data collection methods, and data analysis techniques employed in the study.

Chapter Four presents the results and discussion of the data analysis. It includes descriptive statistics, correlation analysis, regression analysis, and mediation analysis, followed by interpretation and discussion of the findings in relation to the research hypotheses.

Finally, Chapter Five provides the summary of the study, conclusions drawn from the findings, and gives recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This Chapter reviews relevant literature related to BI and strategic decision-making. It presents key concepts, theoretical frameworks, and empirical studies conducted globally and locally. The chapter concludes by identifying research gaps that justify the need for the current study.

2.2 Conceptual Review

2.2.1 Business Intelligence (BI)

According to (Turban, Sharda, & Delen, 2011) , BI helps organizations analyze historical and current data and transform it into meaningful and useful information that support decisions makers. Similarly, (Wixom & Watson, 2001) describe BI as a comprehensive architecture that integrates data, analytical tools, and user interfaces to support decision-makers with timely and accurate information. Overall, BI is known as a decision-support system that improves organizational decision-making process.

The concept of BI started in the 1970s and 1980s, during this time organizations depended on Decision Support Systems (DSS) to help managers with a specific decision problems. Later this evolved into data warehousing and Online Analytical Processing (OLAP) systems, which enabled integrated and historical data analysis (Turban, Sharda, & Delen, 2011). In recent years, BI has expanded to include advanced analytics, dashboards, and real-time reporting, supporting strategic decision-making across organizations (Ezeilo, 2022).

A typical BI system is organized into several functional layers that facilitate the flow of information. These include data sources layer, which is where data is gathered from multiple internal sources, such as ERP or CRM systems and external sources like sensor networks or web data. The next one is Data Warehouse Layer where raw data undergoes the Extract Transform Load (ETL) processes to be cleaned and transformed into a central repository of historical data. The service (or application) layer supports analytical processing by providing tools such as

(OLAP), data mining, and statistical analysis**,** which are used to identify patterns from stored data. Presentation or End-User Layer consist of reporting and dashboard tools, which present transformed data in an accessible and user-friendly manner (In Lih Ong, 2011).

BI plays an important role in supporting decision-making at different level in organizations. These includes strategic, tactical, and operational level. At the strategic level, BI support executive decision makers with long-term planning and policy formulation. At the tactical level, it helps middle management in performance monitoring and resource allocation. And the operational level BI supports day to day decision-making through routine reporting and monitoring (Sabri Mekimah, 2024). Effective managerial decision-making relies on timely and reliable information, which BI systems are designed to deliver (Popovič, Jaklič, Ray, & P. Coelho, 2012).

BI in the banking sector is widely used to support decision-making related to customer relationship management, fraud detection, risk management and regulatory compliance. Banks generate large volume of customer and transactional data, which makes BI system important to transform those data to a meaningful information. BI improves the ability of banks to monitor performance, improve service delivery and assess credit risk (Paradza & Daramola, 2021).

Taken together, the reviewed definitions converge on BI as a system that transforms raw data into actionable information for decision support. However, earlier definitions such as (Turban, Sharda, & Delen, 2011) and (Wixom & Watson, 2001) tend to emphasize technical architecture, while more recent works such as (Ezeilo, 2022) and (Mekimah, Zighed, Mili, & Bengana, 2024) emphasize strategic outcomes and organizational impact. This shift in emphasis reflects the evolution of BI from a purely technical tool to a strategic organizational capability, which supports the focus of this study on BI's role in strategic decision-making rather than its technical implementation.

2.2.2 Strategic Decision-Making

The author of (Mintzberg, 1994), discussed strategic decision-making as a process which top management formulate term goals, policies and direction which shape the future of an organization. The author further explains strategic decisions are known by their complexity, uncertainty, and long-term impact, as they impact the overall direction of an organization.

Furthermore, (Mintzberg, 1994) suggests that such decisions often require both internal and external information and involve judgment rather than routine procedures.

In the banking sector, most strategic decision-making depends on BI systems. These tools provide managers with timely, accurate, and reliable information to help them make informed decisions. *Serdar et al,* (Serdar Biroğul, 2020) argue that BI systems that combine reporting and data mining functions improve the quality of managerial decisions in banks. And (Qatawneh, 2024) also discussed that the adoption of BI improves decision-making when organizational and technological conditions are aligned. Moreover, recent literature reviews confirm that the role of BI in decision support remains a central focus of research due to its impact on performance and competitiveness (Mekimah, Zighed, Mili, & Bengana, 2024).

2.2.3 BI Success Factors

BI success factors determine how effective BI systems are in organizations. These factors provide the foundation for understanding how BI systems deliver value and support strategic decision-making. Drawing from established information systems success models, particularly the (Delone & McLean, 2003) IS Success Model, which focuses on key dimensions of information systems success, including system quality, information quality, service quality, and BI use. Each of these factors contributes differently to the performance and impact of BI systems.

2.2.3.1 System Quality

System quality is widely known as an important success factor which influence the impact of BI systems and their contribution to decision-making. According to the DeLone and McLean IS Success Model, system quality shows the technical characteristics of an information system, including reliability, ease of use, response time, flexibility, and integration capabilities, which directly affect system usage (Delone & McLean, 2003). In the context of BI, high system quality let users access data efficiently, perform advanced analytics, and make decision on time.

Studies shows the importance of system quality in BI success. The author of (Işık, 2013), discussed that system quality especially system integration and analytical flexibility improve the impact of decision-making because it enables faster and more accurate analysis. Similarly, (Popovič, Jaklič,

Ray, & P. Coelho, 2012) showed that when BI systems are reliable and easy to use, managers trust the results more and make better decisions.

In general, literature shows that system quality is more than just a technical issue, it is important for the successful use of BI systems. Problems with reliability, integration, or usability can slow BI maturity and reduce the system's ability to turn data into strategic insights. This highlights the importance of system quality in the proposed conceptual framework.

While there is broad consensus on the importance of system quality, studies differ on which technical dimensions matter most. The author of (Işık, 2013) emphasizes analytical flexibility and integration, while (Popovič, Jaklič, Ray, & P. Coelho, 2012) focus on reliability and ease of use as the primary drivers of managerial trust. This suggests that system quality is a multi-dimensional construct whose effect on decision-making may vary depending on the organizational context and user sophistication, a nuance that justifies examining its relationship with BI maturity as a mediating mechanism.

2.2.3.2 Information Quality

In the DeLone and McLean IS Success Model, information quality is a key factor for system success because it influences users' trust in the outputs and their willingness to make decisions on them (Delone & McLean, 2003). In BI systems, high-quality information ensures that analytical insights are reliable and useful to supports strategic decision-making.

Research shows that information quality is very important for BI to be effective. (Wang & Strong, 1996) Highlighted accuracy, completeness, and timeliness as key dimensions for supporting decisions. (Popovič, Jaklič, Ray, & P. Coelho, 2012) Also found that high-quality information improves decision-making by increasing managers' trust in BI output.

Studies conducted in developing-country also highlight information quality as a critical challenge. For example (Paradza & Daramola, 2021) reported that BI systems in African organizations are limited and their contribution to planning and performance management are reduced by inconsistent data, missing values and delayed reports. These findings suggest that information

quality plays an important role not only as a direct success factor but also as a mechanism through which BI systems influence strategic decision-making outcomes.

While studies consistently identify information quality as critical to BI effectiveness, findings on its direct effect on decision-making are not uniform. The authors of (Wang & Strong, 1996) and (Delone & McLean, 2003) treat it as a direct driver of IS success, whereas (Paradza & Daramola, 2021) show that in developing country contexts, structural data problems can undermine information quality regardless of system design. This inconsistency suggests that the relationship between information quality and strategic decision-making may be contingent on organizational factors such as BI maturity, supporting the mediating role proposed in this study.

2.2.3.2 Service quality

Service quality in BI systems is the level of support provided to users by IT and BI support teams, including technical assistance, training, and maintenance (Delone & McLean, 2003). High service quality ensures that users receive timely help when facing system issues and training about the system to make BI systems effective for decision-making

Research shows that strong service support increases user satisfaction, builds trust in information systems, and improves effective system use. However, poor service quality can result in low system usage, improper interpretation of analytical results, and weak decision-making due to unresolved technical and usability challenges (Stacie Petter, 2008).

2.2.3.3 BI Usage

Business Intelligence (BI) usage shows how actively users use BI systems to do reporting, analysis, monitoring, and decision-making within an organization (Delone & McLean, 2003). It also includes how often the system is used and the depth and purpose of use, such as for routine reports or higher-level analytical and strategic decisions. When BI systems are used effectively, managers will be able to turn raw data into meaningful insights and this replace evidence-based decisions and reducing reliance on intuition.

According to (Stacie Petter, 2008), higher BI usage is linked to a better decision quality, greater user satisfaction, and organizational benefits. Consistent and appropriate use provides decision-makers with a timely and accurate information which improves situational awareness and support strategic planning.

2.2.3.4 BI maturity

BI maturity show how advanced an organization's BI capabilities are, ranging from basic reporting to fully embedded, data-driven decision-making tool. BI maturity is often described using maturity models, which classify BI development into levels that show increasing sophistication and strategic impact (Touil, & Jabraoui , 2023).

One of the widely recognized frameworks for assessing BI maturity is Gartner's BI Maturity Model (Chien, 2017)**,** which describes the stages of BI adoption and use. Gartner's BI Maturity Model as illustrated in Figure 2.1, provides a structured way to assess how organizations develop their BI capabilities over time. The model defines five maturity levels which are Unaware, Tactical, Focused, Strategic, and Pervasive. Each stage shows how the level of BI sophistication and integration within the organization. At lower maturity levels data is scattered across different, disconnected spreadsheets and documents. As organizations move to higher maturity levels, data is organized and accessible because data sources are connected to a business intelligence software program.

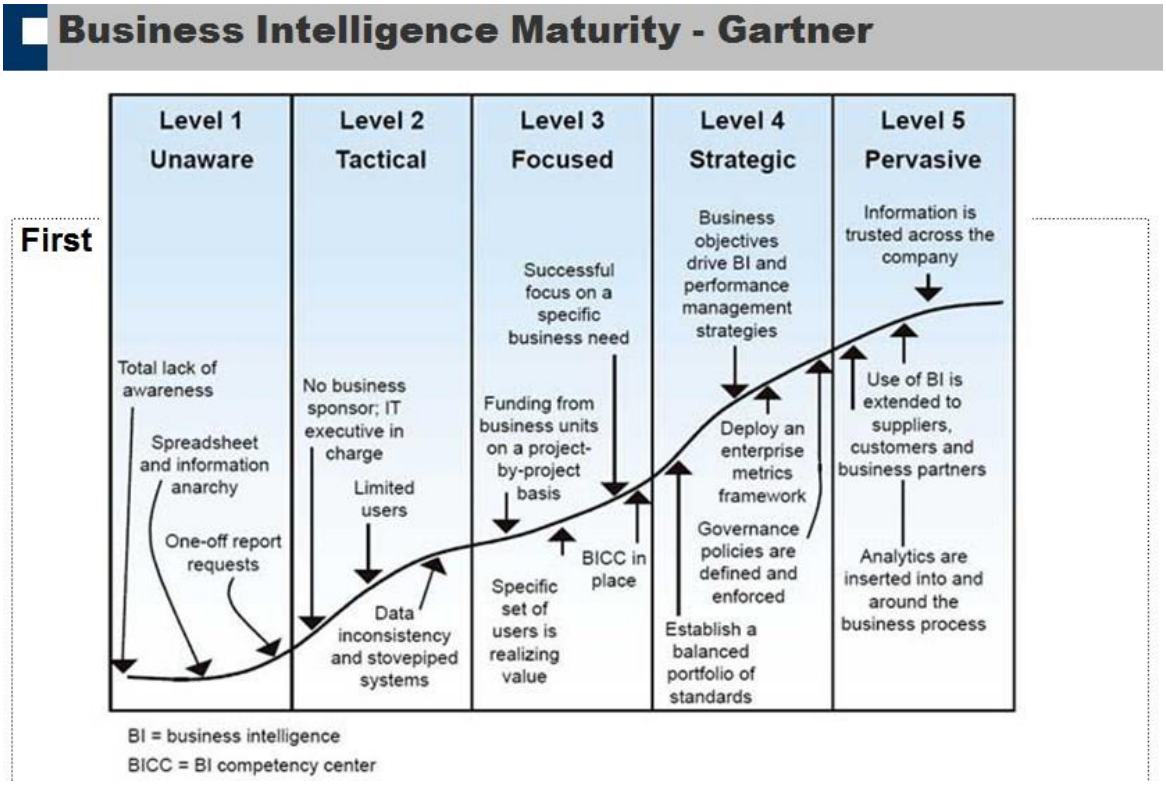


Figure 2. 1 Gartner's BI Maturity Model *(Chien, 2017)*

2.3 Theoretical Framework

The author of (Creswell, 2022), explains that a theoretical framework consists of theories that explain how variables relate to one another and provides a structure for formulating hypotheses and interpreting research findings. The author further discusses that a theory helps organize research questions and data collection procedures, and gives structure to how variables relate to one another in a study, making it essential for empirical research design.

Several theoretical frameworks have been proposed to explain BI adoption and success. The Technology-Organization-Environment (TOE) Framework (Tornatzky & Fleischer, 1990) examines how technological, organizational, and environmental factors jointly influence technology adoption decisions. The Resource-Based View (Barney, 1991) positions BI as a strategic resource that generates competitive advantage when it is valuable, rare, and difficult to imitate. Dynamic Capabilities Theory (Teece, Shuen, & Pisano, 1997) further argues that organizations must continuously reconfigure their capabilities, including BI to respond to changing

environments. The Knowledge-Based View (Grant, 1996) similarly emphasizes the role of information systems in creating and managing organizational knowledge.

While these frameworks offer valuable perspectives, this study adopts the (Delone & McLean, 2003) as its primary theoretical foundation for three reasons. First, unlike adoption-focused frameworks such as TOE, the DeLone and McLean model specifically addresses post-adoption success; how system quality, information quality, service quality, and usage translate into organizational benefits which directly aligns with this study's research questions. Second, this study uses the DeLone and McLean (2003) theoretical framework because it fits into the study and many researchers have also used and updated this model. For example (Pitt, Watson, & Kavan, 1995) work is a seminal information systems study that introduced the idea of measuring Service Quality as a dimension of IS success. They adapted the SERVQUAL model originally from marketing to assess information systems service quality, arguing that service quality should be included alongside system quality and information quality when evaluating information systems success. Their work laid the foundation for later extensions of the DeLone & McLean IS Success Model to include service quality as a success factor. The DeLone and McLean (2003) model incorporates the following dimensions, information quality, systems quality, and service quality, intention to use, user satisfaction, and net benefits. Third, its dimensions map directly onto the constructs measured in this study, providing a coherent basis for hypothesis development. The figure below is the framework that show the DeLone and McLean (2003) model.

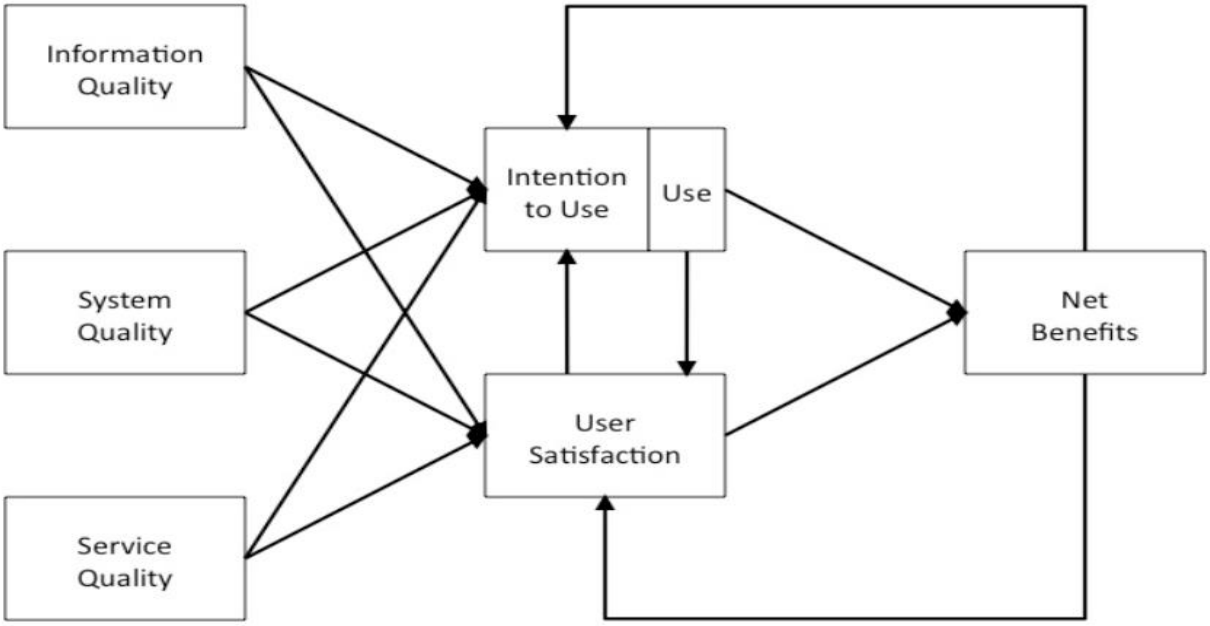


Figure 2. 2The DeLone and McLean (2003) model

2.4 Extended Framework

This study extends the DeLone and McLean IS Success Model which is a well-established information systems theory, by adding BI Maturity as mediating variable between BI success factors and strategic decision-making. Studies confirm that BI success factors are critical to BI success (Işık, 2013).However, recent research show that these factors do not operate alone and that their impact on decision-making depends on an organization's level of BI maturity and data management capabilities. For example (Touil, & Jabraoui , 2023) demonstrate that high BI maturity improves information quality and data analytics, so this strength the contribution of BI systems to managerial decision-making. Similarly, (Egbeniyoko, 2014) discussed that system quality and BI usage gives meaningful organizational benefit when supported by mature BI infrastructures and reliable data.

Recent reviews further discussed BI maturity as independent antecedents or performance-related constructs, rather than as mediating mechanisms that explain how BI success factors translate into strategic decision-making outcome (Touil, & Jabraoui , 2023). By adding BI maturity as mediating variable the proposed framework responds directly to gaps identified in the literature.

Furthermore, this extended framework is particularly relevant to the Ethiopian banking context, where BI adoption is still evolving and organizational capabilities vary across institutions. Differences in infrastructure, data governance practices, and organizational culture may influence how BI systems are used and matured. By analyzing the mediating effects this study will provide a framework that improves the existing IS success theories and contributes both theoretically and empirically to BI research.

2.5 Empirical Literature Review

2.5.1 Empirical Studies from Emerging and Developing Economies

Several studies have examined the role of BI systems in improving decision-making and organizational performance, especially in the banking and financial services sector. Recent research by (Qatawneh, 2024)**,** discussed BI adoption in Jordanian commercial banks using a quantitative approach and structural equation modeling. The study found that BI adoption has a positive effect on decision-making performance, focusing on the importance of technological and organizational readiness for successful BI usage.

Similarly, a study conducted in Romania by (Hurbean, 2024) examined the impact of BI and analytics usage on managerial performance and decision-making. Using survey data collected from managers and analyzed through PLS-SEM, the study demonstrated that BI usage improves decision accuracy and organizational responsiveness, particularly when supported by a strong data-driven culture. These findings support the argument that BI systems are not only technical tools but also strategic helpers of informed decision-making.

In the context of developing economies, (Sukhadeve1 & Ramteke, 2024)**,** explored BI system applications in Indian banks through case-based analysis. Their findings showed that BI tools contribute in improving risk management, operational efficiency and customer relationship management, to support both tactical and strategic decisions.

Furthermore, empirical evidence from emerging economies highlights the integration of advanced analytics into BI systems. (Mozumder, 2024) Examined the use of machine learning within BI environments in the banking sector and found that advanced analytical capabilities improves

predictive decision-making and strategic planning. These studies collectively suggest that BI systems play a role in strategic decision making process.

Collectively, these studies demonstrate that BI systems positively influence decision-making quality in emerging economy banking contexts. However, they predominantly report favorable outcomes under conditions of strong organizational readiness and data-driven cultures. Studies that examine BI effectiveness under weaker institutional conditions are notably absent, which limits the transferability of findings to contexts like Ethiopia where BI adoption is still maturing.

2.5.2 Empirical studies from the Banking Sector in African and Developing Economies

Empirical studies from Africa and other developing regions also shows the growing importance of BI systems in organizational decision-making, especially in the banking sector. In Ghana, a study on BI systems adoption in commercial banks found that technological readiness, organizational support, and regulatory environment affects BI adoption and usage (Amoako-Gyampah, 2020). The study concluded that effective BI usage leads to improved managerial decision-making and operational performance, although challenges related to data quality and system integration persist.

A study focusing on Sub-Saharan African banks by (Ahlijah, 2022) discussed the relationship between BI capabilities and value creation using the Technology Organization Environment (TOE) framework. The findings showed that BI-related technological and organizational factors positively influence bank performance, and the study suggested BI systems can create measurable business value even in resource-constrained environments.

Another study from the Middle East by (Al-Okaily, 2023), examined BI system efficiency in Jordanian banks and found that system quality, information quality, and user satisfaction affect BI success. This study supports the applicability of the established IS theories in developing country banking sectors as their result align with the DeLone and McLean IS Success Model.

These studies collectively suggest that the DeLone and McLean IS Success Model retains explanatory relevance in African banking contexts. However, a recurring theme across these studies is that BI benefits are contingent on organizational and technological readiness, factors that

vary significantly across institutions. None of these studies explicitly examine the mediating role of BI maturity, leaving an important explanatory gap in understanding how BI success factors translate into decision-making outcomes in resource-constrained environments

2.5.3 Empirical evidence from the Ethiopian Banking Sector

Empirical research on BI in Ethiopian banks are emerging but still remains limited and mostly focus on implementation status and operational challenges. (Eyasu, 2020) Examined the impact of implementing a BI project at the Commercial Bank of Ethiopia (CBE) using a descriptive research design. He found that BI implementation improved reporting and competitive advantage, however he also identified challenges related to data quality and system performance that limit the effective use of BI for decision support.

Similarly, (Fekade, 2021) assessed the status of BI information systems at Nib International Bank and reported that although BI infrastructure and tools were in place, issues related to system integration, data management, and utilization limited the system's effectiveness in supporting managerial decision-making. While these studies provide an important insights into BI implementation and infrastructure within Ethiopian banks, they do not clearly examine how BI success factors influence strategic decision-making outcomes.

2.5.4 Research Gaps Identified in Empirical Studies

The reviewed empirical literature shows that BI systems positively influence decision-making quality and organizational performance. However, two important gaps still exist. First, most studies look at BI success factors as having a direct effect on performance or decision outcome, while BI maturity are typically treated as independent variables or result rather than as mediating variables. This makes it hard to understand how BI systems turn technical and usage qualities into strategic decision benefits.

Second, there is a clear contextual gap in the Ethiopian banking sector. Despite increasing investment in digital transformation and BI tools, there is insufficient empirical research examining the impact of BI success factors on strategic decision-making within Ethiopian banks. Available Ethiopian studies specifically (Fekade, 2021) and (Eyasu, 2020) focus on BI

implementation status and operational challenges at individual institutions, without testing how BI success factors influence strategic decision-making or examining the mediating role of BI maturity. This constitutes a clear and specific gap that the present study addresses by empirically testing an extended DeLone and McLean framework incorporating BI maturity as a mediator. Therefore, this study aimed to fill this gap by empirically analyzing how BI maturity and data quality mediate the relationship between BI success factors and strategic decision-making in Ethiopian banks.

2.6 Conceptual Framework

The conceptual framework of this study is designed to show the relationships between BI success factors**,** the mediating variables BI Maturity**,** strategic decision-making, and organizational performance in Ethiopian banks. The framework places system quality, information quality, service quality, and BI usage as the primary variables of BI success, which influence the quality and effectiveness of strategic decision-making (Delone & McLean, 2003). Both BI Maturity, which shows how well analytics are used and integrated in the organization (Popovič, Jaklič, Ray, & P. Coelho, 2012).

This framework is based on the DeLone and McLean IS Success Model, which connects system, information, and service quality to usage and benefits, and it is extended here with a BI-specific mediator to better show how BI systems create value.

Finally, the quality of strategic decision-making is expected to positively influence overall organizational performance, supporting previous research that emphasizes the importance of timely and reliable information for managerial decisions at strategic, tactical, and operational levels. This framework offers a structured way to understand not just whether BI systems are associated with improved decision-making and performance, but also how and through which processes these effects happen.

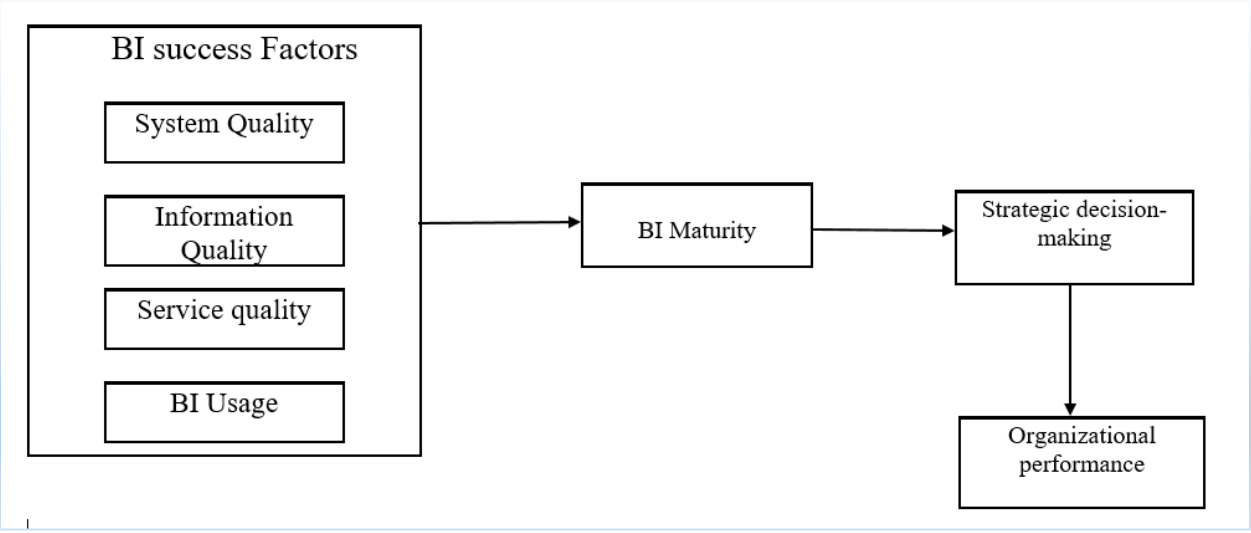


Figure 2. 3 Extended Conceptual Framework

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology focuses on research perspectives, approaches, beliefs, and philosophies that guide a study (Kwesi Atta Sakyi, 2020). In this Chapter the researcher discussed the methods and procedures used to conduct the study, including the research design, study area, data collection methods, sampling techniques, data analysis approaches and ethical considerations followed during the research.

3.2 Research Approach

A research approach is the overall plan and direction used to conduct a study. There are three main types of research approaches: quantitative, qualitative, and mixed methods. This research used a quantitative research approach to study the relationships between BI success factors, BI maturity, and strategic decision-making by using measurable variables and statistical techniques. A quantitative approach is suitable because it allows variables to be measured objectively and precisely, making it possible to identify patterns, relationships, and potential causes between them (Creswell, 2022).

3.4 Population of the Study

This study included managers and staff who use BI systems for making decision, as well as IT staff who work on BI systems. The study focused on employees from Commercial bank of Ethiopia**,** Enat Bank, Hibret Bank, Dashen Bank and Abay Bank.

3.3 Research Design

Research design is defined as the conceptual structure or plan that guides the collection, measurement, and analysis of data in a systematic way. It is the blueprint for the entire research process that help the researcher achieve the research objectives (Kothari, 2004). This study adopted

an explanatory research design to identify the relationships between BI success factors, strategic decision-making and the mediating effects of BI Maturity. The explanatory design is suitable because it allows to explore cause and effect relationships, test hypotheses, and understand how changes in BI success factors affect decision-making in the banking sector.

3.5 Sampling Technique and Sample Size

The study used purposive sampling to select respondents with direct experience using BI systems in strategic decision-making roles. This approach was chosen because the study specifically targets managers, directors, executives, and BI specialists, individuals whose daily responsibilities involve BI-supported decisions. Random sampling would risk including respondents with no meaningful BI exposure, thereby reducing the construct validity of responses. Purposive sampling is well-suited to studies targeting specialized populations where relevant experience is a prerequisite for meaningful participation (Creswell, 2022).

It is acknowledged that purposive sampling introduces limitations with respect to external validity, generalizability, and causal inference. The findings of this study should therefore be interpreted as exploratory evidence applicable to the five sampled banks rather than as conclusions generalizable to the entire Ethiopian banking sector.

The total population of employees in managerial, director, executive, and BI specialist roles across the five selected banks could not be precisely determined, as the banks do not publicly disclose staffing breakdowns by role or system access level. This is a recognized challenge in organizational research within developing country contexts where institutional records are not always accessible to external researchers (Creswell, 2022). To address this, eligible respondents were identified through direct coordination with HR departments and department heads at each institution, who confirmed the relevance and availability of potential participants. The inability to establish a precise population frame is acknowledged as a limitation that restricts a formal assessment of sample representativeness.

Given that this study employs mediation analysis, sample size adequacy was evaluated using criteria appropriate for such models rather than relying solely on general regression rules of thumb.

(Hayes, 2022), recommends a minimum of 100 - 200 cases for bootstrapped mediation analysis, and (Preacher & Hayes , 2008) note that larger samples improve the precision and stability of indirect effect estimates. The ratio of cases to predictors in this study (192:4) exceeds the recommended 10:1 minimum for regression-based analyses (Field, 2024), and (Hair, 2019) confirm that samples above 150 provide adequate power for multivariate analyses. Based on these mediation-specific criteria, the sample of 192 respondents is considered adequate for the analyses conducted in this study.

The response rate of 96% (192 out of 200) is exceptionally high, substantially minimizing concerns about non-response bias. The eight non-respondents represented less than 4% of the distributed questionnaires, and given the high participation rate achieved, non-response bias is unlikely to pose a meaningful threat to the validity of the findings (Saunders, Lewis, & hornhill, 2019).

3.6 Sources of Data Collection

This study used primary data and Secondary data sources. Primary data was collected from a questionnaire survey, which was then organized into distinct sections designed to measure the key constructs of the study. These sections capture BI success factors, mediating variables, and dependent variables, which are decision-making and organizational performance.

Secondary data was obtained from sources such as journal articles, books, and reports to support the theoretical framework and the literature review.

3.7 Research Instrument

This research collected data from structured questionnaires and all the items were measured on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).The questionnaire was developed by adapting questions from previous studies on Business Intelligence and Information Systems research and adjusted to fit the Ethiopian banking context to ensure they are clear and relevant.

To ensure the questionnaire is valid and reliable, it was first reviewed by academic supervisors and BI practitioners, and a pilot test was done to check for clarity and ease of understanding. The

reliability of the questionnaire was checked using Cronbach's Alpha**,** with a score of 0.7 or higher considered acceptable.

By using well-established questions and adapting them carefully to the local context, the questionnaire provides a reliable way to measure BI success factors, BI maturity, data quality, strategic decision-making, and organizational performance.

3.8 Procedures of Data Collection

To ensure the data is accurate and reliable, the researcher followed a clear and organized process for collecting quantitative data. The steps of the process are outlined below

Preparation Phase

- Create the questionnaire based on the study goals, which covers BI system quality, data quality, service quality, BI usage, BI maturity, decision-making, and organizational performance.
- Test the questionnaire from one of the selected banks to ensure the questions are clear and easy to understand.
- Make any needed changes to the questionnaire based on the test feedback.
- Get permission from the banks and prepare consent forms to ensure participants know that their responses are voluntary and confidential.

Data Collection

- Select respondents who actively use or support BI systems, such as managers, analysts, and IT staff.

- Distribute the questionnaires to participants using online Google form.
- Send reminders by email or phone to increase response rates.

- Collect the completed questionnaires and check that all questions are answered.

After Data Collection

- Check the data for any missing or inconsistent responses and clean it.
- Code the answers so they can be analyzed.
- Prepare the data for analysis to test the relationships between BI success factors, mediators (BI maturity), and strategic decision-making outcomes.

3.9 Data Analysis Methods

For this study the researcher used quantitative statistical techniques to analyze the data that is collected from the questionnaires and summarized the characteristics of respondents' descriptive statistics. Inferential statistics, including correlation analysis and multiple regression analysis were used to study the relationship between BI success factors and strategic decision-making. And also to assess the mediating role of BI Maturity in the relationship between BI success factors and strategic decision-making, mediation analysis was used.

Data analysis was conducted using SPSS. Descriptive statistics were used to summarize respondent characteristics, while correlation and multiple regression analyses examined the relationships between variables. Mediation analysis was performed using the PROCESS macro to assess the mediating role of BI maturity in the relationship between BI success factors and strategic decision-making.

3.10 Ethical Considerations

This study will accept all the ethical standards in academic research (Kumar, 2011). Such as informing participants about the purpose of the study, as they have the right to decline or withdraw from the study at any time they want.

The study will ensure respondents' safety by avoiding any physical or psychological harm. Privacy and confidentiality will be maintained by using anonymous questionnaires and reporting findings in aggregate form only. Data collected will be used strictly for academic purposes. Informed consent will be obtained from all participants before data collection begins.

3.11 Validity and Reliability

3.11.1 Validity

Validity refers to how the research instrument measures what it is intended to measure (Sekaran U. &., 2016). A Pilot test with 20 participant whose response was not included in the main data collection was done to ensure the validity of this study. Based on the pilot test result, necessary modifications were made to improve the quality of the instrument. After the modifications, the final questionnaire was distributed for the main data collection.

Construct validity was assessed using Exploratory Factor Analysis (EFA). The Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity were used to determine the suitability of the data for factor analysis.

3.11.2 Reliability

Reliability refers to the consistency of the measurement instrument (Sekaran U. &., 2016). The data were collected using structured questionnaires distributed to respondents from selected Ethiopian banks. To ensure the completeness, consistency, and honesty of the responses, the collected questionnaires were carefully reviewed and cross-checked before analysis. The internal consistency of the questionnaire was evaluated using Cronbach’s Alpha. The value of the Cronbach’s Alpha of this study is 0.905 which shows a satisfactory internal consistency and reliability of the measurement instrument.

3.11.3 Common Method Bias

Since all variables were collected from the same respondents using a single instrument at one point in time, common method bias (CMB) is a potential concern (Podsakoff, 2003).To assess CMB, Harman's single-factor test was conducted by performing unrotated principal component analysis on all 24 measurement items simultaneously.

Table 3 1. Common Method Bias

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.644	31.851	31.851	7.644	31.851	31.851
2	3.544	14.768	46.619	3.544	14.768	46.619
3	2.082	8.675	55.293	2.082	8.675	55.293
4	1.255	5.231	60.524	1.255	5.231	60.524
5	1.085	4.519	65.044	1.085	4.519	65.044

Source: SPSS result, 2026

As shown in Table 3.1, the first factor accounted for 31.851% of the total variance, which is well below the commonly used threshold of 50%. This result indicates that no single factor dominates the data, suggesting that common method bias is unlikely to pose a serious threat to the validity of the findings in this study.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS, AND INTERPRETATION

Introduction

In this Chapter, the researcher presented and interpreted the data collected from the selected banks: Commercial Bank of Ethiopia (CBE), Enat Bank, Hibret Bank, Dashen Bank, and Abay Bank. Data Analysis was done by SPSS version 27, and based on the analyses conducted using descriptive statistics, regression analysis, and mediation analysis, the findings are presented and discussed in the following sections.

4.1 Reliability Test

In this study, the researcher used Cronbach's Alpha (1951) to measure the consistency and dependability of the set of items in the questionnaire.

Table 4 1 Reliability Test

Variables	Number of Items	Cronbach's Alpha
System Quality	3	0.828
Information Quality	5	0.860
Service Quality	3	0.806
BI Usage	3	0.800
BI Maturity	4	0.820
Strategic Decision-Making	3	0.829
Organizational Performance	3	0.822
Overall	24	0.905

Source: SPSS result, 2026

The reliability analysis conducted using Cronbach's Alpha shows that the measurement scales used in this study are consistent and dependable. As shown in Table 4.1 all variables achieved acceptable internal consistency, with Cronbach's Alpha values ranging from 0.800 to 0.860 while the overall scale demonstrated excellent reliability with a value of 0.905**.** This confirms that the

questionnaire items effectively measure the intended variables and that the data collected is reliable and suitable for subsequent analyses (Mohsen Tavakol, 2011).

4.2 Construct Validity Assessment

Construct validity is the degree to which a measurement instrument actually measures the theoretical construct it is intended to measure (Sekaran & Bougie, 2016). While reliability analysis confirms the internal consistency of the scales, it does not confirm that the items measure the correct constructs. To address this, the researcher conducted an exploratory factor analysis (EFA) using image factoring with Varimax rotation to examine the underlying factor structure of the 24-item measurement instrument. The results are presented and interpreted below.

Table 4 2. KMO and Bartlett's Test

Test	**Value**
Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy	0.893
Bartlett's Test of Sphericity (Chi-Square)	2323.065
Degrees of Freedom (df)	276
Significance (p-value)	0.000

Source: SPSS result, 2026

As shown in Table 4.2 above, the KMO value of 0.893 indicates excellent sampling adequacy for factor analysis. Bartlett's Test of Sphericity was statistically significant ($\chi^2 = 2323.065$, $df = 276$, $p < 0.001$), confirming that the variables were sufficiently correlated and suitable for factor analysis.

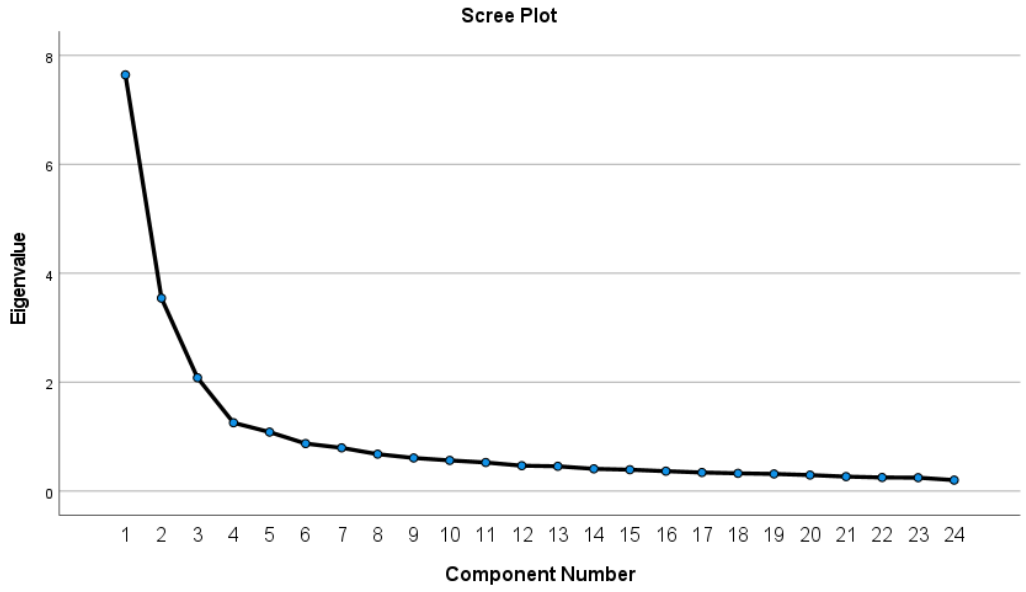
Table 4 3. Total Variance

Component	Eigenvalue	% of Variance	Cumulative %
1	7.644	31.851	31.851
2	3.544	14.768	46.619
3	2.082	8.675	55.293
4	1.255	5.231	60.524
5	1.085	4.519	65.044

Source: SPSS result, 2026

Table 4.3 shows that five factors with eigenvalues greater than one were extracted. Together, these factors explained 65.044% of the total variance, exceeding the recommended minimum threshold of 50%, indicating satisfactory construct validity.

Fig 4.1 shows a clear break after the fifth component, after which the eigenvalues begin to level off. This supports the retention of five factors and confirms the results obtained using the eigenvalue-greater-than-one criterion.



Source: SPSS result, 2026

Figure 4 1. Scree Plot of Exploratory Factor Analysis

4.3 Regression Assumption Tests

4.3.1. Multicollinearity

To assess multicollinearity the researcher examined, tolerance and Variance Inflation Factor (VIF).

Table 4 4. Multicollinearity Diagnostics

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.786	0.271		6.597	0.000		
	SysQ	0.241	0.072	0.283	3.340	0.001	0.574	1.744
	InfoQ	-0.118	0.081	-0.129	-1.460	0.146	0.523	1.913
	ServQ	-0.020	0.075	-0.023	-0.275	0.784	0.589	1.697
	BIUse	0.390	0.069	0.416	5.686	0.000	0.768	1.301
a. Dependent Variable: DecQ								

Source: SPSS result, 2026

The results showed that all tolerance values were greater than 0.10 and all VIF values were below 10. Therefore, multicollinearity was not considered a problem in the regression model, indicating that the independent variables were sufficiently distinct from one another.

Similarly, for the Organizational Performance model, Decision Quality was the only independent variable included in the regression analysis. Therefore, multicollinearity was not a concern. The tolerance value was 1.000 and the VIF value was 1.000, indicating the absence of multicollinearity.

4.3.2 Normality

Fig 4.2 shows that the histogram of the standardized residuals shows an approximately bell-shaped distribution centered on zero. The residual mean is approximately zero (Mean = -2.99E-15) and the standard deviation is close to one (Std. Dev. = 0.989), indicating that the residuals are normally distributed. Although minor deviations are observed, the overall shape closely resembles a normal distribution. Therefore, the normality assumption for the regression model is considered satisfied.

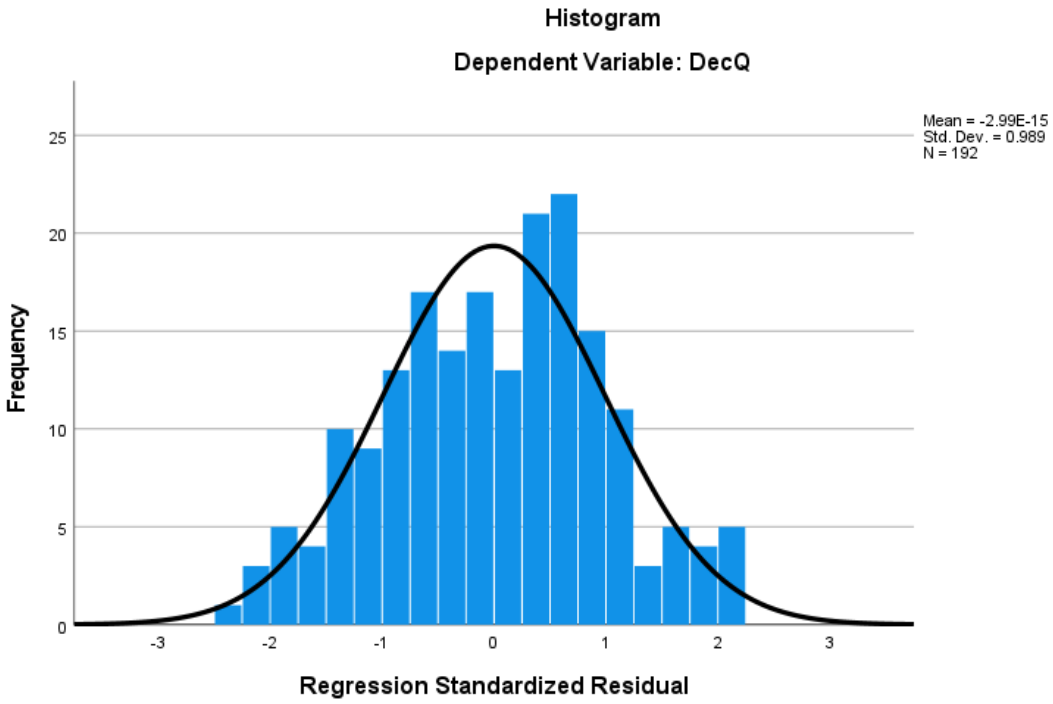


Figure 4 2. Histogram of Regression Standardized Residuals

4.3.3 Linearity

The normal P-P Plot shows that the observed cumulative probabilities closely follow the expected cumulative probabilities along the diagonal reference line. Only slight deviations are visible at a few points, which are common in real-world data. The close alignment of the points with the diagonal line indicates that the residuals are approximately normally distributed. Therefore, the normality assumption of the regression model is satisfied.

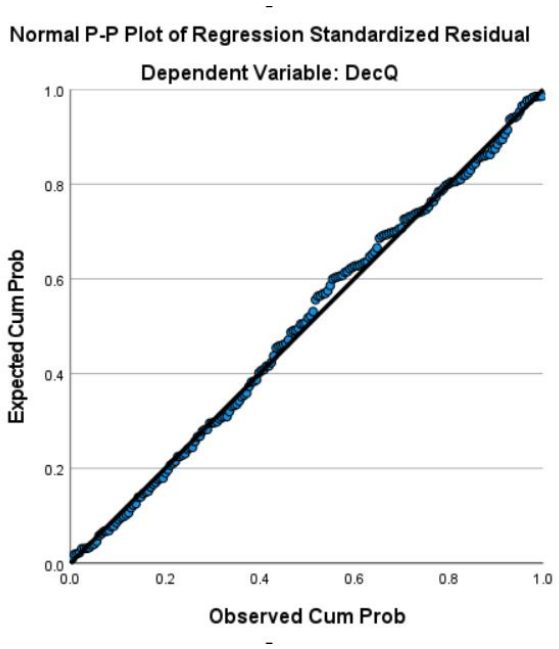


Figure 4 3. Normal P-P Plot of Regression Standardized Residuals

4.3.4. Homoscedasticity

Homoscedasticity is an important assumption in regression analysis which states that the variance of the error terms is constant across all levels of the independent variables. In other words, the spread of residuals should remain consistent as the predicted values change.

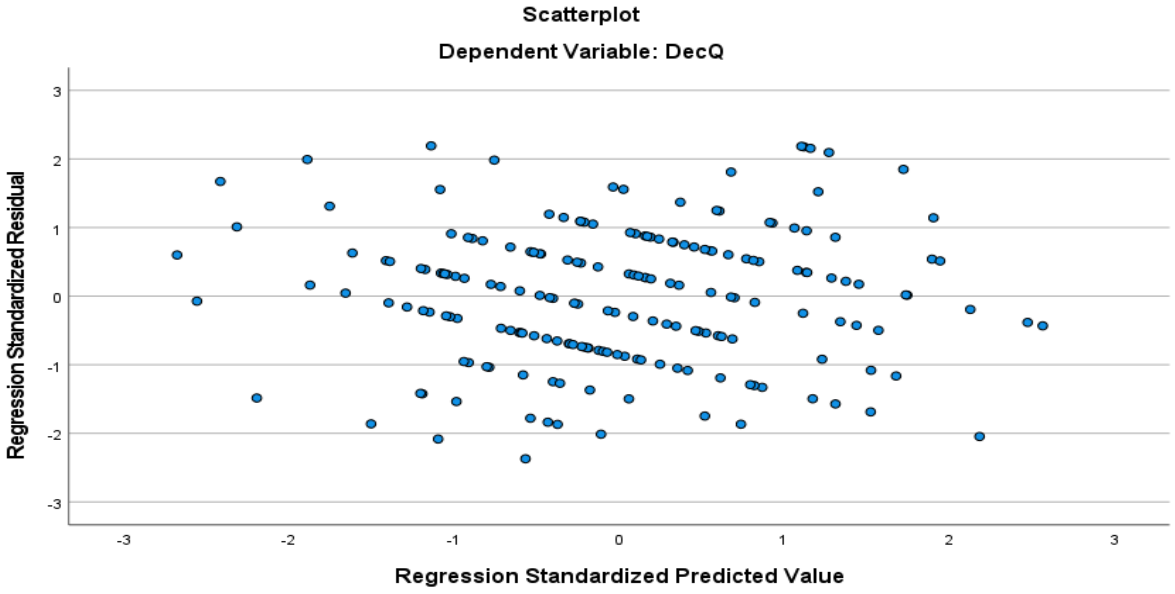


Figure 4 4. Scatter Plot for homoscedasticity

Fig 4.4 indicates that the scatterplot of standardized residuals against standardized predicted values, shows a random distribution of points with no clear funnel shape or systematic pattern. This indicates that the assumption of homoscedasticity was met.

4.4 Demographic characteristics of Respondents

This section presented the descriptive statistics of the respondents' background information. A total of 200 questionnaires were distributed, with 40 questionnaires allocated to each bank. The number of completed questionnaires returned from each bank was 40 from Commercial Bank of Ethiopia (CBE), 40 from Enat Bank, 37 from Hibret Bank, 39 from Dashen Bank, and 36 from Abay Bank, giving a total of 192 valid responses out of 200 distributed questionnaires with a response rate of 96%.

Table 4 5 Descriptive statistics of respondents background information

	Category	**Frequency**	**Percentage**
Gender	Male	108	56.3
	Female	84	43.8
	Total	**192**	**100**
Age	20–25	13	6.8
	26–35	60	31.3
	36–44	93	48.4
	Above 45	26	13.5
	Total	**192**	**100**
Educational Status	Bachelor's	118	61.5
	Master's	74	38.5
	Total	**192**	**100**
Bank Currently Working At	CBE	40	20.8
	Enat Bank	40	20.8
	Hibret Bank	37	19.3

	Dashen Bank	39	20.3
	Abay Bank	36	18.8
	Total	**192**	**100**
Years of Banking Experience	1–3	13	6.8
	4–6	29	15.1
	7–10	93	48.4
	Above 10	57	29.7
	Total	**192**	**100**
Current Position Level	Executive	23	12.0
	Director	49	25.5
	Manager	73	38.0
	Senior/Officer Staff	34	17.7
	BI Specialist	13	6.8
		192	100

Source: SPSS result, 2026

Table 4.2 shows Out of the total 192 respondents, 56.3% were male and the remaining 43.8**%** were female. Regarding age distribution, the majority of respondents **(**48.4%**)** were between 36 and 44 years old, 31.3% of the respondents were between the ages 26 - 35**,** 13.5% above 45**,** and a smaller proportion **(**6.8%**)** are between the ages of 20 - 25. In terms of educational status, 61.5% of respondents held a Bachelor's degree, while 38.5% had a Master's degree. The respondents were evenly distributed across the banks, with 20.8% each from CBE and Enat Bank**,** 20.3% from Dashen Bank**,** 19.3% from Hibret Bank, and 18.8% from Abay Bank. Regarding banking experience, nearly half of the respondents **(**48.4%**)** had 7 - 10 years of experience, followed by 29.7% with more than 10 years, 15.1% with 4 - 6 years, and 6.8% with 1 - 3 years. Finally, the respondents current position levels showed that 38% were Managers**,** 25.5% Directors**,** 17.7% Senior/Officer staff**,** 12% Executives**,** and 6.8% BI Specialists, reflecting a strong representation of mid to senior level professionals in the sample.

The respondents' demographic characteristics suggests that the data collected is diverse, experienced, and reliable.

4.5 Descriptive Statistics of the Study

This section presents the descriptive statistics of the study variables using mean and standard deviation. The mean is used to indicate the average response of respondents for each variable, while the standard deviation shows the extent of variation or dispersion of responses from the mean.

The results presented in Table 4.3 summarize the respondents' perceptions of the study variables. A higher mean value shows a higher level of agreement with the statements, whereas a lower mean suggests disagreement. The standard deviation values indicate the consistency of responses; lower values imply a small deviation from the mean, while higher values indicate greater variability among respondents.

Table 4 6 Descriptive statistics of the study

Variable	N	**Mean**	**Std. Deviation**
System Quality	192	3.4497	0.72823
Information Quality	192	3.5365	0.67810
Service Quality	192	3.5330	0.69408
BI Usage	192	3.4497	0.66036
BI Maturity	192	3.3581	0.53574
Decision Quality	192	3.4705	0.61986
Organizational Performance	192	3.5816	0.66862
Valid N (listwise)	**192**		

Source: SPSS result, 2026

The respondents have a positive perception of the variables under the study as all variables have mean values above the midpoint (3.0).

There is a moderate level of agreement among respondents, with slightly higher variability compared to other variables since System Quality yielded a mean value of 3.4497 and a standard deviation of 0.72823. While system quality is perceived positively, there are different views among respondents, which may influence how Business Intelligence systems support decision-making processes.

Information Quality recorded a mean of 3.5365 and a standard deviation of 0.67810**,** a relatively high level of agreement with moderate consistency. This suggests that the quality of information generated by BI systems is perceived as reliable and useful, and this is important for decision quality within organizations.

Service Quality had a mean value of 3.5330 and a standard deviation of 0.69408, with some variation in the responses. This means that support services given by BI support staff are generally viewed positively, and this contributes to better usage of BI tools.

BI Usage response showed moderate agreement and fairly consistent responses, with a mean of 3.4497 and a standard deviation of 0.66036. This is a moderate agreement and fairly consistent responses, which suggests the BI system is being used at a reasonable level and is important for getting value from BI investments.

Business Intelligence Maturity yielded a mean of 3.3581 and a standard deviation of 0.53574, a relatively lower agreement but high consistency between respondents. While BI practices are present, the overall maturity level of the BI system may still be developing, and this may potentially limit its impact on organizational performance.

Decision Quality had a mean of 3.4705 and a standard deviation of 0.61986, a moderate agreement and consistent responses, which suggest BI system contribute positively to the quality of decision making, although there is still room for improvement.

Organizational Performance had the highest mean value of 3.5816 and a standard deviation of 0.66862.This shows that respondents generally perceive organizational performance positively. This means the use of BI system may be contributing to the organization performance.

4.6 Correlation

Correlation analysis is a statistical technique used to measure the strength and direction of the linear relationship between two variables (Field, 2024). The most commonly used measure is the Pearson correlation coefficient (r), which ranges from -1 to +1, where values closer to +1 indicate a strong positive relationship, values closer to -1 indicate a strong negative relationship, and values around zero suggest no linear association.

Table 4 7 Pearson correlation matrix.

Correlations								
		System Quality	Information Quality	Service Quality	BI Usage	BI Maturity	Decision Quality	Organizational Performance
System Quality	Pearson Correlation	1	.634**	.467**	.233**	.271**	.287**	.210**
	Sig. (2-tailed)		0.000	0.000	0.001	0.000	0.000	0.003
	N	192	192	192	192	192	192	192
Information Quality	Pearson Correlation	.634**	1	.531**	.315**	.242**	.169*	0.124
	Sig. (2-tailed)	0.000		0.000	0.000	0.001	0.019	0.088
	N	192	192	192	192	192	192	192
Service Quality	Pearson Correlation	.467**	.531**	1	.475**	.368**	.238**	.148*
	Sig. (2-tailed)	0.000	0.000		0.000	0.000	0.001	0.040
	N	192	192	192	192	192	192	192
BI Usage	Pearson Correlation	.233**	.315**	.475**	1	.638**	.430**	.295**
	Sig. (2-tailed)	0.001	0.000	0.000		0.000	0.000	0.000

	N	192	192	192	192	192	192	192
BI Maturity	Pearson Correlation	.271**	.242**	.368**	.638**	1	.542**	.312**
	Sig. (2-tailed)	0.000	0.001	0.000	0.000		0.000	0.000
	N	192	192	192	192	192	192	192
Decision Quality	Pearson Correlation	.287**	.169*	.238**	.430**	.542**	1	.588**
	Sig. (2-tailed)	0.000	0.019	0.001	0.000	0.000		0.000
	N	192	192	192	192	192	192	192
Organizational Performance	Pearson Correlation	.210**	0.124	.148*	.295**	.312**	.588**	1
	Sig. (2-tailed)	0.003	0.088	0.040	0.000	0.000	0.000	
	N	192	192	192	192	192	192	192
**. Correlation is significant at the 0.01 level (2-tailed).								
*. Correlation is significant at the 0.05 level (2-tailed).								

Source: SPSS regression result, 2026

Table 4.4 shows that there is a positive relationship between System Quality, Information Quality, Service Quality, BI Usage, BI Maturity, Strategic Decision-Making Quality, and Organizational Performance. Similarly, there is a positive relationship between Information Quality, System Quality, Service Quality, BI Usage, BI Maturity, Strategic Decision-Making Quality, and Organizational Performance. Additionally, there is a positive relationship between Service Quality, System Quality, Information Quality, BI Usage, BI Maturity, Strategic Decision-Making Quality, and Organizational Performance. Most of these relationships are moderate and statistically significant at both the 0.01 and 0.05 levels. However, the relationship between Information Quality and Organizational Performance is weak and not statistically significant. Overall, as this study employs a cross-sectional design, all relationships reported reflect statistical associations rather than causal effects (Creswell, 2022).

4.7 Multiple Regression Analysis

In this section, multiple regression analysis has been presented. Linear regression was developed on the variables in the model.

Regression Model Equation

Model 1: Strategic Decision-Making Quality

The multiple regression model used to examine the effect of BI success factors on strategic decision-making quality is expressed as:

$$DecQ = \beta 0 + \beta 1(SysQ) + \beta 2(InfoQ) + \beta 3(ServQ) + \beta 4(BIUse) + \varepsilon$$

Where:

- DecQ = Strategic Decision-Making Quality
- SysQ = System Quality
- InfoQ = Information Quality
- ServQ = Service Quality
- BIUse = BI Usage
- β_0 = Constant (intercept)
- β_1–β_4 = Regression coefficients
- ε = Error term

The multiple regression model is based on the general linear model, which examines the relationship between one dependent variable and two or more independent variables simultaneously (Field, 2024).

Regression Equation (Based on SPSS Output)

$$DecQ = 1.786 + 0.241(SysQ) - 0.118(InfoQ) - 0.020(ServQ) + 0.390(BIUse)$$

Table 4. 8 ANOVA Test

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.053	4	4.263	14.151	.000[b]
	Residual	56.335	187	0.301		
	Total	73.388	191			
a. Dependent Variable: DecQ						
b. Predictors: (Constant), BIUse, SysQ, ServQ, InfoQ						

Source: SPSS regression result, 2026

The above table shows that the regression model is statistically significant p-value < 0.05; system quality, information quality, service quality, and BI usage were jointly and significantly associated with strategic decision-making quality. Therefore, the model is a good fit for the data.

Table 4. 9 Model Fitness

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.482[a]	0.232	0.216	0.54887	2.042
a. Predictors: (Constant), BIUse, SysQ, ServQ, InfoQ					

Source: SPSS regression result, 2026

The above table shows that the correlation coefficient R is 0.482, with a moderate relationship between the independent variables and strategic decision-making quality. The R Square value of 0.232 suggests that 23.2% of the variation in strategic decision-making quality is explained by system quality, information quality, service quality, and BI usage. The Adjusted R Square value of 0.216 confirms the model's stability after adjustment for the number of predictors. However, the R Square of 0.232 also indicates that approximately 77% of the variance in strategic decision-making quality remains unexplained by the four BI success factors alone. This is not uncommon in behavioral and organizational research, where human and contextual factors inherently introduce variability that is difficult to capture within a single framework (Hair, 2019). The unexplained variance suggests that additional factors outside the scope of this study such as organizational culture, leadership quality, employee training, or environmental uncertainty may

also influence strategic decision-making quality. This is acknowledged as a limitation of the current model, and future research is encouraged to incorporate such variables to improve explanatory power.

Table 4. 10 Regression result 1

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.786	0.271		6.597	0.000
	SysQ	0.241	0.072	0.283	3.340	0.001
	InfoQ	-0.118	0.081	-0.129	-1.460	0.146
	ServQ	-0.020	0.075	-0.023	-0.275	0.784
	BIUse	0.390	0.069	0.416	5.686	0.000
a. Dependent Variable: DecQ						

Source: SPSS regression result, 2026

The above table shows that System Quality and BI Usage were positively and significantly associated with strategic decision-making quality. This means that better system performance and active BI usage are positively associated with the quality of decision-making in organizations in the five sampled banks**.** However, Information Quality and Service Quality do not have a significant effect on strategic decision-making quality. This indicates that these factors do not play a strong role in helping decision-making when other variables are considered.

4.8 Regression Analysis

This section presents the results of the simple regression analysis conducted to assess the effect the quality of strategic decision-making on organizational performance in Ethiopian banks. The analysis wanted to determine whether the quality of decision-making significantly influence organizational performance.

Model 2 (Simple Regression)

$$OrgP = \beta 0 + \beta 1(DecQ) + \varepsilon$$

Where:

- OrgP = Organizational Performance
- DecQ = Strategic Decision-Making Quality

Simple Regression model (Based on SPSS Output)

$$OrgP = 1.379 + 0.635(DecQ)$$

Table 4 11 Model Fitness 2

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.588[a]	0.346	0.343	0.54208	1.963
a. Predictors: (Constant), DecQ					
b. Dependent Variable: Orgp					

Source: SPSS regression result, 2026

The above table shows that the quality of strategic decision-making has a strong positive relationship with organizational performance. The model explains a considerable proportion of variation in organizational performance, indicating that the model is a good fit.

Table 4 12 ANOVA Test 2

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.556	1	29.556	100.582	.000[b]
	Residual	55.832	190	0.294		
	Total	85.388	191			
a. Dependent Variable: Orgp						
b. Predictors: (Constant), DecQ						

Source: SPSS regression result, 2026

The ANOVA results show that the regression model is statistically significant. This indicates that strategic the quality of decision-making significantly predicts organizational performance. Therefore, the model is a good fit for the data.

Table 4. 13 Regression result 2

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.379	0.223		6.183	0.000
	DecQ	0.635	0.063	0.588	10.029	0.000
a. Dependent Variable: Orgp						

Source: SPSS regression result, 2026

The above table shows that the quality of strategic decision-making was positively and significantly associated with organizational performance. This means that better decision-making quality was associated with better organizational performance in the five banks studied. Therefore, strategic decision-making quality is an important predictor of organizational performance.

4.9 Mediation Analysis

4.9.1 Introduction

Mediation analysis is a statistical technique used to check whether the relationship between an independent variable and a dependent variable is mediated by a third variable, known as a mediator (Hayes, 2022).

In mediation analysis, the independent variable affects the mediator (path a), the mediator then affects the dependent variable (path b), and the independent variable may also directly affect the dependent variable (path c'). The indirect effect is calculated by multiplying paths a and b, while the total effect (c) is the sum of both the direct and indirect effects.

The mediation model is expressed using the following equations:

$$\text{BI Maturity} = \beta 0 + aX + \varepsilon$$

$$\text{Decision Quality} = \beta 0 + c'X + bM + \varepsilon$$

$$\text{Indirect Effect} = a \times b$$

$$\text{Total Effect} = c = c' + ab$$

Where:

X=Independent variables (system quality, information quality, service quality, and BI usage)

M = the mediator (BI maturity)

Y = Dependent variable (strategic decision-making quality)

a = Effect of the independent variable on the mediator

b = Effect of the mediator on the dependent variable

c' = Direct effect of the independent variable on the dependent variable

c = the total effect

ε = the error term

Example: mediation model of service quality – BI Maturity – Decision-Making (source from Spss result)

$$\text{BIMat} = 2.3556 + 0.2837(\text{ServQ}) + \varepsilon$$

$$\text{DecQ} = 1.2868 + 0.0394(\text{ServQ}) + 0.6088(\text{BIMat}) + \varepsilon$$

$$\text{Indirect Effect} = 0.2837 \times 0.6088 = 0.1727$$

In this study, the mediating role of BI maturity was tested separately for each independent variable using PROCESS Model 4 with 5,000 bootstrap samples and 95% bias-corrected confidence intervals. While a full Structural Equation Model (SEM) would allow simultaneous testing of all

mediation paths within a single integrated model, the separate PROCESS-based approach was selected for three reasons. First, the sample size of 192 falls below the recommended threshold of 200 - 400 cases typically required for reliable SEM estimation (Hair, 2019). Second, the study's primary interest lies in examining individual indirect effects of each BI success factor through BI maturity, rather than overall model fit. Third, the PROCESS macro provides robust bootstrapped confidence intervals that are particularly well-suited for testing mediation in cross-sectional survey designs (Preacher & Hayes , 2008). It is acknowledged that a full SEM approach would provide a more integrated and simultaneous test of the mediation model, and future research with larger samples is encouraged to adopt this approach.

4.9.2 Mediation result

This section presented the summary of the mediation analysis results which examined the role of BI maturity in the relationship between business intelligence success factors and strategic decision-making quality. The table below summarizes the direct and indirect effects, along with the type of mediation identified for each independent variable.

Table 4. 14 mediation analysis summary

Independent Variable	Direct Effect (p-value)	Indirect Effect	BootLLCI	BootULCI	Mediation Type
System Quality (SysQ)	Significant	0.1156	0.0535	0.1834	Partial Mediation
Information Quality (InfoQ)	Not Significant	0.1181	0.0538	0.1857	Full Mediation
Service Quality (ServQ)	Not Significant	0.1727	0.1062	0.2496	Full Mediation
BI Usage (BIUse)	Not Significant	0.2707	0.1767	0.3740	Full Mediation

Source: SPSS regression result, 2026

The above table shows that system quality was significantly and positively associated with BI maturity, and BI maturity was significantly associated with the quality of strategic decision-making. In addition, the direct effect of system quality on decision-making quality remains significant after including the mediator. The indirect effect is also significant, as the bootstrapped confidence interval does not include zero. BI maturity partially mediates the relationship between system quality and the quality of strategic decision-making.

Information quality and service quality were both significantly associated with BI maturity, and BI maturity was significantly associated with decision-making quality. However, their direct effects on strategic decision-making quality are not statistically significant when the mediator is included in the model. The indirect effects for both variables are significant, BI maturity fully mediates the relationships between information quality, service quality, and strategic decision-making quality.

BI usage was significantly and positively associated with BI maturity, and BI maturity was significantly associated with decision-making quality. The direct effect of BI usage on strategic decision-making quality is not statistically significant, while the indirect effect is significant. This confirms that BI maturity fully mediates the relationship between BI usage and strategic decision-making quality.

The findings confirmed that BI maturity mediates business intelligence success factors and the quality of strategic decision-making. While system quality influences decision-making both directly and indirectly, the effects of information quality, service quality, and BI usage on decision-making quality occur primarily through BI maturity.

4.10 Discussion

In this section, the researcher discusses the relationship among the variables using correlation, regression, and mediation analyses. The discussion focuses on how business intelligence success factors are associated with the quality of strategic decision-making and organizational performance in the banking sector, and on the mediating role of BI maturity.

4.10.1 BI Success Factors and Decision-Making Quality

In the multiple regression result, system quality and BI usage have a significant positive effect on strategic decision-making quality, with the BI usage showing the strongest influence, with a β estimate value of 0.416 and p value less than 0.001, followed by system quality, with a β estimate value of 0.283 and p value less than 0.001. Banks that actively use BI tools and maintain reliable, user-friendly systems showed higher levels of strategic decision-making quality. In contrast, information quality and service quality were found to have no significant direct effect on decision-making quality, their impact is not immediate or direct. This result is consistent with (Wixom & Watson, 2010), who state the importance of BI adoption and that using BI system is positively associated with better organizational decision-making. Therefore, in the banking context, Using BI systems appropriately and maintaining quality system infrastructure are more strongly associated with decision-making quality and organizational performance.

4.10.2 The Mediation Effect of BI Maturity

BI maturity significantly mediates the relationship between BI success factors and the quality of strategic decision-making. With 0.1156 indirect effect system quality shows partial mediation. Its impact on decision-making occurs both directly and through BI maturity. On the other hand, information quality, service quality, and BI usage exhibit full mediation, with indirect effects of 0.1181, 0.1727, and 0.2707, respectively, and confidence intervals that do not include zero. This result shows that these factors affect the quality of decision-making only through BI maturity.

These findings suggest that the benefits of these factors affect the quality of decision-making only through the development of BI maturity. In other words, banks must not only invest in BI resources but also develop their data analysis ability, processes, and integration levels to fully use these resources for decision-making. The results of the study are consistent with the findings of (Davenport & Harris, 2017), who discussed that the development of data analysis ability enables organizations to transform data into meaningful information for decision-making. (Mikalef & Boura, 2019) Also stated that business intelligence capabilities and maturity help organizations make better decisions by transforming data into knowledge that supports decision-making.

4.10.3 Decision-Making Quality and Organizational Performance

The regression result shows that the quality of strategic decision-making has a strong and significant positive effect on organizational performance, with a β estimate value of 0.588, a p-value less than 0.001, and 34.6% of variance of R-squared. This indicates that higher decision-making quality was significantly associated with better organizational performance. This result is consistent with (Mikalef & Boura, 2019), who stated that good data analysis helps organizations in their decision-making, which will then help their performance.

4.11 Hypothesis testing summary

Table 4 15 Hypothesis Testing

Variable	**Expected Result**	**Actual Result**	**Statistical Significance**	**Hypothesis Status**
System Quality (SysQ)	Positive and Significant	Positive and Significant	Significant ($p < 0.01$)	Supported (H1)
Information Quality (InfoQ)	Positive and Significant	Negative and Insignificant	Not Significant	Not Supported (H1)
Service Quality (ServQ)	Positive and Significant	Negative and Insignificant	Not Significant	Not Supported (H1)
BI Usage (BIUse)	Positive and Significant	Positive and Significant	Significant ($p < 0.01$)	Supported (H1)
BI Maturity (BIMat) → Decision Quality	Positive Mediation Effect	Positive and Significant Mediation	Significant (Indirect Effect)	Supported (H2)
Decision-Making Quality (DecQ) → Organizational Performance (OrgP)	Positive and Significant	Positive and Significant	Significant ($p < 0.01$)	Supported (H3)

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATION

5.1. Summary of the Study

The objective of the study is to investigate how business intelligence success factors (system quality, information quality, service quality, and BI usage) affect the quality of strategic decision-making in selected Ethiopian banks. The study also examines how BI maturity mediates BI success factors and the quality of strategic decision-making and its impact on organizational performance. Data was collected from 192 respondents who work in the selected five banks, and a quantitative research approach was employed using the survey data. The Data analysis was conducted using statistical techniques, including descriptive statistics, correlation analysis, multiple regression analysis, and mediation analysis.

The findings of the study revealed that within the five sampled banks, system quality and BI usage were significantly and positively associated with strategic decision-making quality, whereas information quality and service quality showed no significant direct association. Furthermore, BI maturity mediates the relationship between BI success factors and the quality of decision-making. Finally, the results showed that the quality of strategic decision-making was strongly and positively associated with organizational performance in the five sampled banks.

5.2. Conclusion

The conclusion of the study shows that business intelligence was significantly associated with decision-making quality and organizational performance in the five sampled banks. The study demonstrates that BI systems do not only depend on the technical quality but also the stage of its maturity in the organization.

The study further shows how BI maturity increases the benefits of BI success factors within the banking sector. The finding of the research suggest that system quality was significantly and positively associated with the quality of strategic decision-making , information quality, service quality, and BI usage were associated with decision-making indirectly through the development

of BI maturity. This shows that only the presence of high-quality data or support services is not sufficient for decision-making unless the organization has reached an adequate level of BI maturity.

The study also confirms that the quality of strategic decision-making was significantly and positively associated with organizational performance. This suggests that among the selected banks, those with higher BI usage and maturity tended to achieve better performance.

It should be noted that the full mediation conclusions reported for information quality, service quality, and BI usage are based on the variables included in this specific model. No alternative mediation models incorporating other potential mediators, such as organizational readiness, data governance quality, or management support, were tested. The full mediation findings should therefore be interpreted with caution, as the inclusion of additional mediators in future research may reveal more complex mediation patterns or reduce the mediating role of BI maturity. A full Structural Equation Model (SEM) with a larger sample would provide a more robust test of the mediation structure proposed in this study.

5.3 Recommendations

Based on the findings of the study, the following recommendations are proposed by the researcher:

- Based on findings from the sampled banks, management may consider promoting the regular use of BI tools among employees through continuous training, awareness programs, and management support.
- The findings from sampled banks suggest that focusing on BI maturity development by expanding BI systems across departments and improving data analysis methods may help banking institutions use their BI investments.
- To improve performance, banks with similar BI contexts may benefit from integrating BI outputs into both strategic planning and day-to-day operational decisions.

- The findings indicate that information quality alone does not directly influence decision-making quality; banks should therefore prioritize developing BI maturity to fully use their information assets.

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APPENDIX A: QUESTIONNAIRE

Research Questionnaire

Dear respondents,

My name is Marishet Solomon and I am a graduate student at Addis Ababa University, School of Commerce, conducting a research study on the Effect of Business Intelligence Tools on Strategic Decision-Making: The Case of Ethiopian Banks

This questionnaire is part of my academic research. Your responses will be used **only for academic purposes** and will remain strictly confidential. Participation is voluntary, and no names or personal identifiers are required.

This questionnaire will take approximately **5–7minutes** to complete.

Please answer all questions honestly based on your experience with BI systems.

Thank you for your valuable time and cooperation.

Researcher **Contact:**
Mobile: +251932138529
Email: Marishetsolo25@gmail.com

SECTION A: Background Information

1. Are you currently working in the banking industry?

Yes ☐ No ☐

2. **Gender**

Male ☐ **Female** ☐

3. Age Group:

20-25 ☐ 26-30 ☐ 31-40 ☐

41-50 ☐ above 50 ☐

4. Educational Background

Diploma/Certificate ☐ Bachelor's Degree ☐

Master's Degree ☐ above Master ☐

5. Years of Experience in the banking industry

Less than 1 ☐ 1–3 years ☐ 4–6 years ☐

7+ years ☐

6. What is your current position level in the organization?

Executive Level (CEO, Deputy CEO, Vice President) ☐

Director Level ☐

Manager Level ☐

Officer / Operational Staff ☐

BI Specialist ☐

SECTION B:

The following statements relate to your experience with the Business Intelligence (BI) system used in your bank.

Please indicate the extent to which you agree or disagree with each statement based on your personal experience.

Please answer the following questions using this 5-point scale.

1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

System Quality						
No	Items	1	2	3	4	5
1	The BI system is easy to use.					
2	The BI system is reliable and operates without errors.					
3	The BI system responds quickly when generating reports.					

Information Quality						
No	Items	1	2	3	4	5
4	The BI system provides accurate information for my work.					
5	The information provided by the BI system is up-to-date.					
6	The information provided by the BI system is reliable.					
7	The BI reports and dashboards are clear and easy to understand.					
8	The information provided by the BI system is relevant to my decision-making needs.					

Service Quality						
No	Items	1	2	3	4	5
9	Technical support for the BI system is available when system issues occur.					
10	Adequate support and guidance are provided to help users effectively use the BI system.					
11	The IT team provides helpful advice and solutions that support effective use of the BI system.					

BI Usage						
No	Items	1	2	3	4	5
12	I use the BI system regularly in my daily work.					
13	The BI system helps me complete my tasks efficiently.					
14	I rely on the BI system to guide my work-related decisions.					

BI Maturity						
No	Items	1	2	3	4	5
15	BI is adopted and used regularly across departments for reporting and decision-making.					
16	BI systems are integrated across the organization and allow data to be shared between departments.					
17	The BI system supports advanced analytics such as predictive forecasting, data modeling, dashboards, and scenario analysis to support decision-making.					
18	The organization promotes a data-driven culture where BI guides strategic decision-making.					

Strategic Decision-Making Quality						
No	Items	1	2	3	4	5
19	BI improves the quality and reliability of strategic decisions.					
20	BI enables timely decisions and reduces delays in responding to business needs.					
21	BI reduces uncertainty in planning by providing insights that guide strategic choices.					

Organizational Performance						
No	Items	1	2	3	4	5
22	BI contributes to improved financial performance and operational efficiency.					
23	BI improves customer service quality by providing actionable insights into customer needs.					
24	BI strengthens the bank's competitive advantage through better-informed strategies.					

Thank you!