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DEPARTMENT OF BUSINESS ADMINISTRATION AND INFORMATION SYSTEMS

FACTORS AFFECTING THE ADOPTION OF DIGITAL BUSINESS TECHNOLOGIES IN ORGANIZATIONS IN ADDIS ABABA, ETHIOPIA: A TOE FRAMEWORK PERSPECTIVE

A Thesis Submitted to the Department of Business Administration and Information Systems in Partial Fulfillment of the Requirements for Masters of Science Degree in Business Administration and Information Systems

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Certification

This is to certify that this thesis is prepared by Epherata Bedada, entitled; "Factors Affecting the Adoption of Digital Business Technologies in Organizations in Addis Ababa, Ethiopia: A TOE Framework Perspective" and submitted in partial fulfillment of the requirements for Master's Degree in Business Administration and Information System with the regulations of the university and meets the accepted standard with respect to originality.

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This thesis, titled "**FACTORS AFFECTING THE ADOPTION OF DIGITAL BUSINESS TECHNOLOGIES IN ORGANIZATIONS IN ADDIS ABABA, ETHIOPIA: A TOE FRAMEWORK PERSPECTIVE"** was written by me as part of the academic requirements for a Master's of Science Degree in Business Administration and Information Systems.

The findings of this thesis have resulted from my own study, analysis, and interpretation. All sources that I used to conduct this study have been clearly recognized in the reference section.

I declare that the thesis is my original work that has not been plagiarized from any earlier research conducted by any other person or entity whether published or unpublished. It has not been submitted elsewhere for gaining a degree or any kind of professional certification.

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Name: Epherata Bedada

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LIST OF ACRONYMS

DBT	Digital Business Technology
TECH	Technological Factors
ORG	Organizational Factors
ENV	Environmental Factors
ADOPT	Adoption of Digital Business Technology
TOE	Technology- Organization- Environment Framework
SMEs	Small and Medium Enterprises
AI	Artificial Intelligence
IoT	Internet of Things
SaaS	Software as a Service
ICT	Information and Communication Technology
SPSS	Statistical Package for the Social Science

ABSTRACT

Digital business technology adoption is becoming important for organizations for enhancing their organizational performance and improve competitiveness. However, organizations in Addis Ababa struggle with integrating those tools. This research examined the factors that affect digital business technology adoption in organization in Addis Ababa using Technology-Organization-Environment (TOE) Framework.

This study primarily employed a quantitative research approach supported by qualitative analysis. The data was collected using a structured questionnaire that distributed among 152 respondents from different organizations in Addis Ababa. The quantitative data was analyzed statistically using SPSS version 31, whereas the qualitative data were analyzed thematically.

The results of this research indicated that the technological, organizational, and environmental factors have a significant impact on the adoption of digital business technologies in organizations. The technological factors were found to be the strongest predictor ($\beta = 0.361$, $p < 0.001$), followed by organizational factors ($\beta = 0.353$, $p < 0.001$), whereas the environmental factors have less impact but significant effect ($\beta = 0.150$, $p = 0.022$). The regression model accounted for 55.9% of the variation in the adoption of digital business technologies. This study also identified that the major challenges to the adopting digital business technology are poor technological infrastructures, lack of digital skills, limited budget, and organizational resistance to change.

The study concludes that the successful digital business technology adoption depends on the technological readiness, organizational support, skilled human resources, and supportive external environments.

Key words: Digital business technology, technological factors, organizational factors, environmental factors, challenges, success factors, organizations in Addis Ababa.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Many organizations have begun adopting digital technologies for their business such as cloud computing, blockchain, big data analytics and digital marketing tools to facilitate better business operations and adapt to the changes in the digital economy (Omrani et al., 2024, May et al., 2025). Even though digital business technology adoption has a numerous benefit to SMEs, there is still great difference between developed and developing countries in terms of adoption rates, infrastructure, and organizational readiness (May et al., 2025; Ta & Lin, 2023).

Digital business technologies play a significant role in organizational process, competitive advantage, and organizational sustainability. The adoption of digital business technologies offers benefits regarding improved operational efficiency and innovations (Alojail & Khan, 2023). In developing countries like Ethiopia, digital transformation contributes to both organizational success and economic developments (Moses, 2023).

Technology-Organization-Environment (TOE) framework was one of the most commonly used frameworks to study the process of digital transformation. It studies at how technology, the way organizations are set up and the environment around them all connect and work together around them all connect and work together to produce outcome (Tornatzky & Fleischer, 1990 cited in Shahadat et al., 2023).

Studies that use the Technology-Organization-Environment (TOE) framework shows that the technological, organizational, and environmental factors play a great role in the process of digital business technology adoption in many developing countries (Shahadat et al., 2023; Ta and Lin, 2023, Nguyen et al., 2022). Studies conducted in Vietnam, Indonesia, and Bangladesh argued that external environment factors a play a significant role in the digital transformation of SMEs, with adoption cost and limited skills are significant challenges (Shahadat et al., 2023; Ta and Lin, 2023; Arifia, 2024; Abdurrahman, 2024).

Digital business technology adoption process in Ethiopia is a complex issue that is caused by various factors. On one hand, digital transformation has great benefits like improving operational

efficiency, cost reduction, and sustainable development goals. On the other hand, it gives a chance for organizations to attract and keep top talent, promote innovation and social inclusion (Alojail & Khan, 2023).

In Ethiopia there are many organizations that have not yet adopted digital business technologies. Ethiopian's technological infrastructure is not highly developed. Limited levels of digital literacy, lack of financial resources, and supporting legal environment are also some of the challenges to digital transformations (Moses, 2023). There are also other factors that can help or hinder the process of adoption digital business technology; these include pressure from market, stakeholder commitment, resources and risk management. People might not want to change and the way the organization has always been worked can also make it hard to adopt new digital technologies (Mohamed, 2025).

Research shows that in Ethiopian organizations exists various obstacles in the adoption of digital technologies, where digitalization initiatives have been prioritized in the sectors of telecommunications, finance, and universities in order to support the growth of digital economy. In higher education, the implementation of ICT and cloud computing has faced challenges because of technological, organizational and environmental issues. Those challenges analyzed using the TOE framework and the integrated TOE-DOI framework (Hiran & Henten, 2019; Ergado et al., 2021).

The use of e-banking in the banking industry has faced constraints such as risks related to security, low levels of trust, lack of legal regulations, poor ICT infrastructure, and low levels of competition (Bultum, 2014). In this regard, recent literature combining TOE and DoI models, applied in one district branch of the Commercial Bank of Ethiopia, has shown the role of internal organizational challenges including low technological knowledge, absence of training, and lack of management support in addition to infrastructure barriers and risks, as major inhibitors of the adoption and operation that are related to e-banking services (European Journal of Business and Management, 2022).

In finance industry, the rate at which digital transformation is occurring is creating debates on whether regulators have been prepared well and whether the current system is stable enough (Hordofa, 2024). In addition, the literature suggests that sustainability of digitalization over time depends on the convergence of organizational goals with sustainability (Alojail & Khan, 2023).

Outside Ethiopia, TOE-based studies exploring the digital adoption process in other developing countries further corroborate and expand upon these trends. Studies exploring the implementation process of digital technologies and ICT in SMEs in Bangladesh and Vietnam show that support from top management and government, pressure from competition, cost concerns and relative advantage are important in the process of adopting these technologies (Shahadat et al., 2023; Ta and Lin, 2023). Research related to digital transformation and e-commerce shows that factors like technology, how organizations are structured and the environment around them greatly influence the likelihood of adopting new technologies and enhance the overall performance of the organization (Nguyen et al., 2022; Ta and Lin, 2023). In developed countries, TOE-based studies exploring blockchain and artificial intelligence adoption processes show that factors related to learning ability, top management support, benefits perception, compatibility, competitive pressures, and government support have great impacts on the adoption, and perceived risks and cybersecurity are critical moderators (Malik et al., 2021; Chatterjee et al., 2021; Badghish and Soomro, 2024).

Overall, the literatures related to digital business technologies suggest that examining the adoption of digital business technologies in organizations in Addis Ababa should adopt an integrated perspective that considers the attributes of technology, organizational capability and the external environment.

1.2 Statement of the problem

Digital business technology adoption is significantly influencing the competitiveness, sustainability, and positioning of organizations in the new global economy, with reports highlighting gains in productivity, innovation, and service improvements, especially in developed countries (Alojail & Khan, 2023; Omrani et al., 2024). Despite the increased recognition of the positive impact of digitization in Ethiopia, it is the larger and medium organizations that are grappling with how best to implement and utilize the digitalization business models. Some of the challenges that these organizations face include lack of adequate high-speed internet, lack of skilled digital workers, inadequate legal policies, inadequate finances, and reluctance to change.

Digitalization is being advocated in Ethiopia in order to increase efficiency, performance, quality of services and competitiveness. However, there have been delays in the adoption of DBTs in organizations within Ethiopia. Literature on developing and emerging countries points out that

SMEs, as well as organizations in general, have delayed their adoption of sophisticated digitalization techniques in spite of the advantages associated with such actions (Omrani et al., 2024; Faiz et al., 2024; Díaz-Arancibia et al., 2024). Studies done in Ethiopia point towards the same issue and reveal delays in adoption of accounting information system and computer-assisted audits (Abate, 2024; Wassie and Lakatos, 2024).

As a result, there is a lack of data-driven recommendations on the most relevant technological, organizational, and environmental elements that could facilitate digital business technology adoption by Organizations in Addis Ababa, as well as their interrelationships, taking into account the specificities of the infrastructure, regulation, and sociocultural environment of the country. The knowledge gap may lead to poor choice of investment options, poor digitalization strategy formulation and increased inequalities in matters of competitiveness relative to be other organizations in the region and globally. Therefore, the aim of this study was to address this gap by examining the factors affecting digital business technology adoption among organizations in Addis Ababa using the TOE framework.

1.3 Research Objectives

1.3.1 General Objective

This study aims to examine the factors that affect the adoption of digital business technology among organizations in Addis Ababa using the Technology-Organization-Environment (TOE) framework.

1.3.2 Specific Objectives

1. To determine the technological, organizational, and environmental factors that affect how organizations in Addis Ababa adopt digital business technology.
2. To assess the degree to which technological, organizational, and environmental factors influence the adoption of digital business technology using the TOE framework.
3. To examine the level of digital business technology adoption among organizations in Addis Ababa.
4. To provide suggestions and recommendations for organizations and policy-makers to facilitate effective adoption of digital business technologies in Addis Ababa.

1.4 Research Questions

This research was directed by the following questions:

1. What technological, organizational, and environmental factors affect the adoption of digital business technology among organizations in Addis Ababa?
2. To what extent do technological, organizational, and environmental factors predict the adoption of digital business technologies among organizations in Addis Ababa?
3. What is the existing level of digital business technology adoption among organizations in Addis Ababa?
4. What suggestions can be offered to facilitate effective adoption of digital business technology among organizations in Addis Ababa?

1.5 Significance of the study

This study contributes on three different levels.

Theoretically, it adds to the TOE framework literature by offering empirical evidence from the organizational context of Addis Ababa. The results confirm the relevance of the TOE framework within the Ethiopian context and extend its use across various industries.

Practically, the results give Addis Ababa's organizations data-driven understanding of the technological, organizational, and environmental factors that facilitates or challenges the adoption of digital business technologies, helping them in developing more focused and efficient digital transformation plans.

The results provide policymakers with insights on the critical areas for intervention, especially in infrastructure enhancement, digital skill development, and regulatory assistance to speed up digital adoption within Ethiopian organizations.

1.6 Scope of the study

This study was conducted in Addis Ababa, Ethiopia, and focused only on medium and large organizations from different industries. The data was gathered using a structured questionnaire distributed to employees, IT specialists, managers, and executives who are familiar with their organization's digital adoption practices. This study investigated the existing state of digital business technology adoption, focusing on the TOE factors affecting adoption.

1.7 Organization of the thesis

This thesis is organized into five chapters. Chapter one outlined the introduction, including background of the study, statement of the problem, research objectives, research questions, significance, and scope of the study. Chapter two reviewed the existing literature on digital business technology adoption and the TOE framework. Chapter three detailed the research methodology, including the research design, sampling techniques, data gathering, and analytical methods. Chapter four presented and analyzed the quantitative and qualitative results. Chapter five presented the discussion of findings, conclusions, recommendations and final remarks.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the existing relevant literature on the adoption of digital business technologies within organizations where the main basis of the literature review is the Technology-Organization-Environment (TOE) framework. It starts with the overview of digital business technology, discussing the definitions, type, global trends, and benefits of such technologies. The TOE framework will them be discussed, evaluating each of the contexts from around the world, alongside the use of TOE framework in previous studies conducted in Ethiopia.

2.2 Overview of Digital Business Technology

2.2.1 Definition and Types

Within organization an enterprise may be used different digital technologies in order to realize different business models. Digital business technologies are digital tools, methods, and instruments that firms use to improve, automate, or change their business operations and value creation process. There are different digital technologies that include digital platforms and digital infrastructure. Digital business technology includes not only the basic ICT such as hardware, networks, and basic information systems but also more advanced technologies such as cloud computing, artificial intelligence (AI), blockchain, big data analytics, and systems that use IoT (Internet of things) (Skare &Soriano 2021; Diaz- Aranciba et al., 2024).

Key types of digital business technology

1. **E- Commerce and e- business:** by using technologies like online marketplaces, social commerce, web storefronts, and digital payment systems to ease online transactions and interaction processes.
2. **Cloud computing and Software as a service**: Adoption rates among SMEs for both cloud computing and SaaS are comparable to the rates of larger companies. This provides SMEs with more flexibility and efficiency in terms of computing and deliveries over the cloud.
3. **Artificial intelligence and Industry 4.0 technologies**: The use of artificial intelligence and Industry 4.0 technologies, such as AI-powered technologies, robotics, IoT and

automation technologies, are quite efficient in improving performance in manufacturing, logistics and services.

4. **Blockchain:** Distribution ledger technologies are used by supply chain networks and businesses to improve inter-organizational processes. Thanks to distributed ledgers, blockchain technology allows for increased transparency of business operations.
5. **Sector-specific digital technologies**: digital technologies targeted to some industries, such as digital agricultural technologies and digital healthcare technologies.

Although the digital business technologies include different technologies ranging from cloud computing, artificial intelligence, blockchain, big data analytics, e-commerce platforms, to digital marketing technologies, they all seek to achieve the same goal of aiding organizational digital transformation and enhancing business processes. Since the research objectives of this study is to explore the organizational variables affecting the adoption of digital business technologies as a whole, they were used as one construct.

2.2.2 Global Adoption Trend

As a result of COVID- 19 many organizations face different challenge of digitalization as it enhanced connectivity in the globalized environment and increased competition. Globalization has enhanced digitalization in 183 countries by the transfer and spread of technology (Skare & Soriano, 2021)

Organizational level insights on adoption

1. In developing countries, owing to resource limitations, small and medium-sized enterprises do not have access to more sophisticated ICTs such as cloud computing and AI (Diaz-Arancibia et al., 2024).
2. AI-enhanced Industry 4.0 tools are anticipated to see greater adoption by manufacturing and production firms in industries where their practicality, user-friendliness, and environmental pressures are more significant (Chatterjee et al., 2021).
3. E-commerce adoption in developing countries is being driven by the impacts of technological, environmental, and structural determinants. Determinants like these include environmental, technological, and organizational ones (Nguyen et al., 2022).
4. The blockchain's adoption in supply chains is at its initial stages, although there is evidence suggesting that its adoption is increasing, particularly in industries where companies stand

to benefit substantially from using the technology and where pressures are rising from governments and regulatory agencies (Chittipaka et al., 2022; Malik et al., 2021).

2.2.3 Benefits of Digital Technology

Adopting digital business technologies brings several positive impacts for both organizations and national levels. These includes:

- **Operational efficiency and cost savings:** This can be achieved through business automation and operations, coupled with highly scalable cloud computing.
- **Better transparency and trustworthiness**: blockchain technology and use of internet of things enable an organization to achieve greater trust and transparency throughout their supply chains.
- **Better competitiveness and greater market reach**: digital marketing strategies and e-commerce will allow organizations to be more competitive and have a wider market reach.
- The use of new technologies for the establishment of company models and value through industry 4.0, analytics, platform ecosystems.
- **Improvements in welfare**, especially in specific industries such as the development of agriculture for small farmers using digital technology and better healthcare due to digital health technology.

At the macro level, digital transformation in the country results in increased total factor productivity and competitiveness. In contrast, in the banking sector of Ethiopia, rapid digitization with inadequate regulation can adversely affect financial stability (Hordofa, 2024).

2.3 Digital Technology in Developing Countries

2.3.1 Challenges: Infrastructure, cost, skills, and policy

Many researchers have found that most of developing countries that are in the process of adopting digital business technologies have faced similar challenges. Those are:

Infrastructure constraints:

Since there is low level of technological infrastructure in emerging economy, it hinders the adoption of digital business technologies. Due to those infrastructure challenges, SMEs are the most impacted as it requires the most support to complete. In many countries, the business

environment business environment doesn't support the adoption of digital business technologies. (Baalbaki et al., 2025).

Cost and financial constraints:

The high cost of development and subscription, with limitation on financial access, diminish SEMs participation in advanced technologies like cloud computing and (Diaz Arancibia et al., 2024; Baalbaki et al., 2025). It is particularly important for organizations that operate under condition of "survival mode", featuring low profit margin and access to credit facilities (Baalbaki et al., 2025).

Human capital and capability constraints:

Many less developed countries have low level of technological skill and insufficient number of IT specialists. This leads to inadequate utilization of digital solutions. The drop in the level of performance of the tasks maybe caused by people leaving the workplace. This happens because the person leaving may have special skill that no other employees have. (Baalbaki et al., 2025).

Legal, regulatory, and institutional constraints:

The implementation of technologies in some countries is limited because of outdated legislation, ambiguous regulations, poor standardization inappropriate legislative framework for data protection and inadequate financial support from the country's government (Shadadt et al., 2023; Malik et al, 2021).

These four challenges have been identified in studies analyzed as being the most significant challenges to adoption of digital business technologies in developing countries. Importantly, all of those challenges are interrelated and not separate issues; poor infrastructure, for instance, makes the cost issue even more difficult and also adds to the human resource issue. This validates the importance of all three dimensions of the TOE framework in the developing world context.

2.3.2 Lessons for Ethiopia

Recent studies conducted on Ethiopia and some other developing nations have revealed potential obstacles and possibilities where Ethiopia can benefit from implementing digital business technologies. From the results shown in previous studies, lessons have been learned regarding how to overcome the barriers for digital adoption in businesses through a context-specific process.

With regard to logistics and supply chain management, the underutilization of digital technology as a means to boost performance was seen in a case study of coffee and dairy nodes in Ethiopia because of factors such as infrastructure, finance, ICTs, and policy environment (Tadesse, 2024).

Health sectors in Ethiopia also shown great interests in digital technologies. From the findings, there is an indication that different technologies can help solve some of the health challenges that Ethiopia experiences. These technologies include mHealth, cloud-based healthcare software applications, telemedicine, and electronic health record management. At the national level, growth in digital literacy has been constrained by lack of learning institutions, computers, adequately trained instructors, and insufficient human resource. (Manyazewal et al., 2021; Getachew et al., 2022). In Addis Ababa's health institutions, there is poor performance of local area networks and computer maintenance skills despite the assessments indicating preparedness among the health staff for digital health (Getachew et al., 2022).

In terms of finance, the use of digital financial services was adopted quickly due to increased use of internet and mobile phones in Ethiopia. These developments were projected to negatively impact the stability of the banking industry in the long run. The existing regulatory framework and risk management frameworks have proved to be ineffective in managing such emerging technology. There is a significant relationship between infrastructure and human resource capabilities in these countries and their contribution to the effect of digital technologies on economic development (Hordofa, 2024).

2.4 Theoretical Framework: Technology- Organization- Environment (TOE) Framework

The Technology–Organization-Environmental framework was proposed by Tornatzky and Flesicher (1990) and further developed by DePietro et al., in1990. They used it to look at the introduction of modern information technology. An organization’s technology, structure, and surroundings, play a major role in how digital business technologies are adopted. The TOE theory explains comprehensively how organization adopt their new technologies. This explains that the adoption processes can be determined using three major factors, such as technological factors, organizational factors, and environmental factors (Chittipaka et al., 2022; Shahadt et al., 2023; Nguyen et al., 2023).

2.4.1 Global evidence on TOE Factors in Digital Business Technologies

2.4.1.1 Technological context

The technological context includes the present technologies employed in the organizations and those technologies that can be implemented in the organization on the future. This has a significant influence in promoting the adoption of digital business technologies. Technological factors includes factors such as relative advantage, compatibility, complexity, risk, cost security, privacy, trust, observability, and trialability.

According to studies, the main determinants of the adoption of digital business technologies are relative advantage and the advantages that gained from adopting and using digital technologies (Nguyen et al., 2022; Shahadat et al., 2023).

Complexity and user-friendliness related to the challenges posed by the new technology. The higher the level of complexity, the lesser the chances of adoption of the digital business technologies (Malik et al., 2021; Nguyen et al., 2022).

Security, privacy, and trust relate to concerns regarding sensitive information and data protection. They become relevant to adoption of digital payment systems, blockchain technology, cloud computing, and digital health.

Observability and trialability involve seeing results and being able to experiment with a new technology before its complete implementation. This positively influences technology adoption (Shahadat et al., 2023; Ta & Lin, 2023; Faiz et al., 2024).

Cost and risk are additional factors. Both can deter technology adoption. In particular, cost and risk are especially important factors in the decision-making process for SMEs in developing countries.

IT infrastructure and digital technologies serve as stepping stones in high-level adoption of new technology. In particular, the adoption of platforms like digital marketing, e-marketing, analytics, and AI requires high platform compatibility and advanced IT adoption capability (Omrani et al., 2023; May et al., 2025; Mu'min et al., 2025; Hoang, 2024).

2.4.1.2 Organizational context

Internal factors that shape the process of implementing a digital technology and the degree of organizational readiness are considered part of the organizational context. Leadership, resource availability, organizational culture, organizational structure, and organizational capabilities are also included in organizational context. Top management support and organizational leadership, organizational readiness, organization size and age are important determinants of organizational context.

The support of top management and leaders is most importance factor for the adoption process of digital business technologies. Managers can manage the implementation of digital technologies by directing its adoption within an organization, providing resources for it, and shaping the digital oriented culture (Nguyen et al., 2022; Shahadat et al., 2023; Chatterjee et al., 2021; Malik et al., 2021).

The concept of organizational readiness is defined by financial capital, human resources, and IT infrastructure availability. An organization that has all its needs will successfully integrate the digital business technology. (Shahadat et al., 2023; Baalbaki et al., 2025).

Organization size and age are context dependent predictors of the adoption process of digital business technologies. Larger and older organizations have more resources to invest in digital technologies but there is high resistance to change due to established routines (Nguyen et al., 2022; Chittipaka et al., 2022).

Other factors such as organizational norms, governance, organizational reputation, and orientation toward international markets also affect the adoption process (Omrani et al., 2023; Abdurrahman, 2024).

2.4.1.3 Environmental context

Environmental factors related to the external factors which influence the adoption of innovative in technology. Market dynamics, institutional support, pressures from supply chain are some of the environmental factors. Competitive pressure, government backing and legislation, pressures from business associates and the supply chain, and the digital environment on a national and international level constitute the principal factors.

The market dynamics and completion pressure motivate organizations to adopt technological innovations to achieve a competitive advantage. Organizations functioning in intensely competitive environments such as retail and finance utilize digital advancements to enhance efficiency, provide high quality services, and elevate their customer experience (Shahadat et al., 2023; Chittipaka et al., 2022).

Government support, policies, and regulations support the adoption of digital technologies business technologies. Policies and legislation in regards to cyber security, data security, and digital transformation policies create a good environment for digital business technology adoption (Nguyen et al., 2022; Malik et al., 2021; Shahadat et al., 2023).

Business partners' pressures and supply chain pressures influence digital business technology adoption. Compatibility with their digital platforms ensures smooth running operations. This is evidenced by digital blockchain-based supply chains and other digital integration initatives between trading partners (Chittipaka et al., 2022; Malik et al., 2021).

Globalization forces and institutional environments determine technology adoption at both domestic and international fronts. Countries that are blessed with digital infrastructure, high-quality institutions, and entrepreneurial environments have been noted to adopt technologies at a faster pace (Skare & Soriano, 2021; Diaz-Arancibia et al., 2024).

Research has shown that environmental aspects might hold greater significance than organizational competence in the adoption of technology, especially in small enterprises and emerging economies. Additionally, developing models like the technology organization environment sustainability components in adopting Industry 4.0 technologies (Ta & Lin, 2023; Nguyen et al., 2022).

2.4.2 TOE based studies in Ethiopia

ICT and Cloud in higher education

From a TOE approach perspective, Ergado et al. (2021) find major challenges to the adoption of ICT in Ethiopian higher education institutions include technological (insufficient infrastructure, equipment, hardware, connection problems, software problems), organizational (absence of effective leadership, lack of strategy, and lack of resources), and environmental (political

limitations, financial instability, and weak collaboration between governments and universities) challenges.

For the purpose of assessing cloud computing, combining the TOE model along with the Diffusion of Innovation model in the case of Ethiopian universities considers four parameters: technology, organization, environment, and socio-cultural. It is acknowledged that socio-cultural parameters can be considered a relevant factor in the Ethiopian scenario (Hiran and Henten, 2019).

Financial and Enterprise Technologies

There are certain limitations to the application of e-banking in Ethiopia because of such factors as security issues, loss of trust, legal and regulatory framework inadequacy, limited ICT infrastructure, and weak market competition by foreign banks. All mentioned limitations refer to technological and environmental aspects, which highlights the relevance of the technology-organization-environment theory in banking (Bultum, 2014).

From an organizational perspective, the decision-making regarding the technology implementation in MSEs in Northwestern part of Ethiopia depends on the personal traits of their owners (such as education, training, access to credit), firm size, and enterprise capital (Andaregie and Astatkie, 2021).

It was noted that AIS adoption rate among the Ethiopian SMEs is rather low, and the empirical data confirmed that all technological and external TOE variables significantly affect it (Abate, 2024). As a result, the SMEs demonstrate a high degree of reaction to the technology and external environment, thus the software developers need to focus on creating the adequate software.

Moreover, when applying technological changes in microfinance organization, the digital transformation process can be affected by factors including performance expectation, effort expectation, social influence, and facilitation conditions (Timbula and Marvadi, 2023).

Sector-specific digital and analytics technologies

The use of CAATs by Ethiopian auditors is motivated by technological relative advantage and compatibility, firm IT competence among auditors, and other environmental factors, including client system complexity and level of support from professional bodies. The moderating effect of

firm size on certain environmental factors was observed by Wassie and Lakatos (2024). Herein lies the evident applicability of the TOE constructs.

The factors affecting the readiness of big data analytics in the Ethiopian health sector include technology complexity and compatibility, organizational readiness due to top management support and training, and external factors, namely government law and IT policy (Assaye et al., 2024). Complexity has a positive effect, whereas compatibility and optimism have a negative one.

In this study, the authors use TAM and TOE frameworks to examine the adoption of blockchain technology by the Ethiopian National Quality Infrastructure. The variables that have proved most influential include technological compatibility of the current infrastructure, perceived benefits, and top management support, and the environmental ones are the level of government support and policy (Legesse et al., 2024).

Altogether, the above Ethiopian studies have proven that TOE framework is successfully used in various fields such as education, banking, manufacturing, healthcare, and auditing, which proves that the model is indeed applicable as a theoretical approach to this study. In general, poor ICT infrastructures and system compatibility can be mentioned as the major technological barriers among all the studied cases, while lack of management support and proper training constitute the main organizational barriers. As for the environmental factors, poor government policy and poor regulation came first.

Although, the TOE framework has been broadly used in the analysis of organizational technology adoption, some research findings show that the TOE framework could be enhanced by introducing other variables to reflect the characteristics of digital transformation in the modern business environment. For example, organizational culture, digital leadership, cyber-readiness, innovation capacity, and digital maturity are considered critical determinants of effective technology adoption. The new variables supplement the conventional technological, organizational, and environmental factors by reflecting organizational actions and abilities associated with digital transformation. However, this study chose the TOE framework because it offered a solid theoretical background for achieving the research objectives.

2.4.3 Justification for selecting the TOE Framework

Several theoretical models have been widely used to explain technological adoption, such as Technology Acceptance Model (TAM), Diffusion of Innovation (DOI) theory, Unified Theory of Acceptance and Use of Technology (UTAUT) and Technology-Organizations-Environment (TOE) framework. Even though all of these theoretical models have been highly useful for technology adoption studies, they vary in terms of the focus, level of analysis and applicability.

Technology Acceptance Model (TAM), introduced by Fred D. Davis, provides explanations on the reasons behind technology adoption from an individual perspective by taking into account perceptions about perceived usefulness and perceived ease of use. TAM has been extensively used to examine the acceptance of information systems by employees and consumers. However, the current study deals with organizational technology adoption, which involves the adoption of digital business technologies within organizations. As organizational technology adoption involves several organizational factors such as organizational resources, management support, technology readiness and external environment conditions, TAM does not address these factors.

Similarly, the Unified Theory of Acceptance and Use of Technology, suggested by Viswanath Venkatesh et al., considers individual behavior intention to accept technologies via concepts like performance expectancy, effort expectancy, social influence, and facilitating conditions. Despite the ability of UTAUT theory to predict technology acceptance among individuals very well, it focuses more on user behavior rather than organizational adoption. Therefore, UTAUT is not so useful for the analysis of organizational drivers of digital business technology adoption.

Diffusion of Innovations theory, suggested by Everett M. Rogers, helps understand how innovations diffuse by focusing on features such as relative advantage, compatibility, complexity, trialability, and observability. Though DOI is a useful theoretical framework for analyzing innovation diffusion, it gives more weight to innovation features and does not pay much attention to organizational capabilities and environment factors.

In contrast, the Technology-Organizational-Environmental (TOE) model put forward by Tornatzky and Fleischer, adopts the concept of technology adoption through organizational perspective where the technological, organizational and environmental contexts are inter-related. It is worth noting that, the TOE model understands the fact that technology adoption within organization is influenced by technological attributes, organizational capabilities, supportive

management, resources availability, competitive pressure, government regulations and outside support. Such dimensions can be said to fit in with the research objectives in question as the current study aims at analyzing how technological, organizational and environmental aspects affect the adoption of digital business technology among medium and large organizations in Addis Ababa.

It is important to point out that, the TOE model has been well tested in previous research studies on adoption of digital technology within organizational setting including cloud computing, enterprise systems, e-commerce, big data analytics, artificial intelligence and digital transformation among others. Moreover, its flexibility enables researchers to expand the TOE framework by adding some other constructs such as digital leadership, organizational culture, cybersecurity readiness, innovation capability and digital maturity among others whenever need arises. Consequently, the TOE framework can be said to be the best theoretical framework

2.5 Conceptual Framework

In this research, the Technology-Organization-Environment (TOE) framework is applied as the theoretical approach to analyzing digital business technology adoption among organizations in Addis Ababa. Three major determinants affecting the process of adopting digital technologies in an organization are identified using the TOE framework, where the process is described as a leveled concept in relation to Ethiopia.

Digital business technology adoption is the main dependent variable in the study, which is determined as the adoption and usage of digital business technologies in an organization's operations, decision-making, and service provision.

There are three main sets of independent variables used in the research, namely, those reflecting technological variables, organizational variables, and environmental variables:

Technological factors include the characteristics of digital business technologies and the issues related to them that may influence adoption, such as the advantage, ease of computability, ease of use, complexity, as well as security and privacy issues.

Organizational factors include the internal organizational capabilities affecting its readiness to adopt new technologies, such as top leaders support and leadership, organizational readiness, organization size, and organization age.

Environmental factors include the environment-related issues and external pressures influencing organizations' adoption activities, such as the pressure and dynamics of the competitive environment, government influence, and customer/business partner pressure.

The TOE framework explain that technological, organizational, and environmental factors directly affect the adoption of digital business technologies. On the other hand, there may also be possible interactions between these factors.

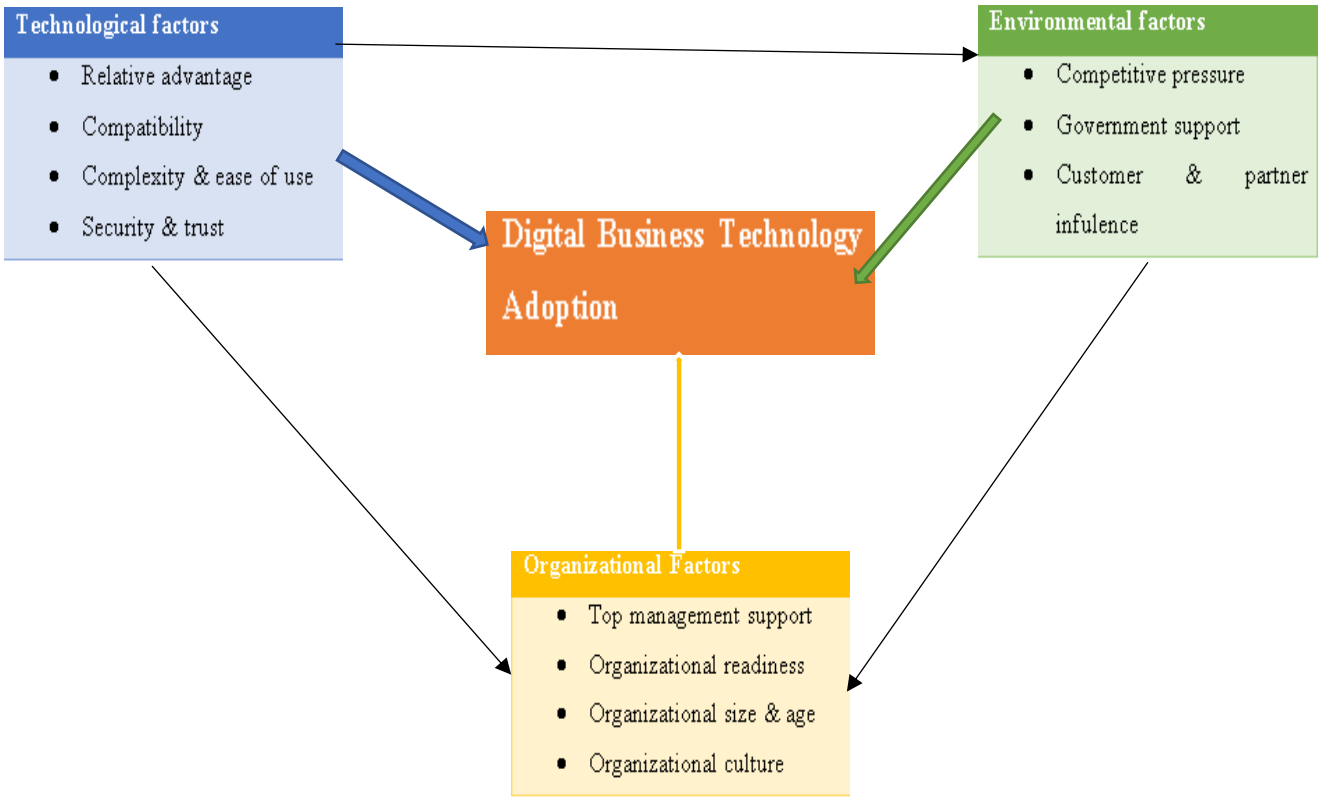


Figure 1: Conceptual Framework for DBT adoption among organizations in Addis Ababa(Adapted from Tornatzky & Fleischer, 1990).

Based on the TOE framework, the following hypotheses were developed to examine the relationship between the study variables.

Hypothesis 1: Technological factors positively affect the adoption of digital business technology in Organizations in Addis Ababa.

Hypothesis 2: Organizational factors positively affect the adoption of digital business technology in Organizations in Addis Ababa.

Hypothesis 3: Environmental factors positively affect the adoption of digital business technology in Organizations in Addis Ababa.

Hypothesis 4: Technological, organizational and environmental factors collectively affect the adoption of digital business technologies in Ethiopia organizations.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter provide detail on the research design and methodology that have been applied in conducting this study. First, the research approach is stated, followed by the research design utilized. Information on the targeted population as well as the samples involved will be provided next, followed by an analysis of the sources and types of data gathered. The research instrument utilized, which is structured questionnaire, will be discussed next, together with its three sections and the measures scales used. Information on how the data were analyzed will include techniques like descriptive statistics, reliability analysis, correlation analysis, and multiple linear regressions.

3.2 Research Approach

The quantitative research approach was used as a primary research approach supported by qualitative analysis. A quantitative research approach was selected because the objective of this study is to measure the relationship between the independent variables and the dependent variable, measure adoption levels, test hypothesis and generalize findings statistically. This is consistent with the dominant approach in TOE based adoptions studies, which predominantly employ quantitative survey methods (Shahadat et al., 2023; Ta & Lin, 2025; Chatterjee et al., 2021). In addition, the qualitative research approach was used to contextualize and enrich the quantitative findings by capturing respondent's experiential accounts of the challenges and drives of digital adoption.

3.3 Research Design

Descriptive and explanatory research designs were used in this thesis within a cross-sectional survey strategy. The descriptive research design was used to describe the demographic features of the respondents as well as describe the current level of adoption of digital business technologies by organizations operating in Addis Ababa.

The explanatory research design was conducted to determine the relationship between the three components of TOE factors, which are technological, organizational, and environmental factors, and how these factors influence digital business technology adoption. Explanatory research design

is best suited for testing hypotheses regarding variables (Saunders et al., 2019) and is typical design in TOE adoption research (Shahadat et al., 2023; Ta & Lin, 2025).

A cross-sectional research design was used since data were collected from respondents at one particular point in time. This kind of research design has become widely used in the adoption of technologies researches, especially in those that are based on the TOE framework, since it allows the researcher to make a judgment about current organizational situation and relationships between variables efficiently.

This research design was suitable for this research since it allowed making conclusions about the current situation in the adoption of digital business technologies in organizations in Addis Ababa and studying the research between TOE variables and the adoption process.

However, this research design is suitable for finding the associations between the variables but it is impossible to establish the cause-and-effect relationships using this design..

3.4 Target Population and Sample

The target population of this research were employee, IT professionals, managers and department heads, and executives in medium and large organizations that are located in Addis Ababa, that have already implemented or are in the process of adopting digital business technologies.

Considering the lack of a complete sampling frame containing digitally active medium and large organizations in Addis Ababa, probability sampling methods could not be considered in this research. Therefore, this research used a non-probability sampling methods through the combination of purposive sampling and snowball sampling methods.

Purposive sampling methods was used due to the need for respondents who possess the necessary information about the adoption of digital business technology within their organizations. The reason behind the selection of the purposive sampling was that not all members of an organization may be knowledgeable enough about the adoption of digital technologies within the organization. So, it was important to select respondents whose knowledge and experience were relevant to the study. The snowball techniques of sampling were used to increase the sample population through recommendation by the initial sample members, due to the challenge faced by the researcher while attempting to identify ICT professionals.

The total number of respondents for this study was 152. This sample size is greater than the minimum recommended sample size for regression analysis, according to Hair et al. (2010), namely $n \geq 50 + 8m$ (where m is equal to the number of independent variables), which mean $n \geq 74$ in this case since there are three independent variables in this study. The sample size of 152 is also in line with other adoption studies using TOE based on developing countries settings (Nguyen et al., 2022; Shahadat et al., 2023).

3.5 Data Type and Sources

Both qualitative and quantitative data of this study was collected from primary sources. The primary data was determined to be appropriate for this study because of two major reasons. Firstly, the objectives of this study require the collection of primary data relating to technological, organizational, and environmental elements and their impact on digital business technology. Secondly, the nature of TOE-based studies makes them dependent on primary data (Shahadat et al., 2023; Nguyen et al., 2022).

3.6 Data Collection Methods and Tools

The data was collected using a structured questionnaire because it efficiently standardizes data collection in large groups. It is the most commonly used tool in Technology-Organization-Environment (TOE)-based adoption research (Saunders et al., 2019; Shahadat et al., 2023).

The questionnaire had three sections. Section A gathered basic information such as gender, age, education level, organizational position, years of experience, organization size, industrial classification, digital adoption stage, and types of digital technologies. In Section B consisted of 20 Likert scale items, which included the three TOE factors and the dependent variable. The respondents answered these items using a five-point scale of 1 (strongly disagree) to 5 (strongly agree). Section C had four open-ended questions on the technological challenges, organizational barriers, proposed solutions for the digital business technology adoption, and general comments regarding the digital transformation experiences in the organization.

The questions in section B were modified versions of those tested by previous literature studies adopting the TOE framework (Shahdat et al., 2023; Nguyen et al., 2022; Ta & Lin, 2023).

3.7 Data Analysis and Presentation

The quantitative data collected using questionnaires was analyzed using SPSS version 31. Both descriptive and inferential statistics were used in the analysis of data. In addition, responses to open-ended questions were analyzed using thematic analysis to put the results of the statistical analysis in context. The analyzed data was presented using tables.

3.7.1 Descriptive Statistical Analysis

Descriptive statistical analysis methods such as frequencies, mean, and standard deviation were used to analyze the demographic characteristics of the respondents and to outline the pattern of response distribution regarding all the variables of the study. The findings of the study were presented in table.

3.7.2 Reliability Analysis

In this study, reliability analysis was conducted to test the consistency of the scales used to test the constructs in terms of Cronbach's alpha. The Cronbach's alpha is accepted as acceptable if it is equal to or greater than 0.70, although 0.60 and above is considered satisfactory when undertaking exploratory studies (Hair et al., 2010). Reliability analysis was conducted individually for the four constructs that included technology, organization, environment, and digital business technology adoption. Item-total correlations were also assessed in addition to the use of Cronbach's alpha to determine those items that may contribute to low construct reliability, using a threshold for item-total correlation of 0.30 (Field, 2018).

3.7.3 Correlation Analysis

Pearson correlation analysis was done to examine the relationships between the three independent variables and the dependent variable. The correlation coefficient (r) can be from -1 to +1. When r is close to +1, the connection between variables is strong, whereas it shows a strong negative to when close to -1. If r is near 0, it means there isn't much of a relationship. Correlations were examined at the $p < 0.01$ significance level to apply a more conservative threshold appropriate for bivariate association testing.

3.7.4 Multiple Linear Regression

A multiple linear regression was performed to determine the comparative impact of the three factors in the technological organizational environment framework on the adoption of digital business technology, and test the study hypotheses (Hair et al., 2010).

The coefficient of determination, R^2, was used to measure the share of variation in digital business technology adoption caused by the three TOE factors. The F-statistic from the ANOVA table was used to evaluate the overall significance of the regression. Beta (β) coefficients of individual factors were evaluated to understand their impact on adoption of digital business technology. All hypotheses were tested at 95% confidence interval ($p < 0.05$). A hypothesis was said to be accepted if the beta coefficient related to the hypothesis was statistically significant ($p < 0.05$) and positive in value as stated in the directional hypotheses in Chapter Two.

Multicollinearity of independent variables was measured through tolerance and Variance Inflation Factor (VIF) values. Values greater than 0.10 for tolerance and less than 10 for VIF indicated acceptable levels of multicollinearity (Hair et al., 2010).

3.8 Ethical Considerations

The research has been conducted taking into consideration all the relevant ethical considerations that need to be kept in mind for the protection of interests of the participants of the research. All the participants have been briefed regarding the nature, demands, and consequences of the study along with the right to withdraw from it. This data will remain confidential and anonymous and will be accessible to the researcher alone.

CHAPTER FOUR – DATA PRESENTATION, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter presents the findings of the data analysis based on the data collected through the questionnaire conducted in Organizations in Addis Ababa about the factors affecting digital business technology adoption. The analysis of the collected data was performed using the SPSS version 31.

4.2 Demographic Characteristics of the Respondents

The demographic information collected in this study includes various factors such as the respondent's gender, age, education level, years of experience and others. Based on this section demographic characteristics are presented.

4.2.1 Gender Distribution

Table 1: Gender Distribution

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	69	45.4	45.4	45.4
	Male	83	54.6	54.6	100.0
	Total	152	100.0	100.0	

Based on Table 1, the male respondents account for 54.6% and the female respondents account for 45.4% of the study. This indicates a relatively balanced gender distribution with slightly more male. Thus, the sample is generally balanced when it comes to gender distribution.

4.2.2 Age Distribution

Table 2: Age Distribution

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18 - 25	31	20.4	20.4	20.4
	26 - 35	49	32.2	32.2	52.6
	36 - 44	53	34.9	34.9	87.5
	45 & above	19	12.5	12.5	100.0
	Total	152	100.0	100.0	

From Table 2, the largest group of age was 36-44 years old, making 34.9% of the total respondents, followed by 26-35 years old (32.2%), 18-25 years (20.4 %) and 45 years and above (12.5%). The majority of respondents were between 26 to 44 years 67% of the total respondents. This show that the respondents are most likely professionals. This age group is an appropriate age group to digital business technology because people in their mid-career have more opportunities to use digital technologies and develop their digital skills (Shahadat et al., 2023).

4.2.3 Educational Level

Table 3: Educational Level

Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelor's Degree	84	55.3	55.3	55.3
	High School	4	2.6	2.6	57.9
	Master's Degree	64	42.1	42.1	100.0
	Total	152	100.0	100.0	

As can be seen from Table 3, the sample consisted of individuals with very high education levels. Most participants (55.3%) had a Bachelor's Degree (n = 84), while the second largest group (42.1%) had a Master's Degree (n = 64). The remaining participants had high school education or other levels (2.6%, n = 4), likely reflecting the professional nature of the target population. In total, 97.4% of respondents possessed either a Bachelor's Degree or an even higher degree. Such an educational profile is important from the standpoint of research validity because it means that the participants were knowledgeable enough to analyze the technological, organizational, and environmental determinants of digital business technology adoption within their organization (Hair et al., 2010).

4.2.4 Organizational Role

Table 4: Organizational Role

Role

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	CEO/Executive	1	.7	.7	.7
	Employee	95	62.5	62.5	63.2
	IT/Technology Specialist	36	23.7	23.7	86.8
	Manager	19	12.5	12.5	99.3
	Student	1	.7	.7	100.0
	Total	152	100.0	100.0	

According to Table 4, most of the respondents were employees (62.5%), with IT specialists (23.7%), managers (12.5%), and CEO (0.7%) making up the rest. This variety is actually strong, since it covers different job positions. There's a solid number of IT specialists (23.7%) which is particularly valuable as the have direct technical knowledge.

4.2.5 Work Experience

Table 5: Work Experience

Experiance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 - 5 years	54	35.5	35.5	35.5
	11 -15 years	18	11.8	11.8	47.4
	16+ years	13	8.6	8.6	55.9
	6 -10 years	67	44.1	44.1	100.0
	Total	152	100.0	100.0	

From Table 5 below, it is evident that most participants had between 6 to 10 years of experience at work (44.1%), while those with no experience up to five years constituted 35.5%. Since many respondents had six or more years of experience, it can be assumed that they have sufficient organizational experience. As such, it can be presumed that respondents were aware of their organizations' digital technology adoption procedures and challenges. Additionally, the participation of young professionals (with 0-5 years of experience, 35.5%) and experienced employees (11 years and above, 11.8%) enhances the scope of knowledge about digital technology adoption at various levels of professional development.

4.2.6 Organization Size

Table 6: Organization Size

organization Size

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Large	49	32.2	32.2	32.2
	Medium	100	65.8	65.8	98.0
	Small	3	2.0	2.0	100.0
	Total	152	100.0	100.0	

The distribution of respondents based on their organizational size is shown in Table 6. Moat of the respondents were come from medium sized organizations (65.8%) the second highest number of organizations belong to large-sized organizations (32.2%). Only 2.0% of the respondents come from small-sized organizations. The large representation of large organizations (32.2%) provides sufficient data from more resourceful organizations which invest more in digital technologies. There are only 2.0% (n = 3) of the respondents who work in small organizations. Despite the fact that the target population includes medium and large organizations, it is necessary to retain the data provided by those respondents as it has minimal effect on the results obtained.

4.2.7 Industry

Table 7: Industry

Industry

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Banking	14	9.2	9.2	9.2
	Education	21	13.8	13.8	23.0
	finance	1	.7	.7	23.7
	Finance	6	3.9	3.9	27.6
	Government	11	7.2	7.2	34.9
	Healthcare	20	13.2	13.2	48.0
	Manufacturing	22	14.5	14.5	62.5
	NGO	6	3.9	3.9	66.4
	Retail	26	17.1	17.1	83.6
	Technology	12	7.9	7.9	91.4
	Telecom	9	5.9	5.9	97.4
	Transportation	4	2.6	2.6	100.0
	Total	152	100.0	100.0	

The result shows that the respondents were come from different industries. Most respondents were come from retail (17.1%), manufacturing (14.5%), and education (13.8%). Some of the other industries included healthcare (13.2%) and banking (9.2%). The sampling of participants from different industries plays a significant role in the success of the research since the results will help in understanding adoption of digital business technology by different industries.

4.2.8 Digital Adoption Stage

Table 8: Digital Adoption Stage

Adoption Stage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Early Stage (Research and planning)	28	18.4	18.4	18.4
	Fully Implemented (Digital technologies are fully operational)	31	20.4	20.4	38.8
	Implementation Phase (Partial adoption)	93	61.2	61.2	100.0
	Total	152	100.0	100.0	

More than half of the respondents (61.2%) stated that their organizations were in the implementation stage, which shows that digital business technology had been partially adopted by the organizations. 20.4% of the respondents were come from organizations that fully implemented the digital business technologies. 18.4% were at the research and planning stage. It can be concluded that digital business technology usage in Organizations in Addis Ababa is increasing, but its usage is still limited to partial implementation.

4.3 Adoption of Digital Business Technology

Table 9: Adoption of Digital Business Technology

Digital Technology	Frequency	Percentage (%)
Data Analytics	137	90.1%
Digital Payment Systems	119	78.3%
Enterprise Resource Planning (ERP)	100	65.8%

Customer Relationship Management (CRM)	68	44.7%
Cloud Computing	63	41.4%
E-commerce Platforms	19	12.5%

According to the checklist responses of the questionnaire this section presents the adoption of digital business technologies in Organizations in Addis Ababa. Respondents were required to check the digital technologies that have been adopted in their organizations. The results were presented through frequency and percentage.

Data analytics tools were the most used digital business technologies with 90.1%. This shows that there is a focus on data driven decision making within the organizations.

The second most used digital business technologies in Organizations in Addis Ababa are digital payments systems with 78.3%. This shows that there is a need for financial transactions within the organizations.

This is the third most used digital business technology in Organizations in Addis Ababa is ERP systems with 65.8%. This shows that organizations are adopting digital technology in their operations and managements.

The fourth most used digital technology in Organizations in Addis Ababa is CRM system with 44.7%. Finally, the lowest used digital business technology in Organizations in Addis Ababa is E-commerce platforms.

Generally, the results shows that there is an uneven usage of digital technology by organizations. Some of the digital technologies including data analytics tools and digital payments are used by many organizations in Addis Ababa. Other technologies like e-commerce and cloud computing are not sufficiency utilized. It can be argued that organizations want to use those digital technologies that immediately gives some benefits to their operations.

4.4 Descriptive Analysis

In this section the study variables were described by using their descriptive statistics, such as mean and standard deviation. It focused on the independent variables and the dependent variable.

4.4.1 Overall Descriptive Analysis

Table 10: Overall Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Tech_Avg	152	2.33	5.00	3.8936	.49186
Org_Avg	152	1.75	5.00	3.8520	.58919
Env_Avg	152	1.80	5.00	3.8697	.63131
Adopt_Avg	152	2.25	5.00	3.9408	.56873
Valid N (listwise)	152				

According to the descriptive statistics, the mean values of the variables were ranged from moderate to high. This shows that the respondents see the technological, organizational, and environmental factors as important for adoption digital business technology.

From the variables digital business technologies adoption has the highest mean value of M= 3.94, showing strong adoption behavior among the organizations. The other variables with high mean include technological factors M= 3.89, followed by environmental factors M= 3.87 and organizational factors M= 3.85.

Across all constructs, technological factors showed the widest SD range (0.743–0.919), indicating that some technological dimensions generated stronger consensus than others. Environmental factors showed the narrowest SD range (0.855–0.904), suggesting respondents were uniformly moderate in their variability across all external pressure items. All SD values across the study fell below 1.0, indicating that while some variation exists, respondents did not hold strongly polarized views on any item

4.4.2 Descriptive Analysis of Technological Factors

Table 11: Descriptive Statistics of Technological Factors

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
TECH1	152	1	5	4.07	.743
TECH2	152	1	5	3.95	.779
TECH3	152	1	5	3.81	.919
TECH4	152	1	5	3.86	.899
TECH5	152	1	5	3.80	.892
TECH6	152	1	5	3.87	.816
Valid N (listwise)	152				

From the technological factors, Performance Improvement (TECH1) had the highest mean value of M=4.07. this shows that the respondents strongly agreed on that digital business technology enhances organizational performance. On the other hand, Cybersecurity and Reliability (TECH5) have the lowest mean value of M=3.80. this indicates that security and reliability issues are the most significant technological factors.

The highest mean for Performance Improvement fits the Technology-Organization-Environment (TOE) framework's technological context. Perceived relative advantage is also identified as the strongest driver for the adoption (Shahadat et al., 2023).

The lower mean for Cybersecurity and Reliability stands out since digital payment systems are some of most commonly used technological tools in the sample. This means organizations are using digital payment systems despite persisting security concerns.

Standard deviations ranged from 0.743 to 0.919. Performance Improvement (TECH1) had the lowest SD, meaning respondents were in strong agreement that digital technology improves performance. Cybersecurity and Reliability (TECH5) had the highest SD, indicating that respondents held mixed opinions about security and reliability — likely because organizations in different industries experience security risks differently. Overall, the moderate SD values suggest reasonable but not perfect consensus across all technological items.

4.4.3 Descriptive Analysis of Organizational Factors

Table 12 Descriptive Statistics of Organizational Factors

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ORG1	152	2	5	3.80	.814
ORG2	152	1	5	3.98	.872
ORG3	152	1	5	3.85	.882
ORG4	152	1	5	3.82	.877
ORG5	152	1	5	3.78	.855
Valid N (listwise)	152				

Among the organizational items Organizational Readiness (ORG2), have the highest mean value of M=3.98. this indicates that respondents generally perceived their organizations have adequate resources and ability for digital adoption. However, budget constraints and skill gaps were mentions as a major challenge.

Organizational Structure and Collaboration (ORG5) have the lowest mean value of 3.78. this indicates that respondents were least confident in their organizational structure to support digital technology adoption. This fits with Ergado et al., (2021)'s findings in Ethiopian higher education, where ineffective strategies and structural issues held back ICT adoption.

The standard deviations of organizational factors ranged from 0,814 to 0.882. top management support had the lowest standard deviation. This reflected that respondents generally agree on the importance of good leadership for digital adoption. On the other hand, organizational size and age have the highest standard deviation.

4.4.4 Descriptive Analysis of Environmental Factors

Table 13: Descriptive Statistics of Environmental Factors

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ENV1	152	1	5	3.89	.855
ENV2	152	1	5	3.88	.884
ENV3	152	1	5	3.82	.864
ENV4	152	1	5	3.86	.902
ENV5	152	1	5	3.90	.904
Valid N (listwise)	152				

Among the environmental factors, Government Support and Regulation (ENV5) have the highest mean value of M=3.90. This shows that respondents see government policies and regulatory as the biggest factor for the adopting digital technology. This fits with Nguyen et al. (2022) and Malik eta al. (2021), who noted that government support and digital policy significantly facilitate the adoption in developing countries contexts.

On the other hand, Stakeholder Pressure (ENV3) have lowest mean value of M = 3.82. This suggested that in Addis Ababa, digital adoption is not highly influenced by pressure from business partners or supply chain actors. It might show that Ethiopia is still at an early stage in building its digital ecosystem, where connections between organizations through digital means are not as strong as in developed countries.

Standard deviations ranged from 0.855 to 0.904. ENV3, which measures stakeholder pressure, had the lowest standard deviation, showing that respondents generally agreed on the week partner and supply chain pressure. On the other hand, ENV5, which measure government support and regulation, had the highest standard deviation, indicating that while government influence is acknowledged, its effects vary across different industries. The overall narrow range suggests consistent moderate variability across all environmental factors.

4.4.5 Descriptive Analysis of Digital Business Technology Adoption

Table 14: Descriptive Statistics of Digital Business Technology Adoption

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ADOPT1	152	1	5	3.85	.882
ADOPT2	152	2	5	3.83	.804
ADOPT3	152	1	5	3.86	.846
ADOPT4	152	2	5	4.22	.643
Valid N (listwise)	152				

The highest mean across all study items was recorded for Organizational Performance and Competitiveness (ADOPT4, M = 4.22), indicating that respondents strongly associate digital business technology adoption with improved organizational performance and competitive advantage. This finding provides strong empirical support for the fundamental proposition of this study — that digital technology adoption is strategically important for organizations in Addis Ababa. It aligns with Alojail & Khan (2023), who found that digital transformation significantly contributes to organizational sustainability and competitive positioning, and with Moses (2023), who linked e-commerce adoption to performance improvements among Ethiopian and Ugandan businesses.

In contrast, Extent of Usage (ADOPT2) had the lowest mean value. This shows that while organizations are starting to adopt digital business technologies, their use is still limited. This aligns with technology adoption research showing that initial implementation typically comes before wider use within an organization (Shahadat et al., 2023).

4.5 Reliability Analysis

The reliability analysis was performed for the purpose of determining the internal consistency of the measurement items in the study. In this case, the adopted measure of reliability for the study is Cronbach's alpha.

4.5.1 Reliability Analysis of Technological Factors

Table 15: Reliability Statistics of Technological Factors

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.611	.611	6

The relatively lower Cronbach's alpha for technological factors (α = 0.611) may be partially explained by the multi-dimensional nature of the construct, which spans distinct theoretical sub-constructs including relative advantage (TECH1, TECH2), compatibility and ease of use (TECH3, TECH4), and security and observability (TECH5, TECH6). The wide inter-item correlation range (0.068–0.418) further reflects this conceptual breadth, as items measuring performance benefits and items measuring cybersecurity concerns naturally share less common variance. Future research may benefit from treating these as separate sub-scales or developing more homogeneous technological factor items. Nevertheless, the alpha value of 0.611 exceeds the 0.60 threshold considered satisfactory for exploratory research (Hair et al., 2010).

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
TECH1	19.30	6.726	.371	.200	.559
TECH2	19.41	7.013	.264	.099	.596
TECH3	19.55	5.984	.418	.228	.534
TECH4	19.50	6.199	.380	.157	.551
TECH5	19.56	6.566	.295	.131	.588
TECH6	19.49	6.622	.338	.159	.569

The "Cronbach's Alpha if Item Deleted" falls between 0.534 and 0.596. This shows that all six items are very important in measuring the variables of technology, that removing items would no improve reliability.

Inter-Item Correlation Matrix

	TECH1	TECH2	TECH3	TECH4	TECH5	TECH6
TECH1	1.000	.258	.358	.222	.200	.068
TECH2	.258	1.000	.236	.122	.071	.146
TECH3	.358	.236	1.000	.264	.115	.286
TECH4	.222	.122	.264	1.000	.271	.247
TECH5	.200	.071	.115	.271	1.000	.248
TECH6	.068	.146	.286	.247	.248	1.000

The result in Inter-Item Correlation Matrix is that the correlation among the items is weak to moderate with a correlation range of 0.068 to 0.418 because each item is measuring a different perspective of technology factors.

4.5.2 Reliability Analysis of Organizational Factors

Table 16: Reliability Statistics of Organizational Factors

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.679	.677	5

The Cronbach's alpha for organizational factors (α = 0.679) approaches but does not reach the conventional 0.70 threshold. Similar to the technological construct, the organizational scale encompasses conceptually diverse items ranging from leadership behavior (ORG1 — Top Management Support, ORG4 — Organizational Culture) to structural characteristics (ORG3 — Organizational Size and Age) and operational readiness (ORG2, ORG5). This breadth, while theoretically comprehensive, may contribute to lower inter-item correlations and the resulting alpha below 0.70. The value nonetheless exceeds 0.60, which Hair et al. (2010) consider satisfactory for research purposes

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
ORG1	15.43	6.246	.296	.090	.684
ORG2	15.25	5.606	.422	.194	.634
ORG3	15.38	5.191	.533	.316	.582
ORG4	15.41	5.554	.432	.220	.629
ORG5	15.45	5.442	.486	.255	.605

The Item-Total statistics show that there is not much improvement in terms of reliability by removing any particular item because the value of "Cronbach's Alpha if Item Deleted" lies between 0.582 and 0.684. This shows that all five items contribute significantly to evaluating organizational factors.

Inter-Item Correlation Matrix

	ORG1	ORG2	ORG3	ORG4	ORG5
ORG1	1.000	.209	.198	.220	.222
ORG2	.209	1.000	.349	.238	.367
ORG3	.198	.349	1.000	.436	.429
ORG4	.220	.238	.436	1.000	.291
ORG5	.222	.367	.429	.291	1.000

The Correlation values among the organizational factors is a week to moderate correlation between items of organizational factors with value that ranged from 0.198 to 0.436, because each items measure different aspects of organizational factors.

4.5.3 Reliability Analysis of Environmental Factors

Table 17: Reliability Statistics of Environmental Factors

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.762	.763	5

The environmental factors construct achieved the highest reliability among all four scales (α = 0.762), meeting the conventional 0.70 threshold. This stronger internal consistency may reflect the

greater conceptual unity of the environmental items, all of which measure different dimensions of external pressure — competitive (ENV1), policy-based (ENV2), stakeholder-driven (ENV3), market-driven (ENV4), and government-driven (ENV5). The alignment of these items around a shared external pressure theme contributes to stronger inter-item correlations relative to the more conceptually diverse technological and organizational constructs.

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
ENV1	15.45	6.819	.541	.312	.716
ENV2	15.47	6.886	.495	.299	.731
ENV3	15.53	6.462	.627	.393	.685
ENV4	15.49	7.007	.449	.250	.748
ENV5	15.45	6.606	.546	.304	.713

According to the statistics on Item- Total, shows that if any items were removed the Cronbach's alpha ranged between 0.685 and 0.748. This shows that each item is important.

Inter-Item Correlation Matrix

	ENV1	ENV2	ENV3	ENV4	ENV5
ENV1	1.000	.457	.458	.307	.372
ENV2	.457	1.000	.448	.211	.367
ENV3	.458	.448	1.000	.433	.459
ENV4	.307	.211	.433	1.000	.405
ENV5	.372	.367	.459	.405	1.000

The Inter –Item Correlation Matrix shows that there is moderate correlation between items of environmental factors with value that ranged from 0.211 to 0.459, this is because each items measure different aspects of environmental factors.

4.5.4 Reliability Analysis of Digital Business technology Adoption

Table 18: Reliability Statistics of Digital Business technology Adoption

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.675	.674	4

The Cronbach's alpha for digital business technology adoption (α = 0.675) falls slightly below the 0.70 threshold. The adoption construct measures a progression of adoption depth — from basic implementation (ADOPT1) through usage breadth (ADOPT2) and process integration (ADOPT3) to performance outcomes (ADOPT4). Items representing such different stages of adoption maturity may naturally show lower inter-item correlations, as organizations at the implementation stage (61.2% of the sample, Section 4.2.8) would respond differently to items about full integration and performance impact. This progression structure may inherently limit internal consistency while still capturing a theoretically meaningful adoption continuum.

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
ADOPT1	11.91	2.979	.465	.241	.606
ADOPT2	11.93	2.976	.560	.316	.539
ADOPT3	11.90	3.070	.469	.226	.602
ADOPT4	11.54	3.879	.349	.129	.672

The Item-Total Statistics reveal that deleting any one of the items would not add anything to reliability because the value of "Cronbach's Alpha if Item Deleted" varies between 0.539 and 0.672. Hence, all the four items are necessary in measuring technological variables.

Inter-Item Correlation Matrix

	ADOPT1	ADOPT2	ADOPT3	ADOPT4
ADOPT1	1.000	.458	.344	.224
ADOPT2	.458	1.000	.423	.318
ADOPT3	.344	.423	1.000	.276
ADOPT4	.224	.318	.276	1.000

The Inter-Item Correlation Matrix reveals that the items have low to moderate correlation among themselves, ranging from 0.224 to 0.458, because they measure somewhat distinct dimensions of digital business technology adoption.

4.6 Correlation Analysis

Pearson correlation analysis was conducted to determine the relationship between the dependent variable and the independent variables, and also the relationship among the independent variables.

Table 19: Correlation Analysis

Correlations

		Tech_Avg	Org_Avg	Env_Avg	Adopt_Avg
Tech_Avg	Pearson Correlation	1	.718***	.628***	.680***
	Sig. (2-tailed)		<.001	<.001	<.001
	N	152	152	152	152
Org_Avg	Pearson Correlation	.718***	1	.577***	.686***
	Sig. (2-tailed)	<.001		<.001	<.001
	N	152	152	152	152
Env_Avg	Pearson Correlation	.628***	.577***	1	.574***
	Sig. (2-tailed)	<.001	<.001		<.001
	N	152	152	152	152
Adopt_Avg	Pearson Correlation	.680***	.686***	.574***	1
	Sig. (2-tailed)	<.001	<.001	<.001	
	N	152	152	152	152

***. Correlation at 0.001(2-tailed)

The technological factors show a strong positive relationship with digital business technology adoption, with correlation coefficient of r= o.68($p<0.01$). this indicate that organizations that have a strong technological readiness, measured in terms of performance, compatibility, ease of use, and security are significantly more likely to adopt digital; business technology. This proves that technology factors are the strongest predictor of the adoption.

Organizational factors, with a correlation coefficient of r=0.60 (p,0.01), also strongly affect whether an organization adopts these technologies. Top management support, organizational readiness, and organizational culture play a significant role in the adoption of digital business technology.

Environmental factors have a moderate positive relationship with adoption (r=0.54, p<0.01). this means external pressures like competition, government policies, and market demand, positively affect adoption of digital business technology, but not as much as internal factors do.

The inter-construct correlation analysis indicates significant but reasonable correlation among the three independent variables. The strongest relationship occurs between technology and organization ($r = 0.718$, $p < 0.01$), implying that well-organized organizations possess the ability to use digital technologies more effectively. The correlations between environment and technology and organization, show that there are strong relationships among the three TOE factors but they are different from each other.

Overall, the correlation results show a positive pattern. Digital business technology adoption is significantly associated with technological, organizational, and environmental factors, with technological factors having the strongest association, followed by organizational factors then environmental factors.

4.7 Regression Analysis

Multiple regression analysis was conducted in order to determine the impact of technological, organizational, and environmental factors on the adoption digital business technology. This analysis was carried out with the purpose of determining the level to which the independent variables explain the variations in the dependent variable.

Table 20: Variable Entered/ Removed

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Env_Avg, Org_Avg, Tech_Avg[b]	.	Enter

a. Dependent Variable: Adopt_Avg

b. All requested variables entered.

4.7.1 Model Summary

Table 21: Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.748[a]	.559	.550	.38149

a. Predictors: (Constant), Env_Avg, Org_Avg, Tech_Avg

The model summary shows that the three TOE factors collectively explain 55.9% of how digital business technology is adopted ($R^2 = 0.559$). The adjusted R^2, which 0.550, adjusts for the number of predictors in the model. Since the gap between R^2 and adjusted R^2 is very small (0.009). this indicates that the model is not overfitted and that all the predictors add values to explaining adoption.

According to Hair et al., (2010), an R^2 of 0.559 suggests a moderate to strong relationship, indicating that the TOE framework provide a strong explanation of digital adoption among organizations in Addis Ababa. The remaining 44.1% of the variance might be due to other factors like employee attitudes, or industry specifics that were not included in this research.

4.7.2 ANOVA Results

Table 22: ANOVA Results

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27.303	3	9.101	62.533	<.001[b]
	Residual	21.540	148	.146		
	Total	48.842	151			

a. Dependent Variable: Adopt_Avg

b. Predictors: (Constant), Env_Avg, Org_Avg, Tech_Avg

The ANOVA results shows that the overall regression model statistically significant ($F(3, 148) = 62.533$, $p < 0.001$). This means the TOE factors significantly affect digital business technology adoption collectively. Therefore, the multiple regression analysis is justified, confirming the model's statistical validity.

4.7.3 Coefficient Analysis

Table 23: Coefficient Analysis

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.594	.254		2.343	.020		
	Tech_Avg	.361	.098	.312	3.681	<.001	.415	2.408
	Org_Avg	.353	.078	.366	4.535	<.001	.458	2.185
	Env_Avg	.150	.065	.167	2.315	.022	.573	1.747

a. Dependent Variable: Adopt_Avg

The result shows that technological factors are the strongest predictor of digital business technology adoption, with a score of $\beta = 0.361$ and $p < 0.001$. This means a one unit increase in technological readiness increases the adoption by 0.361 units, keeping other factors constant. Organizations with better IT infrastructure, higher perceived performance and stronger compatibility are significantly more likely to adopt new technologies.

Organizational factors were the second strongest predictor ($\beta = 0.353$, $p < 0.001$), showing that management support, organizational readiness, and collaborative structures significantly influence adoption. The technological factors had a near equivalent beta value, so internal organizational capability matters almost as much as technological readiness for driving adoption.

Among the TOE factors environmental factors have the smallest but still significant influence on the adoption process with ($\beta = 0.150$, $p = 0.022$). Government support, pressure from competitive, and market demand have a positive impact on the adoption.

4.7.4 Regression Equation

The following regression equation was derived from the unstandardized coefficients:

Adoption= 0.594+0.361 (Technological) +0.353 (Organizational) +0.150 (Environmental)

Equation 1: Regression Equation

The constant (0.594) represents the baseline predicted adoption score when all independent variables are at zero, though this has limited practical meaning since zero scores on TOE factors are not realistic in practice. The coefficients indicate that technological factors have the greatest individual influence on adoption, followed closely by organizational factors, with environmental

factors contributing the least. Together, these three factors produce a combined and statistically significant effect on digital business technology adoption.

4.7.5 Multicollinearity Check

Variables	Tolerance	VIF
Technological Factors	0.415	2.408
Organizational Factors	0.456	2.195
Environmental Factors	0.572	1.747

Multicollinearity was conducted using Tolerance and Variance Inflation Factor (VIF) values. As shown in the table, Tolerance values ranged from 0.415 to 0.572, which is above the minimum threshold of 0.10. Also, VIF values were ranged between 1.747 and 2.408, staying well below the maximum threshold of 10 (Hair et al., 2010). Therefore, there's no problematic multicollinearity exist among the factors, and that the regression coefficients for each variable can be interpreted independently.

4.7.6 Hypothesis Testing

This study developed hypotheses to look into how the dependent variable is connected to the independent variable. Multiple linear regression and Pearson correlation was used to analyze these hypotheses.

Hypothesis 1: technological factors positively affect the adoption of digital business technology in Organizations in Addis Ababa.

The use of technology has a significant positive effect on how organizations adopt digital business technologies ($\beta = 0.361$, $p < 0.001$). Organizations with stronger technological readiness have high probability to adopt digital business technologies. Therefore, Hypothesis 1 is supported.

Hypothesis 2: Organizational factors positively affect the adoption of digital business technology in Organizations in Addis Ababa.

Organizational factors play a significant role in adopting digital business technology ($\beta = 0.353$, $p < 0.001$). Organizations with stronger management support and readiness showed higher adoption levels. Therefore, Hypothesis 2 is supported.

Hypothesis 3: Environmental factors positively affect the adoption of digital business technology in Organizations in Addis Ababa.

Environmental factors had a positive influence on digital business technology adoption ($\beta = 0.150$, $p = 0.022$). Although the smallest contributor, external pressures including government support and competitive dynamics positively influenced adoption. Therefore, Hypothesis 3 is supported.

Hypothesis 4: Technology, organizational and environmental factors collectively affect the adoption of digital business technologies in Ethiopia organizations.

The overall regression model shows statistically significant effect of technological, organizational, and environmental factors on the rate of digital business technology adoption ($F(3, 148) = 62.533$, $p < 0.001$, $R^2 = 0.559$), indicating that those factors collectively explain 55.9% of the variance in digital business technology adoption. Therefore, Hypothesis 4 is supported.

All four hypotheses were supported. These results confirm that technological, organizational, and environmental factors each individually and collectively have a significant positive effect on digital business technology adoption among organizations in Addis Ababa."

4.8 Qualitative Analysis

Section C of the questionnaire included four open-ended questions on: (1) technological challenges, (2) organizational barriers, (3) suggested solutions, and (4) general comments on digital transformation. Responses were analyzed using thematic analysis to complement the quantitative findings.

4.8.1 Technological Challenges

The responses highlighted two main technological challenged.

1. Poor internet connectivity and shortage of advanced infrastructure: they said unreliable internet hinder the adoption of digital technologies. This supports the qualitative findings that Cybersecurity and Reliability (TECH5) had the lowest mean value (M=3.80).
2. High cost of acquiring and implementing digital technologies: many said managing software and hardware cost is tough with tight budgets.

4.8.2 Organizational Barriers

Three main organizational barriers were identified from the respondents.

1. Lack of digital skills among employees: many respondents said that most of staff members do not have technical knowledge to use digital tools. This supports the low mean value for organizational structure and collaboration (ORG5, M=3.78).
2. Employee resistance to change: staff seemed reluctant because they feared losing their jobs or dealing with new systems.
3. Insufficient budget and lack of management support: respondents noted that small budgets for technological investment and lack of commitment from top management slowed down digital transformations.

4.8.3 Suggested Solutions

Respondents suggested three main solutions.

1. Investing in employee training and digital skills development: respondents said continuous training programs can enhance staff technological abilities and confidence with digital tools. This suggestion directly the digital skill gap.
2. Improving technological infrastructure: respondents indicated poor infrastructure hold back the adoption of digital tools.
3. Strengthening government support: respondents noted that when the government eases regulations and cuts costs, organizations are more likely to invest in digital technology.

4.8.4 Additional Insights

The qualitative findings reveal that organizations in Addis Ababa slowly and selectively adopt digital technologies. They usually choose tools that offer quick benefits, like better efficiency and easier day to day tasks.

Several respondents stressed the need for solid planning and strong leadership for digital success. Managers who support and lay out clear goal help technology take off. This fits with the regression results showing that organizational factor strongly predicts digital technology adoption.

4.8.5 Summary of Qualitative Analysis

The qualitative analysis identified poor infrastructure, high costs, skill gaps, and resistance to change as the main challenges to digital business technology adoption in Addis Ababa. These findings reinforce the quantitative results — particularly the dominance of technological factors ($\beta = 0.361$) and the role of organizational readiness in driving adoption. Respondents recommended employee training, infrastructure investment, and stronger government support as key solutions. Overall, the qualitative findings provide important context that deepens the understanding of the quantitative results.

CHAPTER FIVE- DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

This chapter the summary of the results, conclusions, and recommendations based on the results of the study on the factors affecting digital business technology adoption in organizations in Addis Ababa. The discussion links the findings to study objectives research questions, and existing literature.

5.2 Discussion of Findings

5.2.1 Technological Factors

From the findings, technological factors were the most significant variable in predicting the adoption of digital business technology with $\beta = 0.361$, $p < 0.001$. Among the technological factors performance improvement have the highest mean value of M=4.07. This indicates that performance improvement plays a great role in facilitating digital technology adoption. In contrast, cyber security and reliability have the lowest mean value of M=3.80. This indicates that issues related to cybersecuritty remain problematic even for adopting organizations. The results support the conclusions made by Shahadat et al. (2023) and Nguyen et al. (2022), stating that technological readiness is the leading adoption motivation in the case of SMEs in developing countries. This conclusion is particularly relevant to the Ethiopian context since there is information about infrastructure deficiencies in this country.

The technological aspects emerged to be the strongest predictor of digital business technology adoption. As evidenced by the results of the quantitative analysis, companies with high level of technological readiness are more likely to adopt digital business technologies. This is also supported by the qualitative data collected, which reveals poor ICT infrastructure, low internet connections, system incompatibility, and cybersecurity problems as key challenges to digital business technology adoption. It implies that organizations need to have a technological base before applying other sources of support.

5.2.2 Organizational factors

The second strongest predicator of digital business technology adoption was organizational factors with ($\beta = 0.353$, $p < 0.001$), thus supporting Hypothesis 2. Among the organizational factors

organizational readiness had the highest mean value of M=3.98. This imply that the respondents felt that their organizations have enough resources to support the adoption of digital business technologies. On the other hand, organizational structure and collaboration had the lowest mean value of M=3.78. This indicates that there is low level of relationship between the departments of their organizations.

As seen above, the results support the conclusions made by Chatterjee et al. (2021) and Malik et al., (2021). The findings from the qualitative section also corroborate the current results, as the respondents cited lack of skills and resistance to change as organizational barriers, which again show inadequacy in terms of organizations in Addis Ababa to enhance their internal capabilities in order to achieve their digital adoption objectives.

Organizational factors played an important role in the success of the adoption process. The qualitative responses revealed that many organizations face challenges such as change resistance, low digital literacy among employees, lack of management commitment, and insufficient training programs. This what makes organizational readiness such a crucial factor.

5.2.3 Environmental Factors

Even though, there was a statistically significant though somewhat less pronounced positive effect of environmental factors on the adoption of digital business technology $\beta = 0.150$, $p = 0.022$. In terms of environmental factors, government support and regulation scored the highest mean value of $M = 3.90$, implying that the respondents consider governmental policy the most impactful external factor influencing adoption. As for the environmental variable scoring the lowest mean score ($M = 3.82$), it is Stakeholder Pressure.

The lower value of the beta coefficient associated with environmental factors than those of technological and organizational ones can be attributed to the fact that at this stage of development of the regulatory framework and competitive pressures in the economy, the internal factors are more impactful than the external ones. Indeed, as shown by Ta & Lin (2023), in an emerging economy, internal factors are more likely to drive adoption processes. Nevertheless, it should be noted that the significance of Government Support and Regulation (ENV5) indicates the effectiveness of the policy interventions, such as the Digital Ethiopia 2025 strategy, to foster an environment favorable for digital transformation.

The environmental factors have had the least impact on the adoption, although this sis still statistically significant. From the qualitative data, it can be seen that there was minimal government backing, inconsistencies in regulation implementation, and minimal digital infrastructure development as some of the external obstacles that existed in the minds of the respondents.

5.2.4 Overall Adoption Level

The results of the descriptive analysis showed moderate-high levels of adoption (M=3.94). The adoption of Organizational Performance and Competitiveness (ADOPT4) received the highest means among all variables tested in this study (M=4.22), signifying the strong perception of the performance benefits of adopting digital technology. At the same time, Extent of Usage (ADOPT2) received the lowest adoption means, meaning that despite successful adoption of certain technologies, their application is still not complete.

As for the technologies themselves, data analytics, digital payment systems, and ERP systems were the most popular (the percentage of adoption was 90.1%, 78.3%, and 65.8% respectively), while e-commerce platforms and cloud computing were utilized the least often (12.5% and 41.4%). Such selective adoption reflects the tendency of organizations to choose technologies which are easy to use and provide evident benefits.

In this study, the adoption of digital business technologies is considered from a broader perspective, looking at it from an organization point of view, rather than examining particular digital business technologies. This means that the results of this study can only be used to understand the factors influencing digital transformation as opposed to the adoption of individuals technologies like artificial intelligence, cloud computing, blockchain, or digital marketing. Despite the fact that determine their adoption, they still depend on similar factors.

The findings of this study are the organizational perceptions at the particular period when the research was conducted. Since the digital transformation is an evolving phenomenon due to advanced technology, organizational learning, and policy changes, the relevance of the TOE elements might shift over time. Thus, the current conclusions need to be seen in the context of the research period.

Although the TOE framework was able to explain a considerable amount of variance in the adoption of digital business technology, there are also indications that other organizational competencies could impact the success of digital transformation. Variables like digital leadership, organizational culture, cyber readiness, and innovation capability could impact the adoption of digital technology within organizations. Although beyond the scope of this study, these variables offer interesting areas for future research.

5.3 Conclusion

Conclusively, technology, organizational, and environmental variables all have considerable impacts on digital business technology adoption in organizations in Addis Ababa. They explain 55.9% of variation in the adoption ($R^2 = 0.559$). Technology readiness proved to be the most important variable in determining digital adoption ($\beta = 0.361$), followed by organizational readiness ($\beta = 0.353$). Environmental variables had an importance ranking lower than the others but were also highly influential in determining digital adoption ($\beta = 0.150$).

Regarding adoption level, the average adoption level of the organization was high ($M = 3.94$) with data analytics, digital payments, and ERP systems proving to be the most adopted technologies. Nevertheless, the low value for Extent of Adoption (ADOPT2) suggests that total adoption of digital technologies is still lacking. The major challenges hindering full adoption were identified to be low infrastructure, high cost, low skill level, and employee resistance to changes.

Both quantitative and qualitative results shows that digital business technology adoption is contingent on technological readiness, organizational commitment, and an external environment that supports such adoption. Although the results of the regression analysis showed that technological readiness was the strongest predictor, qualitative findings from respondents provided insight into some of the practical challenges such as poor ICT infrastructure, lack of digital skills, and policy inadequacy.

5.4 Limitations of the Study

Several issues limit the results of this research, which should be taken into consideration when evaluating its outcome.

The first limitation of this study is the research design it used. This study employed the use of cross-sectional approach whereby information was gathered at only one point in time. As a result,

the research reflects respondents' views and organizational circumstances only during the time of data collecting. The design makes it impossible to analyze how adoption of digital business technology changes overtime or to analyze long term changes in technological, organizational, and environmental factors. Consequently, the results should be seen as a picture of digital adoption by organizations in Addis Ababa rather than evidence of any change over time.

The second limitation of this study is related to the sampling techniques used for selecting respondents. Non- probability sampling techniques including purposive and snowball sampling techniques were used. These methods were necessary to reach individuals with relevant knowledge and experience of digital business technology adoption. As a result, not all organizations have an equal chance to become participants of this study.

The third limitation of this study is related to the geographical location of the study. While Addis Ababa is the main economic and administrative center of Ethiopia with relatively advanced digital infrastructure. Therefore, the results obtained in this study may not be generalized to organizations operating in other regions of the country.

The fourth limitation of this study is that digital business technology adoption was examined as a single construct that includes various types of technology like cloud computing, ERP, CRM, Digital payment, data analysis, e-commerce platforms. While the analysis provided a broad perspective of digital business technology adoption, these technologies have different attributes and adoptability criteria. Thus, while the factors affecting the adoption of one form of digital technology could be different from the others. Therefore, the results from this study can be taken to mean adoption of overall digital technologies rather than particular digital technology.

The fifth limitation of this study is related to the qualitative data collected. Although, this study included qualitative data from open-ended questionnaire items, the qualitative aspect was relatively limited to the quantitative component of the research. The qualitative results were primarily used to support and provide context for the quantitative results instead of offering a thorough examination of the respondent's experiences. More comprehensive qualitative methods might have produced deeper understanding of the challenges and success factors that affect the adoption of digital business technology.

The sixth limitation of this study is related to the score of the Cronbach's alpha levels of the constructs. While the measures used were well established scales, there were cases where the Cronbach's alpha levels of the constructs fell short of the 0.70 threshold. Although it is acceptable in exploratory studies.

The final limitation of this study related to the theoretical constructs of the study. The theoretical constructs like digital leadership, organizational culture, cybersecurity readiness, and innovation capability were not considered in this TOE framework. These constructs have been included in various digital transformation models, and their inclusion in future research would enhance comprehensiveness of the theory.

5.5 Recommendations

5.5.1 For Organizations

Based on the result showing that the technological factors ($\beta = 0.361$) are the main determinant of digital adoption, organizations need to consider investing in quality internet services, advanced hardware, and supportive software. The first action step toward adoption involves fixing the infrastructure weaknesses identified through the qualitative analysis (4.8.1).

Considering the results showing that inadequate digital skills were the most frequently cited organizational barrier (Section 4.8.2), organizations need to train their staff. The training needs to target employees at different levels, taking into consideration the digital tools used in the organizations.

To overcome the challenge of employee resistance to change, the organizations need to adopt change management measures where employees will be involved in the adoption process. Organizations need to convince employees on the benefits associated with adopting digital technology, addressing the job displacement challenge.

Given the fact that organizational readiness (ORG2) and top management support (ORG1) emerged as important organizational enablers, leaders in organizations need to take the leading role of advocating for digital adoption.

5.5.2 For Policy Makers

Given that Government Support and Regulation (ENV5) recorded the highest mean among environmental items ($M = 3.90$), government policy has a critical role to play in enabling digital

adoption. Policymakers should develop financial incentives such as tax relief, subsidies, and grants for organizations — particularly medium-sized enterprises — investing in digital technologies. Since poor infrastructure was the most cited technological challenge (Section 4.8.1), the government should accelerate investment in national broadband infrastructure and ensure affordable internet access for businesses across Addis Ababa. Policymakers should also establish clear and supportive regulatory frameworks for data protection, cybersecurity, and digital transactions to address the security concerns reflected in the low mean for Cybersecurity and Reliability (TECH5, M = 3.80).

5.5.3 For Future Research

The study analyzed multiple industries in Addis Ababa through a cross-sectional design approach. Future researchers can conduct sector-specific studies on how different TOE factors affect technological innovation in different sectors like banking, health care, and manufacturing, which may adopt technology differently from one another.

The future studies can extended this research by analyzing digital business technologies separately in categories of artificial intelligence, cloud computing, ERP system, CRM system, digital payment technology, and ecommerce technologies. This will enable researchers to know whether technological, organizational, and environmental factors have a differential impact on individual digital business technologies.

Future researcher in this issue should consider organizations widening the geographic perspective by incorporating that are located in the regional cities and countryside of Ethiopia. These studies would enable comparisons across various geographical settings and enhance the generalizability of results related to the adoption of digital business technology.

For future researcher it is recommended that to conduct longitudinal research which will included detailed analysis of the development processes of organizations within a huge period of time.

Due to the low threshold level of Cronbach's alpha levels, future researchers should consider developing and validating new measurement scales for TOE factors in Ethiopia.

Furthermore, future studies can extend the TOE framework by incorporating digital leadership, organizational culture, cyber security preparedness, innovation capability, digital competence of employees, and digital maturity among others.

5.6 Final Remarks

This study contributes to the growing body of knowledge on digital business technology adoption in developing countries by providing empirical evidence from the Addis Ababa organizational context. The findings confirm the applicability of the TOE framework in explaining adoption behavior in Ethiopia and offer practical insights for organizations, policymakers, and future researchers. As digital transformation continues to reshape the global business environment, understanding and addressing the technological, organizational, and environmental factors that influence adoption will be essential for organizations in Addis Ababa to remain competitive and achieve sustainable growth.

REFERENCE

Abate, A. (2024). Determinants of accounting information systems technologies adoption by SMEs in Ethiopia: A sub-Saharan country perspective. *African Journal of Science, Technology, Innovation and Development, 17*, 95 - 108. https://doi.org/10.1080/20421338.2024.2426342.

Abdurrahman, A. (2024). Investigating the impact of digital business ecosystem in enhancing Islamic mobile banking adoption through the TOE framework. *Digital Business*. https://doi.org/10.1016/j.digbus.2024.100096.

Alojail, M., & Khan, S.B. (2023). Impact of digital transformation toward sustainable development. *Sustainability*

Assaye, A., Beshah, B., & Berhan E. (2024). Factors affecting big data analytics adoption in Ethiopia;s health sector. Ethiopian Journal of Health Sciences.

Baalbaki, C., Shamieh, S., & Bodolica, V. (2025). Cloud computing adoption in disruptive contexts: a TOE Framework approach, *VINE Journal of Information and Knowledge Management Systems.*

Bultum, A. (2014) 'Factors affecting the adoption of electronic banking system in Ethiopian banking industry', Journal of Management Information System and E-commerce.

Chatterjee, S., Rana, N., Dwivedi, Y., & Baabdullah, A. (2021). Understanding AI adoption in manufacturing and production firms using an integrated TAM-TOE model. *Technological Forecasting and Social Change, 170*, 120880. https://doi.org/10.1016/j.techfore.2021.120880.

Chittipaka, V., Kumar, S., Sivarajah, U., Bowden, J. L. H., & Baral, M. M. (2022) Blockchain Technology for supply chains operating in emerging markets: an empirical examination of Technology-Organization-Environment (TOE) framework, *Annals of Operations Research*

DePietro, R., Wiarda, E., & Fleischer, M. (1990). The context for change: Organization, technology, and environment. In L.G. Tornatzky & M. Fleisher (Eds), The processes of technological innovation

Díaz-Arancibia, J., Hochstetter-Diez, J., Bustamante-Mora, A., Sepúlveda-Cuevas, S., Albayay, I., & Arango-López, J. (2024). Navigating Digital Transformation and Technology Adoption: A Literature Review from Small and Medium-Sized Enterprises in Developing Countries. *Sustainability*. https://doi.org/10.3390/su16145946.

Ergado, A., Desta, A., & Mehta, H. (2021). Determining the barriers contributing to ICT implementation by using technology-organization-environment framework in Ethiopian higher educational institutions. *Education and Information Technologies, 26*, 3115 - 3133.

https://doi.org/10.1007/s10639-020-10397-9.

Faiz, F., Le, V., & Masli, E. (2024). Determinants of digital technology adoption in innovative SMEs. *Journal of Innovation & Knowledge*. https://doi.org/10.1016/j.jik.2024.100610.

Field, A. (2018). Discovering statistics using IBM SPSS statistics (5th ed.).

Hiran, K., & Henten, A. (2019). An integrated TOE–DoI framework for cloud computing adoption in the higher education sector: case study of Sub-Saharan Africa, Ethiopia. *International Journal of System Assurance Engineering and Management, 11*, 441 - 449. https://doi.org/10.1007/s13198-019-00872-z.

Hoang, H. (2024). Navigating the Digital Landscape: An Exploration of the Relationship Between Technology-Organization-Environment Factors and Digital Transformation Adoption in SMEs. *SAGE Open, 14*. https://doi.org/10.1177/21582440241276198.

Hordofa, Dereje Fedasa. "Impact of digital transformation on financial stability in emerging markets: evidence from Ethiopia." *Discover Sustainability* 5 (2024).

Legesse, A., Beshah, B., Berhan, E., & Tesfaye, E. (2024). Exploring the influencing factors of blockchain technology adoption in national quality infrastructure: a Dual-Stage structural equation model and artificial neural network approach using TAM-TOE framework. *Cogent Engineering, 11*. https://doi.org/10.1080/23311916.2024.2369220.

Malik, S, et al. (2021). Factors affecting the organizational adoption of Blockchain Technology: Extending the technology-organization-environment (TOE) framework in the Australian context, *Sustainability*,

Manyazewal, Tsegahun, Y. Woldeamanuel, H. Blumberg, A. Fekadu, and V. Marconi. "The potential use of digital health technologies in the African context: a systematic review of evidence from Ethiopia." *NPJ Digital Medicine* 4 (2021). https://doi.org/10.1038/s41746-021-00487-4.

May, E., Bunmi, E., Oyekunle, D., Ugbomeh, W., & Matthew, U. (2025). Digital Marketing Adoption in SMEs: A Technology-Organization-Environment (TOE)-Based Assessment of Business Growth and Competitiveness. *Recent Research Reviews Journal*. https://doi.org/10.36548/rrrj.2025.1.004.

Moses, Victor. "DIGITAL TRANSFORMATION AND E-COMMERCE ADOPTION AMONG SMALL BUSINESSES IN DEVELOPING AFRICAN ECONOMIES: EVIDENCE FROM ETHIOPIA AND UGANDA." *Branding: Jurnal Manajemen dan Bisnis* (2023). https://doi.org/10.15575/jb.v2i1.38746.

Mu'min, H., Bernardus, D., & Kaihatu, T. (2025). Unlocking Digital Success: A TOE Framework Analysis of Digital Marketing Adoption for Enhanced SMEs Competitiveness. *International Journal of Accounting and Economics Studies*. https://doi.org/10.14419/n81qcx19.

Nguyen, T., Le, X., & Vu, T. (2022). An Extended Technology-Organization-Environment (TOE)

Framework for Online Retailing Utilization in Digital Transformation: Empirical Evidence from Vietnam. *Journal of Open Innovation: Technology, Market, and Complexity*. https://doi.org/10.3390/joitmc8040200.

Nunnally, J. C. (1978). Psychometric theory (2nd ed.).

Omrani, N., Rejeb, N., Maalaoui, A., Dabić, M., & Kraus, S. (2024). Drivers of Digital Transformation in SMEs. *IEEE Transactions on Engineering Management, 71*, 5030-5043. https://doi.org/10.1109/tem.2022.3215727.

Saunders, M., Lewis, P., & Thornhill, A. (2019). Research methods for business students (8th ed.)

Shahadat, M., Nekmahmud, M., Ebrahimi, P., & Fekete-Farkas, M. (2023). Digital Technology Adoption in SMEs: What Technological, Environmental and Organizational Factors Influence SMEs' ICT Adoption in Emerging Countries?. *Global Business Review*. https://doi.org/10.1177/09721509221137199.

Skare, M. & Soriano, D. (2021). How globalization is changing digital technology adoption: An international perspective; *Journal of Innovation and Knowledge*

Ta, V., & Lin, C. (2023). Exploring the Determinants of Digital Transformation Adoption for SMEs in an Emerging Economy. *Sustainability*. https://doi.org/10.3390/su15097093.

Tadesse, M. "Implementation of digital technologies in logistics systems of low-income countries : an assessment based on case studies in Ethiopia." *Acta Universitatis Agriculturae Sueciae* (2024). https://doi.org/10.54612/a.6me93ip95o.

Timbula, Mekuanint Abera, and Chetana R. Marvadi. "Digital transformation: acceptance and use of technology among microfinance institutions in developing country: an application of UTAUT2 mode." *International Journal of Information Technology* 15 (2023): 4459-4468. https://doi.org/10.1007/s41870-023-01535-w.

Tornatzky, L. G., & Fleischer, M. (1990). The processes of technological innovation. Lexington Books.

Wassie, F., & Péter, L. (2024). Technology adoption in audit of information systems: Ethiopian audit firms' perspective. *Journal of Infrastructure, Policy and Development*. https://doi.org/10.24294/jipd8819.

APPENDIX

ADDIS ABABA UNIVERSITY

SCHOOL OF COMMERCE

DEPARTMENT OF BUSINESS ADMINSTRATION AND INFORMATION SYSTEMS

RESEARCH QUESTIONNAIRE

Dear Respondent,

I am a graduate student at Addis Ababa University researching "Factors Affecting Digital Technology Adoption in Organizations in Addis Ababa." This study is aimed to investigate process of diffusion of digital technology within Organizations in Addis Ababa through the assessment of technological, organizational, and environmental factors on digital technology adoption. We are grateful for your time and honest responses; they will help shed light on this critical issue.

Please noted:

- You participate in this study is voluntarily, and none of you need to put your name or any identifying information.
- We assure you that all the information provided by you will be kept confidentially and will be used only for academic purpose.
- Please tick √ in the box provided for your answers to the questions

If you have questions or concerns about the survey at any time, you may contact me by the following: Phone: +251982085434 Email: epherataabedadaa@gmail.com

Sincerely,

Epherata Bedada

MBIS Graduate Student

School of Commerce Addis Ababa University

SECTION A: Background Information

1. Gender

   Female Male

2. Age

   18 – 25 36 - 44

   26 – 35 45 & above

3. Highest level of Education

   High School Master's Degree

   Bachelor's Degree Doctorate

   Other:

4. Your Role in the Organization

   CEO/Executive IT/Technology Specialist

   Manager Employee

   Other:

5. Years of Experience in the Organization

   0 – 5 years 11 – 15 years

   6 – 10 years 16+ years

6. Size of your Organization

   Small

   Medium

   Large

7. Industry of your Organization

   Technology Retail

   Education Manufacturing

   Healthcare other:

8. Digital Adoption Stage

   Early Stage (Research and Planning)

   Implementation Phase (Partial adoption)

   Fully Implemented (Digital technologies are fully operational)

9. Which of the following digital technologies has your organization already adopted?
   Cloud Computing Services
   Enterprise Resource Planning System
   Customer Relationship Management System
   E-commerce System
   Digital payment systems
   Data analytics tools
   Other:

SECTION B: Technological, organizational and environmental factors

The aim of this section is to explore your opinion technological environmental factors towards adoption of digital business technologies.

Please answer the following questions using this 5-points scale

1 = Strongly 3 = Neither agree nor disagree

2 = Disagree 4 = Agree 5 = Strongly Agree

Technological factors

No	Statements	1	2	3	4	5
1	Digital technologies significantly improve the overall performance of our organization.					
2	The digital technologies we adopt increases efficiency and productivity in our daily operations.					
3	The digital technologies we adopt are compatible with our current business processes and system.					
4	The digital technologies we used in our organization are easy for employees to learn and use effectively.					

5	Our organization place high importance on cyber security to protect reliability of digital technologies and data.					
6	The benefits of digital technologies are clearly observable to test them before full implementation.					

Organizational Factors

No	Statement	1	2	3	4	5
1	The top management of our organization strongly supports and encourages the adoption of digital technologies.					
2	Our organization has the necessary IT infrastructure, finances and human resources to adopt new digital technologies.					
3	The size and age of our organization positively influence our ability to adopt digital technologies.					
4	The culture of our organization encourages innovation and supports the introduction of new technologies.					
5	The structure of our organization encourages collaborations between departments to implement digital technologies.					

Environmental Factors

No	Statements	1	2	3	4	5
1	The industry competitive pressure drives our company to embrace new digital technologies.					
2	International policies, technology developments and industry best practices are the driving forces for our organization to implement digital technologies.					

3	The pressures from business partners, suppliers and stakeholders influences our organization's decision to adopt digital technologies.					
4	The change in market condition and customer demands influences our organization's decision to adopt digital technologies.					
5	Government policies, regulations and legal frameworks support the adoption of digital technologies in our organization.					

Digital Business Technology Adoption

No	Statements	1	2	3	4	5
1	Our organization has fully implemented digital business technologies.					
2	Our organization extensively uses digital technologies in its daily operations and activities.					
3	Digital technologies are well integrated into our organization's business process and decision-making activities.					
4	The adoption of digital technologies has led to noticeable improvements in our organization's overall performance and competitiveness.					

SECTION C: OPEN-ENDED QUESTIONS

1. What are the technology challenges your organization has encountered in implementing digital business technologies?

   _____

   _____

_____

_____

2. What organizational barriers do you encounter as you try to implement digital business technologies?

_____

_____

_____

_____

3. What actions or change help your organization in making the adoption process of digital business technology easier?

_____

_____

_____

_____

4. Can you provide any other insights related to your organization's journey through digital transformation?

_____

_____

_____

_____

THANK YOU FOR YOUR COOPERATION!!