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**ADDIS ABABA UNIVERSITY
SCHOOL OF COMMERCE**

**FACTORS AFFECTING E-COMMERCE RESISTANCE AMONG SMES IN
ETHIOPIA: A CASE STUDY OF ADDIS ABABA.**

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Department of Marketing Management**

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DECLARATION

I hereby declare that the work being presented in this thesis entitled “FACTORS AFFECTING E-COMMERCE RESISTANCE AMONG SMES IN ETHIOPIA: A CASE STUDY OF ADDIS ABABA” with the guidance and support of the research supervisor is my original work. It has not been submitted partially or in full by any other person for an award of a degree in any other university or higher education institution and all sources of material used for the thesis have been duly acknowledged.

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Abstract

This study explores the factors that affect e-commerce resistance among Small and Medium Enterprises (SMEs) in Addis Ababa, Ethiopia. E-commerce resistance is the degree to which potential adopters of e-commerce are unwilling to adopt it, due to various factors that influence their willingness and ability to do so. Despite the potential benefits of e-commerce for SMEs, such as increased market access, reduced costs, and improved efficiency, its adoption rate in Ethiopia is low, indicating a high level of e-commerce resistance. Using a quantitative approach, the study surveyed SME owners and employees using a questionnaire based on established theoretical models. The research identified ten key factors influencing e-commerce resistance, categorized into three groups: environmental, organizational, and technological. Environmental factors, such as low market maturity and limited competitive pressure, were found to have a significant impact on e-commerce resistance. Organizational factors, such as financial constraints and limited digital literacy, also emerged as barriers to e-commerce adoption. Technological factors, such as security concerns and infrastructure limitations, also contributed to e-commerce resistance. The study highlights the role of environmental, organizational, and technological factors in shaping e-commerce resistance among SMEs. It also suggests some tailored interventions, such as policy reforms, capacity-building programs, and targeted support, to overcome e-commerce resistance and foster e-commerce adoption among SMEs, especially micro and small-sized enterprises.

Keywords: SMEs, E-commerce resistance, Environmental factors, Organizational factors, Technological factors

Chapter 1

1.1 Background of the Study

E-commerce is the activity of buying and selling products or services online, using technologies such as the Internet mobile devices, and electronic payments. E-commerce can take different forms, such as online retailing, online marketplaces, online auctions, and online financial exchanges. E-commerce can involve different types of participants, such as businesses, consumers, and governments (Merriam-Webster, n.d., para. 1). E-commerce has become a vital tool for businesses to reach new markets, improve efficiency, reduce costs, and enhance customer satisfaction (Kotler & Keller, 2016). However, e-commerce adoption is not uniform across countries and sectors, and many factors influence the decision and ability of businesses to adopt e-commerce (Molla & Licker, 2005).

E-commerce resistance is a term that describes the degree to which potential adopters of e-commerce are unwilling to adopt it (Crémer et al., 2019). It does not imply a complete rejection of e-commerce, but rather a hesitation or reluctance to use it due to various factors that affect their willingness and ability to adopt it. E-commerce resistance is different from e-commerce readiness, which refers to the extent to which potential adopters of e-commerce are prepared and able to adopt it (Teklemariam & Belay, 2018). E-commerce resistance can be influenced by both internal and external factors, such as perceived usefulness, perceived ease of use, perceived risk, social influence, resources, skills, trust, awareness, support, competition, pressure, policies, and infrastructure (Crémer et al., 2019).

One of the sectors that can benefit from e-commerce adoption is the micro, small, and medium enterprises (SMEs) sector. SMEs are defined as enterprises that employ less than 250 people and have an annual turnover of less than 50 million birr in Ethiopia (CSA, 2017). SMEs play a significant role in the economic development of Ethiopia by contributing to employment, income generation, poverty alleviation, and innovation (Endris & Kassegn, 2022). According to the Central Statistical Agency (CSA) of Ethiopia, there were about 1.7 million SMEs in Ethiopia in 2016/17, accounting for 98.6% of all enterprises and employing about 3.8 million people (CSA, 2017).

E-commerce resistance is a relevant concept for studying the adoption of e-commerce by small and medium-sized enterprises (SMEs), which are businesses that have a certain number of

employees, turnover, or assets. SMEs play a vital role in economic and social development, as they generate employment, income, and sustainability. However, SMEs face many challenges and barriers in adopting e-commerce, which can affect their performance, competitiveness, and survivability, especially in the context of the COVID-19 pandemic, which has accelerated the digital transformation of the global market (Crémer et al., 2019; Teklemariam & Belay, 2018). Therefore, understanding the factors that affect e-commerce resistance among SMEs can help to design and implement effective strategies and policies to overcome them and foster e-commerce adoption.

SMEs in Ethiopia also face many challenges that limit their growth and competitiveness, such as a lack of access to finance, infrastructure, skilled labor, market information, technology, and supportive policies (Endris & Kassegn, 2022; Engidaw, 2022). Moreover, SMEs in Ethiopia have low levels of e-commerce adoption compared to other countries in Africa and the world. According to the World Bank's Enterprise Surveys (2015), only 4.4% of small firms and 9.8% of medium firms in Ethiopia had a website or used email for business purposes in 2015, while the average for sub-Saharan Africa was 15.9% and 28.8%, respectively. Similarly, only 0.9% of small firms and 2.4% of medium firms in Ethiopia received orders over the Internet or via a web page in 2015, while the average for sub-Saharan Africa was 3.1% and 6.9%, respectively.

The low level of e-commerce adoption among SMEs in Ethiopia can be attributed to various factors that create resistance or barriers to e-commerce adoption. These factors can be classified into three categories: technological, organizational, and environmental, (G. Tornatzky & Fleischer, 1990). Technological factors include a lack of Technological Infrastructure and security Concerns). Organizational factors include (Financial Constraints, Limited Digital Literacy, Organizational Culture, Perceived Lack of Benefits, and Limited Awareness). Environmental factors include (Regulatory and Legal Barriers, Market Maturity and Consumer Behavior, and Competitive Pressures).

There is previous research that supports the use of e-commerce resistance as a concept for studying the adoption of e-commerce by SMEs. For example, Crémer et al. (2019)¹ discuss how e-commerce can lower entry barriers and increase competition in the digital economy, but also how some firms may resist e-commerce due to various factors that affect their willingness and ability to adopt it. They identify four main factors that can influence the reluctance of some firms

to adopt e-commerce: perceived usefulness, perceived ease of use, perceived risk, and social influence. They also discuss how these factors can vary depending on the type and size of the firm, the industry and market characteristics, and the regulatory and institutional environment. They provide some examples of how these factors can affect e-commerce adoption in different sectors, such as retail, transport, or health care. Another example is Teklemariam and Belay (2018)², who examine the factors that influence e-commerce readiness and resistance of SMEs in Ethiopia, using an exploratory study. They do not explicitly define e-commerce resistance, but they imply that it is the opposite of e-commerce readiness. They also use the term reluctant to describe the attitude of SMEs towards e-commerce adoption. They find that SMEs in Ethiopia are reluctant to adopt e-commerce due to various organizational, environmental, and technological factors, such as lack of resources, skills, trust, awareness, or support, as well as infrastructure, competition, buyer/supplier pressure, government policies, or legal issues.

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Thus, the purpose of this study is to investigate the factors affecting e-commerce resistance among SMEs in Ethiopia: a case study of Addis Ababa. Addis Ababa is the capital city and the largest urban center of Ethiopia with a population of about 3.4 million people (CSA, 2018). It is also the political, economic, cultural, and diplomatic hub of Ethiopia and hosts many local and international organizations and businesses. Addis Ababa has a vibrant SME sector that accounts for about 40% of all SMEs in Ethiopia and employs about 1.5 million people (CSA, 2017). Therefore, Addis Ababa provides a suitable context for studying the factors that influence e-commerce resistance among SMEs in Ethiopia.

1.2 Statement of the problem

E-commerce can help small and medium enterprises (SMEs) to compete and grow in the global market by reducing transaction costs, expanding market reach, and increasing customer satisfaction (Molla & Heeks, 2007). However, many SMEs in Ethiopia face significant challenges and barriers in adopting and using e-commerce for their business operations. Ethiopia has a low and slow rate of e-commerce adoption among SMEs, despite its potential to contribute to economic development and poverty alleviation (Molla & Licker, 2005). A study by Molla and Licker (2005) found that only 4% of SMEs in Ethiopia use e-commerce platforms, while the majority (96%) depend on traditional modes of trade. Some of the factors that impede e-commerce adoption among SMEs in Ethiopia are lack of access to finance, electricity, internet, skilled labor, awareness, trust, and supportive legal and regulatory frameworks (Molla & Licker, 2005; Molla & Heeks, 2007; Molla & Sorensen, 2004). These factors create resistance and reluctance among SMEs to adopt e-commerce as a strategic tool for their business performance and survival (Molla & Sorensen, 2004).

The issue of e-commerce resistance among SMEs in Ethiopia is a critical problem that warrants further investigation because it affects the performance, productivity, and competitiveness of SMEs in the domestic and international markets (Molla & Heeks, 2007). Moreover, it limits the opportunities for SMEs to contribute to the sustainable development goals of Ethiopia, such as creating employment, alleviating poverty, improving living standards, and enhancing innovation and entrepreneurship (Molla & Heeks, 2007).

Small and medium enterprises (SMEs) are vital for the economic and social development of Ethiopia, as they contribute to employment creation, poverty alleviation, and innovation.

However, many SMEs in Ethiopia face various challenges that hinder their growth and competitiveness, such as access to finance, electricity, and markets. One of the potential solutions to overcome these challenges is the adoption of e-commerce, which can enable SMEs to reach wider customers, reduce transaction costs, and improve efficiency. However, e-commerce adoption among SMEs in Ethiopia is still low and faces many barriers, such as lack of awareness, trust, infrastructure, and skills. Therefore, there is a social need to investigate the factors affecting e-commerce resistance among SMEs in Ethiopia, especially in Addis Ababa, where most of the SMEs are located. This study aims to explore the reasons why some SMEs are reluctant or unable to adopt e-commerce and how they can be encouraged and supported to do so. This study will provide valuable insights for policymakers, practitioners, and researchers on how to promote e-commerce adoption among SMEs in Ethiopia and enhance their contribution to sustainable development goals.

There are many gaps or challenges in the existing literature or practice of determinant factors for E-commerce resistance in SMEs in Ethiopia. Some of these are Lack of empirical studies: There is a scarcity of empirical studies that examine the factors affecting e-commerce resistance in SMEs in Ethiopia, especially from the perspective of the business owners or employees. Most of the studies are based on secondary data, case studies, or surveys with small samples and low response rates (Idris et al., 2017; Rahayu & Day, 2015). Therefore, there is a need for more rigorous and representative research that can provide reliable and valid insights into the factors that influence e-commerce resistance in SMEs in Ethiopia.

There is also a need for more comprehensive and context-specific models that can capture the complexity and diversity of the factors that influence E-commerce resistance in SMEs in Ethiopia that account for more variables and factors that affect the phenomenon of interest, and that can adapt to the specific characteristics and conditions of the context where the phenomenon occurs. The existing models are often based on theoretical frameworks that are derived from developed countries or general settings, such as the technology-organization-environment (TOE) framework or the unified theory of acceptance and use of technology (UTAUT) (Idris et al., 2017; Rahayu & Day, 2015). These models may not adequately reflect the cultural, social, political, and environmental factors that are unique to developing countries or specific sectors.

Furthermore, there is a discrepancy between the existing E-commerce theories and models and the actual e-commerce practices and outcomes among SMEs in Ethiopia. This discrepancy or gap is evident from the following facts:

- Despite having good awareness of the e-commerce benefits and opportunities, SMEs in Ethiopia face low e-commerce adoption due to the lack of infrastructure, expertise, and supportive policies and regulations (Molla & Licker, 2005).
- SMEs in Ethiopia use e-commerce mainly through social media platforms for marketing and communication purposes, rather than for transaction and delivery purposes, which deviates from the recommended e-commerce practices (Gebremichael & Jackson, 2006).
- The main obstacle to launching full-scale e-commerce in Ethiopia is the absence of legal frameworks that can harmonize the digital marketplace, payment technologies, tax systems, banks, suppliers, and other regulators (Mekonnen, 2010).

These facts show that there is a gap between the theoretical and practical aspects of e-commerce resistance in SMEs in Ethiopia, which needs to be addressed by more empirical and contextualized research. Such research can provide useful guidance and recommendations for policymakers and practitioners on how to reduce e-commerce resistance and promote e-commerce adoption among SMEs in Ethiopia.

Thus Investigating the determinant factor of e-commerce resistance in SMEs in Ethiopia is important for several reasons It can help to identify the root causes and drivers of E-commerce distance among SMEs in Ethiopia, such as in order help to design and implement more tailored and effective interventions or strategies that can address the specific needs and challenges of SMEs Ethiopia, and to evaluate their outcomes and impacts, to bridge the gap between theory and practice, to contribute to the advancement of knowledge and innovation in the field of Ecommerce, to foster collaboration and coordination among the stakeholders involved in EE-commerce development and diffusion Ethiopia, and overall to create a conducive environment for EE-commerce adoption and use.

1.3 Research Question

Main Research Question

What are the Factors affecting e-commerce resistance among SMEs in Ethiopia Addis Ababa?

Specific research questions

1. What are the technological, organizational, and environmental factors that influence e-commerce resistance among SMEs in Ethiopia?
2. To what extent does each determinant factor influence e-commerce resistance among SMEs in Addis Ababa?
3. How does the level of resistance to e-commerce adoption vary among SMEs in different sectors and size among SMEs in Ethiopia?

1.4 Objective of the study

General Objective

To identify and analyze the factors affecting e-commerce resistance resistance among SMEs in Addis Ababa, Ethiopia.

Specific Objectives

1. To identify the technological, organizational, and environmental, factors that influence E-commerce resistance among SMEs in Ethiopia.
2. To determine the extent to which each determinant factor influences E-commerce resistance among SMEs in Addis Ababa.
3. To compare and contrast the level of resistance to e-commerce adoption among SMEs in different sectors and sizes in Ethiopia.

1.5 Significance of the Study

Conducting this study has a significant importance. First, it provides a better understanding of the factors that influence e-commerce resistance among SMEs in Ethiopia. This helps to identify the root causes and drivers of e-commerce resistance and to address them accordingly. Second, it contributes to the advancement of knowledge and innovation in the field of E-commerce, by

filling the gaps and challenges in the existing literature or practice. It develops more comprehensive and context-specific models and frameworks that can capture the complexity and diversity of e-commerce resistance in Ethiopia. Third, it designs and implements more tailored and effective interventions or strategies that can address the specific needs and challenges of SMEs in Ethiopia regarding e-commerce adoption and use. It reduces e-commerce resistance and promotes e-commerce adoption and use among SMEs in Ethiopia. Lastly, it fosters collaboration and coordination among the stakeholders involved in e-commerce development and diffusion in Ethiopia and creates a conducive environment for E-commerce adoption and use. It aligns the interests, capacities, and resources of the stakeholders and facilitates E-commerce development and diffusion in Ethiopia. However, this study also faced some limitations and challenges that need to be addressed in future research. For example, the study did not explore the impact of Ecommerce adoption and use on the performance and competitiveness of SMEs in Ethiopia, which is an important aspect to consider in the Ecommerce literature.

1.6 Delimitation of the study

This study acknowledges certain delimitations that influence its scope and generalizability. Specifically, it centers on delineating the factors influencing the resistance to e-commerce adoption among Small and Medium Enterprises (SMEs) in Addis Ababa, Ethiopia. This focus is justified by the predominant presence and significant impact of SMEs within the nation's economic landscape, constituting approximately 98% of all enterprises and contributing to 65% of employment (World Bank, 2019). Recognizing this, understanding the determinants affecting their uptake or reluctance towards e-commerce becomes imperative for bolstering their competitive edge and fostering their role in the national economy (Molla & Licker, 2005). The study adopts a quantitative research design, chosen for its capacity to yield precise and objective measurements regarding the factors influencing e-commerce adoption or resistance among SMEs.

Data collection occurs through a survey questionnaire distributed to SME owners and employees, identified as primary decision-makers and users of e-commerce within their enterprises. Leveraging a survey questionnaire proves apt for gathering large-scale and

standardized data from a representative sample of the target population, by establishing best practices in questionnaire design and administration (Fowler, 2014).

Notably, this study does not encompass the perspectives of customers, as their direct involvement in the e-commerce adoption or resistance process is limited. Furthermore, their viewpoints may not necessarily align with the actual behaviors or intentions of SMEs. Additionally, incorporating these stakeholders would necessitate a distinct research design and data collection approach, thereby escalating the study's complexity and costs. Consequently, the research focuses solely on the insights of SME owners and employees, recognized as the most pertinent and credible sources of information about this research domain.

1.7 Limitations of the Study

This study is subject to certain limitations that could impact the integrity and robustness of its findings. Key limitations include the reliance on self-reported data obtained through a survey administered to SME owners or employees. This methodology may introduce inherent biases or inaccuracies in data collection and subsequent analysis, such as social desirability bias, recall bias, response bias, or measurement error. To mitigate these potential sources of bias, the researcher will employ strategies such as employing clear and consistent language, utilizing appropriate scales and indicators, and conducting thorough pilot testing and reliability assessments of the questionnaire.

Furthermore, the study's focus on a specific case study of SMEs situated in Addis Ababa, Ethiopia, raises considerations regarding the generalizability and broader applicability of the findings to alternative contexts or populations. To address this limitation, the researcher will endeavor to enhance generalizability through the utilization of purposive sampling techniques. Such techniques facilitate the selection of a sample that is both representative and diverse in terms of sectoral composition, and organizational size.

1.8 Organization of the Study

The subsequent sections of this paper are structured as follows to provide a coherent and systematic presentation of the research findings and insights. Section 2 will commence with an

extensive review of the pertinent literature, encompassing theoretical frameworks, foundational concepts, and empirical studies about e-commerce resistance. This section will offer a comprehensive synthesis of existing research findings in the field.

Following the literature review, Section 3 is about the research design and methodology employed in this study. This section elucidates the methodological approach, data collection procedures, and analytical techniques utilized to investigate the factors influencing e-commerce resistance among SMEs.

Subsequently, Section 4 is dedicated to the thorough analysis of collected data and the subsequent discussion of results. This draws insights and implications from the data analysis about the research objectives.

In Section 5, the conclusion and recommendation of the study are derived from the regression analysis conducted in Section 4. Additionally, this section will offer practical recommendations stemming from the study's findings, aimed at informing policy, practice, and future research endeavors in the domain of e-commerce resistance among SMEs.

By adhering to this structured organization, this paper aims to present a coherent and comprehensive account of the research process, findings, and implications, thereby contributing to the advancement of knowledge in the field of e-commerce resistance among SMEs.

1.9 Definition of terms

1. **E-commerce:** The use of electronic platforms such as the Internet, mobile devices, and social media to conduct business transactions and exchange information (Turban, Outland, King, Lee, Liang, & Turban, 2015).
2. **SMEs (Small and Medium Enterprises):** Enterprises that employ less than 250 people and have an annual turnover of less than 50 million birr in Ethiopia (Central Statistical Agency, 2017).
3. **E-commerce Adoption:** The process by which SMEs start to use e-commerce for their business operations.

4. **E-commerce Resistance:** The reluctance or inability of SMEs to adopt e-commerce due to various factors such as lack of access to finance, electricity, internet, skilled labor, awareness, trust, and supportive legal and regulatory frameworks (Molla & Licker, 2005).
5. **Factors:** The technological, organizational, and environmental factors that influence e-commerce resistance among SMEs (Molla & Licker, 2005).
6. **Mixed-Methods Research Design:** A research design that combines quantitative and qualitative data collection and analysis methods.
7. **UTAUT, TPB, TAM, and TOE Models:** Theoretical models used to understand and predict the adoption of technology. UTAUT stands for Unified Theory of Acceptance and Use of Technology, TPB for Theory of Planned Behavior, and TAM for Technology Acceptance Model. TOE refers to the Technology-Organization-Environment framework.
8. **Purposive Sampling Technique:** A sampling technique in which the researcher selects participants based on their characteristics or qualities.

Chapter 2

Literature Review

2.1 Introduction

The literature review for this study on “Factors affecting e-commerce resistance among SMEs in Ethiopia: A Case Study of Addis Ababa” will delve into the existing body of knowledge surrounding e-commerce resistance, particularly within the context of SMEs in Ethiopia.

The review will begin with a Theoretical Review by examining the concept of e-commerce, its benefits, and its significance for SMEs. It will then focus on the Ethiopian context, discussing the state of e-commerce adoption among these enterprises. The literature review will also explore various theoretical frameworks and models used to study e-commerce adoption and resistance, such as the Unified Theory of Acceptance and Use of Technology (UTAUT), The Perceived e-Readiness Model (PERM), Technology Acceptance Model (TAM), and Technology-Organization-Environment (TOE) framework. These models will provide a theoretical basis for understanding the factors influencing e-commerce resistance among SMEs.

Lastly, an empirical review and a conceptual framework are present to provide a solid foundation and justification for the research questions, hypothesis, and findings. the conceptual framework is a logical and coherent representation of the key, variables, and relationships that underlie our research problem.

2.2 Theoretical Review

2.2.1 The Concept of E-commerce and E-commerce Resistance

E-commerce is the use of the Internet to conduct business transactions, such as buying and selling goods and services, online payment, and online advertising (Laudon & Traver, 2019). E-commerce can offer many benefits to businesses and consumers, such as convenience, cost savings, and access to a global market. However, e-commerce also faces some challenges and barriers, such as security, privacy, trust, regulation, and cultural resistance.

E-commerce resistance is the reluctance or refusal of some businesses or consumers to adopt or participate in e-commerce activities. E-commerce resistance can be caused by various factors, such as lack of awareness, skills, or resources, fear of fraud or identity theft, preference for physical interaction, or attachment to traditional ways of doing business (Al-Qirim, 2011). E-

commerce resistance can limit the potential growth and competitiveness of e-commerce and reduce its positive impact on the economy and society.

To overcome e-commerce resistance, businesses and consumers need to be educated and informed about the benefits and risks of e-commerce, as well as the best practices and standards to ensure safe and secure transactions. Moreover, e-commerce platforms and systems need to be designed and developed to be user-friendly, accessible, reliable, and compatible with different devices and networks. Furthermore, e-commerce policies and regulations need to be established and enforced to protect the rights and interests of all parties involved, as well as to promote fair and ethical conduct. Additionally, e-commerce culture and trust need to be fostered and nurtured through social and psychological factors, such as reputation, feedback, reviews, recommendations, and social proof (Lee & Turban, 2001).

2.2.2 Benefits of E-commerce

E-commerce offers numerous benefits for businesses, particularly SMEs. These include:

1. **Market Expansion:** E-commerce allows businesses to reach new markets beyond their geographical boundaries, thereby increasing their customer base (Kotler & Keller, 2016).
2. **Cost Reduction:** By automating various business processes, e-commerce can help reduce operational costs (Turban et al., 2015).
3. **Improved Efficiency:** E-commerce enables businesses to operate 24/7, streamline their business processes, and improve their efficiency (Kotler & Keller, 2016).
4. **Enhanced Customer Satisfaction:** E-commerce provides customers with greater convenience, wider product selection, and better customer service, thereby enhancing customer satisfaction (Turban et al., 2015).

2.2.3 E-commerce in SMEs

Small and Medium Enterprises (SMEs) play a significant role in the economic development of many countries, contributing to employment, income generation, poverty alleviation, and innovation. The adoption of e-commerce by SMEs can further enhance their contribution by enabling them to compete in the global market, reduce transaction costs, expand market reach, and increase customer satisfaction (Molla & Heeks, 2007).

However, SMEs often face significant challenges in adopting e-commerce. These challenges can be classified into technological, organizational, and environmental, factors. Technological factors include a lack of technological infrastructure and security concerns. Organizational factors encompass financial constraints, limited awareness, limited digital literacy, and organizational culture. Environmental factors involve regulatory and legal barriers, market maturity, and consumer behavior toward e-commerce adoption (Molla & Licker, 2005).

2.2.4 E-commerce Resistance in SMEs

Despite the potential benefits of e-commerce, many SMEs resist its adoption due to various barriers. E-commerce resistance can be defined as the reluctance or refusal of SMEs to adopt e-commerce due to perceived or actual barriers. These barriers can stem from technological, organizational, and environmental factors.

Understanding the factors affecting e-commerce resistance among SMEs is crucial for designing and implementing effective strategies to promote e-commerce adoption. This understanding can also contribute to the development of supportive policies and infrastructure, the provision of training and resources, and the creation of a conducive environment for e-commerce adoption among SMEs.

In the following sections, we will delve deeper into each of these factors, examining their influence on e-commerce resistance among SMEs in Ethiopia, particularly in the context of Addis Ababa.

2.2.5 Models and Theories

Many theories and models have been used to explain the factors influencing e-commerce adoption, especially by small and medium-sized enterprises (SMEs) in developing countries. These models are frameworks that explain why some businesses or individuals may be reluctant to sell products or services online. They help ecommerce businesses understand the barriers and challenges they face in attracting and retaining customers, and how to overcome them. Some of the most widely used models are:

2.2.5.1 The Technology Acceptance Model (TAM)

It is a widely used framework to explain and predict the adoption and usage of information systems by individuals (Davis, Bagozzi, & Warshaw, 1989). TAM is based on the Theory of Reasoned Action (TRA), which assumes that people's behavior is influenced by their intentions, which in turn are determined by their attitudes and subjective norms (Ajzen, 2011). TAM adapts TRA to the context of technology use by replacing the attitude and subjective norms with two specific constructs: perceived usefulness (PU) and perceived ease of use (PEOU) (Davis, 1989). PU refers to the degree to which a person believes that using a particular system would enhance their job performance, while PEOU refers to the degree to which a person believes that using a particular system would be free from effort (Davis, 1989). TAM proposes that PU and PEOU affect the behavioral intention (BI) to use a system, which in turn affects the actual system use (Davis, Bagozzi, & Warshaw, 1989). TAM also suggests that PEOU influences PU, as a system that is easier to use is likely to be perceived as more useful (Davis, 1989).

TAM has been empirically tested and validated in various settings and contexts and has been shown to have a high explanatory power of user acceptance and behavior (Venkatesh, 2000). TAM has also been extended and modified by several researchers to incorporate additional factors and variables that may affect technology acceptance, such as social influence, trust, risk, and personal characteristics (Venkatesh, 2000). Some of the most notable extensions of TAM are TAM 2 (Venkatesh & Davis, 2000), the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh, Morris, Davis, & Davis, 2003), and TAM 3 (Venkatesh & Bala, 2008).

TAM is a useful and parsimonious model that provides a theoretical basis for understanding and predicting user behavior toward information systems. TAM can help researchers and practitioners to identify the key factors that influence user acceptance and to design and implement systems that meet user needs and expectations.

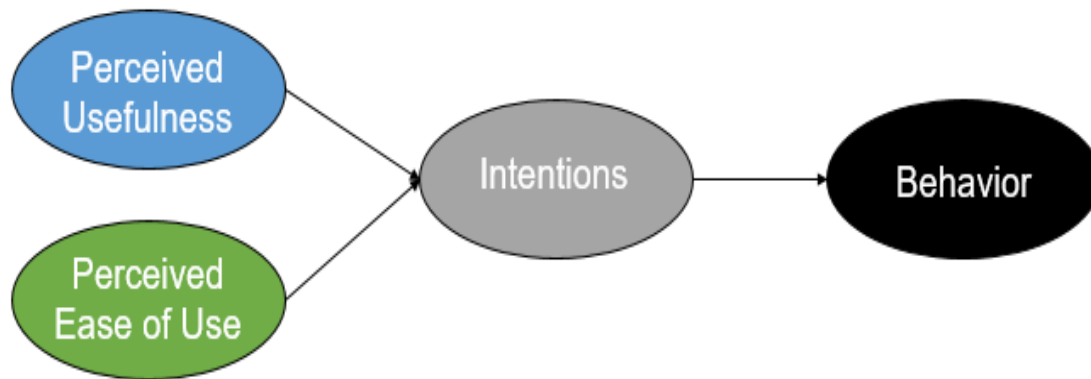


Figure 1 The Technology Acceptance Model

2.2.5.2 The Unified Theory of Acceptance and Use of Technology (UTAUT)

UTAUT is a comprehensive model that synthesizes and extends the key constructs from eight previous models of technology acceptance, such as TAM, TPB, DOI, and others (Venkatesh et al., 2003). UTAUT aims to explain and predict user intentions and behaviors toward using an information system in various contexts (Venkatesh et al., 2003). UTAUT proposes four main constructs that directly influence user intention and behavior: performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). Performance expectancy refers to the degree to which a user expects that using a system will improve their performance or outcomes. Effort expectancy refers to the degree to which a user perceives that using a system will be easy. Social influence refers to the degree to which a user is influenced by the opinions and behaviors of others regarding the system's use. Facilitating conditions refer to the degree to which a user believes that the technical and organizational infrastructure supports the system use (Venkatesh et al., 2003). UTAUT also identifies four moderators that affect the relationships between the main constructs and the user intention and behavior: gender, age, experience, and voluntariness of use (Venkatesh et al., 2003). Gender refers to the biological sex of the user. Age refers to the chronological age of the user. Experience refers to the length of time that the user has been exposed to or used the system. Voluntariness of use refers to the degree to which the user has a choice or control over using the system (Venkatesh et al., 2003).

UTAUT has been empirically tested and validated in a longitudinal study involving four different organizations and six different systems (Venkatesh et al., 2003). UTAUT was found to

account for 70% of the variance in user intention and 50% of the variance in user behavior, which is significantly higher than the previous models of technology acceptance (Venkatesh et al., 2003). UTAUT has also been applied and modified by various researchers to examine the user acceptance of different types of technologies, such as mobile services, social media, e-learning, and health information systems (Koivumäki et al., 2008; Curtis et al., 2010; Verhoeven et al., 2010; Welch et al., 2019).

UTAUT is a useful and robust model that provides a theoretical foundation for understanding and predicting user behavior toward information systems. UTAUT can help researchers and practitioners to identify the key factors that influence user acceptance and to design and implement systems that meet user needs and preferences.

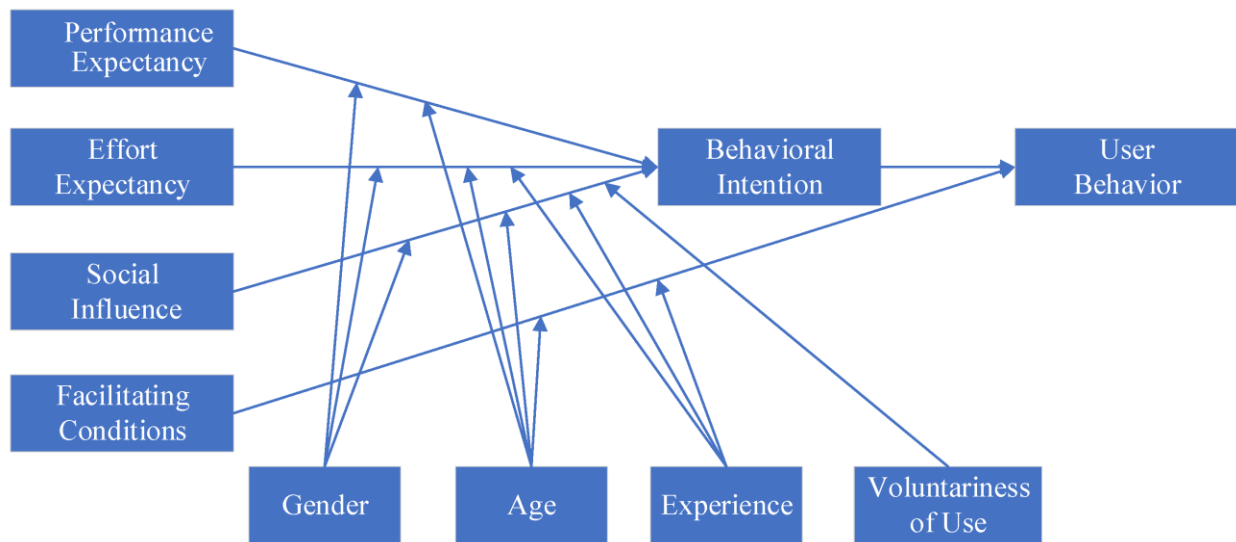


Figure 1 Unified Theory of Acceptance Model

2.2.5.3 The Technology-Organization-Environment (TOE) Framework

TOE Framework is a theoretical framework that explains how various factors influence the adoption and use of new technologies in organizations (Tornatzky & Fleischer, 1990). These

factors include the characteristics of the technology itself, the organizational context in which it is used, and the external environment in which the organization operates. The TOE Framework posits that the decision to adopt a technological innovation is not only determined by the attributes of the innovation, but also by the interaction of the innovation with the existing and potential technologies, the organizational structure and culture, and the competitive and institutional forces in the industry and society (Tornatzky & Fleischer, 1990).

The TOE Framework consists of three main dimensions: the technological context, the organizational context, and the environmental context. The technological context refers to the internal and external technologies that are relevant to the organization, such as the current and emerging technologies, the availability and cost of the technologies, and the compatibility and complexity of the technologies (Tornatzky & Fleischer, 1990). The organizational context refers to the characteristics and resources of the organization, such as the size, structure, leadership, strategy, culture, readiness, and innovativeness of the organization (Tornatzky & Fleischer, 1990). The environmental context refers to the factors in the external environment that affect the organization, such as competitive pressure, market demand, customer expectations, supplier relationships, government regulations, and industry standards (Tornatzky & Fleischer, 1990).

The TOE Framework assumes that the adoption and use of technological innovation are influenced by the interplay of these three contexts and that different contexts may have different effects on different types of innovations. For example, some innovations may require more organizational changes than others, or some innovations may face more environmental barriers than others. Therefore, the TOE Framework suggests that the adoption and use of technological innovation are contingent on the fit between the innovation and the three contexts and that the optimal fit may vary depending on the specific innovation and situation (Tornatzky & Fleischer, 1990).

The TOE Framework has been widely applied and tested in various settings and contexts and has shown to have a high explanatory power of the adoption and use of different technologies, such as e-commerce, e-business, cloud computing, green IT, and mobile technologies (Oliveira & Martins, 2011; Awa et al., 2017; Li, 2020; Wallace et al., 2021). The TOE Framework has also been extended and integrated with other theories and models, such as the diffusion of innovations theory, the resource-based view, the institutional theory, and the transaction cost

theory, to incorporate additional factors and variables that may affect technology adoption, such as innovation characteristics, organizational capabilities, institutional pressures, and transaction costs (Oliveira & Martins, 2011; Awa et al., 2017; Li, 2020; Wallace et al., 2021).

The TOE Framework is a useful and comprehensive framework that provides a theoretical basis for understanding and predicting the adoption and use of technological innovations in organizations. The TOE Framework can help researchers and practitioners to identify the key factors that influence technology adoption and to design and implement technologies that fit the organizational and environmental contexts (Tornatzky & Fleischer, 1990).

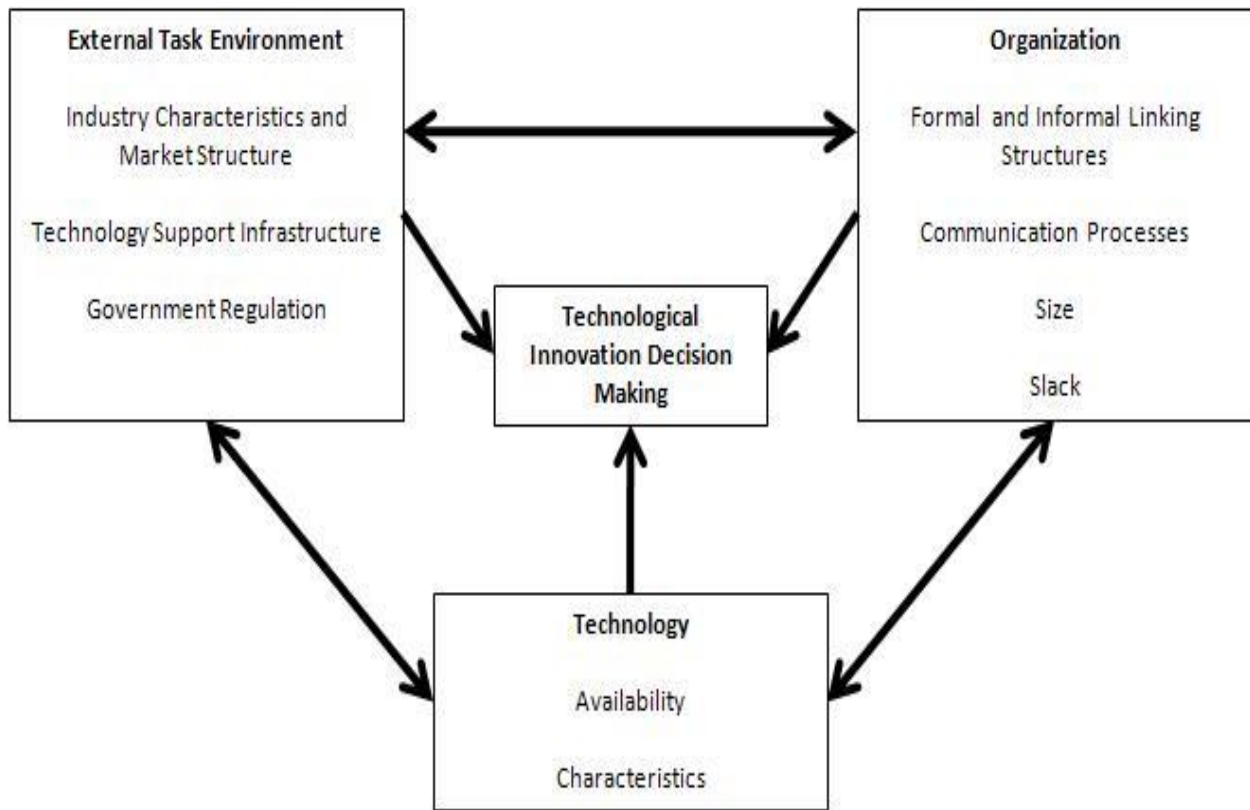


Figure 2 *The Technology-Organization-Environment*

2.2.5.4 The Perceived e-Readiness Model (PERM)

Molla and Licker (2005) proposed the Perceived e-Readiness Model (PERM) to explain how the perceived readiness of the firm, the customers, and the suppliers to engage in e-commerce transactions affects the adoption decision. According to PERM, e-commerce adoption is not only influenced by the objective conditions of the environment but also by the subjective perceptions of the actors involved in the e-commerce process. PERM consists of four main constructs: e-commerce adoption, firm e-readiness, customer e-readiness, and supplier e-readiness. E-commerce adoption refers to the extent to which a firm uses e-commerce to conduct its business activities, such as marketing, sales, procurement, and delivery. Firm e-readiness refers to the degree to which a firm perceives that it has the necessary infrastructure, skills, trust, awareness, and benefits to adopt and use e-commerce. Customer e-readiness refers to the degree to which a firm perceives that its customers have the necessary infrastructure, skills, trust, awareness, and benefits to engage in e-commerce transactions with the firm. Supplier e-readiness refers to the degree to which a firm perceives that its suppliers have the necessary infrastructure, skills, trust, awareness, and benefits to engage in e-commerce transactions with the firm. PERM proposes

that firm e-readiness, customer e-readiness, and supplier e-readiness positively affect e-commerce adoption and that these relationships are moderated by the environmental context, such as the industry sector, the market size, the competitive pressure, and the regulatory support. PERM also suggests that firm e-readiness is influenced by the organizational context, such as the firm size, the firm strategy, the firm culture, and the firm innovativeness (Molla & Licker, 2005).

PERM has been widely applied and tested in various settings and contexts and has been shown to have a high explanatory power of e-commerce adoption in different countries, such as Ethiopia (Molla, 2001), South Africa (Molla & Licker, 2005), Australia (Molla et al., 2006), and China (Zhang et al., 2011). PERM has also been applied and modified by various researchers to examine the e-readiness and e-commerce adoption of different types of firms, such as SMEs (Molla et al., 2007), hotels (Law et al., 2009), and banks (Molla et al., 2010).

PERM is a useful and comprehensive model that provides a theoretical basis for understanding and predicting e-commerce adoption in different contexts. PERM can help researchers and practitioners to identify the key factors that influence e-commerce adoption and to design and implement e-commerce strategies that match the perceived readiness of the firm, the customers, and the suppliers (Molla & Licker, 2005)

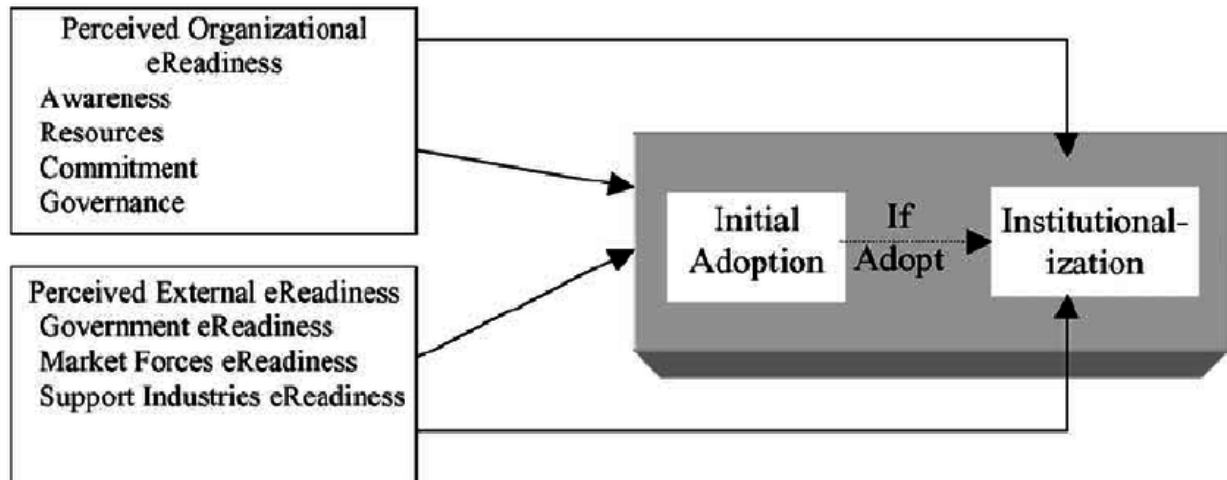


Figure 34 The Perceived e-Readiness Model

For this study, the researcher believes that The TOE model is a suitable theoretical framework for studying the factors that affect e-commerce resistance among SMEs in Ethiopia because it considers three aspects of the organizational context that influence technology adoption decisions: technology, organization, and environment. Technology refers to the characteristics of e-commerce, such as its features, functions, compatibility, and complexity, that may affect the perceived benefits and costs of adopting it. Organization refers to the internal characteristics of SMEs, such as their size, structure, culture, resources, and readiness for change, that may affect their ability and willingness to adopt e-commerce. Environment refers to the external factors that affect SMEs, such as competitors, customers, suppliers, regulations, and industry trends, that may create pressures and incentives for e-commerce adoption. By using the TOE model, this paper aims to identify and analyze the specific technological, organizational, and environmental factors that influence e-commerce resistance among SMEs in Ethiopia, and to provide recommendations for overcoming the barriers and enhancing the drivers of e-commerce adoption.

2.3 Empirical Review

E-commerce resistance

E-commerce resistance is a significant challenge for SMEs in the digital era, as it is influenced by various internal and external factors that vary across countries and contexts. E-commerce resistance is the degree to which potential adopters of e-commerce are unwilling to adopt it, due to various factors that influence their willingness and ability to do so. Some of these factors are

perceived usefulness, perceived ease of use, perceived risk, social influence, resources, skills, trust, awareness, support, competition, pressure, policies, and infrastructure. Therefore, e-commerce resistance is a relevant concept for studying the adoption of e-commerce by SMEs, which are businesses that have a certain number of employees, turnover, or assets. SMEs play a vital role in economic and social development, as they generate employment, income, and sustainability. However, SMEs face many challenges and barriers in adopting e-commerce, which can affect their performance, competitiveness, and survivability, especially in the context of the COVID-19 pandemic, which has accelerated the digital transformation of the global market.

Several empirical studies have examined the factors that affect e-commerce resistance among SMEs in different countries and contexts. For example, Liu and Wu (2019) compared the e-commerce adoption of SMEs in the UK and China and discovered that e-commerce resistance was affected by perceived usefulness, perceived ease of use, perceived risk, and social influence. They also observed that e-commerce resistance was more prevalent in China than in the UK, because of the differences in the market maturity, competitive pressure, and institutional environment. (Liu & Wu, 2019). Teklemariam and Belay (2018) explored the e-commerce readiness and resistance of SMEs in Ethiopia and found that e-commerce resistance was influenced by organizational, environmental, and technological factors, such as lack of resources, skills, trust, awareness, or support, as well as infrastructure, competition, buyer/supplier pressure, government policies, or legal issues. They also noted that e-commerce resistance was higher among micro and small-sized enterprises than among medium-sized enterprises, due to the differences in the organizational capacity, market orientation, and innovation propensity. (Teklemariam & Belay, 2018).

Before conducting the empirical review, the researcher classified the factors influencing e-commerce resistance among SMEs in Ethiopia into three dimensions: technological, organizational, and environmental, based on the TOE framework. The technological dimension includes factors such as lack of technological infrastructure, and security concerns. The organizational dimension includes factors such as financial constraints, Limited Awareness, limited digital literacy, organizational culture, and perceived lack of benefits from e-commerce adoption. The environmental dimension includes factors such as regulatory and legal barriers,

low market maturity and consumer behavior, and low competitive pressures from other firms. These factors were identified from the literature review and the case study of Addis Ababa. By using this classification, the study aims to provide a comprehensive and systematic analysis of the barriers and drivers of e-commerce adoption by SMEs in Ethiopia.

2.3.1 Security Concern

Security concerns are a key factor that affects the adoption of e-commerce among SMEs in Ethiopia. They refer to apprehensions and uncertainties among SMEs regarding the safety and integrity of their data, transactions, and online operations when engaging in e-commerce activities. E-commerce resistance is the reluctance or hesitance of SMEs to adopt e-commerce practices due to perceived or actual security risks associated with online transactions and data management (Gupta and Purohit, 2018).

Several studies have shown the importance of security concerns in influencing SMEs' resistance to e-commerce adoption. For instance, Gupta and Purohit (2018) found that SMEs harboring security concerns regarding online transactions and data privacy were hesitant to embrace e-commerce platforms. Perceived risks associated with cyber threats and data breaches heightened resistance towards digital commerce. Jyoti and Sharma (2020) also reported that SMEs expressed apprehensions about the security of online payment gateways and the confidentiality of customer information. Fear of financial loss and reputational damage deterred SMEs from adopting e-commerce solutions. Moreover, Khan et al. (2019) conducted a survey that revealed that security concerns emerged as a significant barrier to e-commerce adoption among SMEs. Worries about cyber-attacks and fraudulent activities on online platforms undermined trust in digital commerce, leading to increased resistance towards digitalization.

Security concerns regarding online transactions and data privacy contribute to increased resistance towards e-commerce adoption among SMEs. Perceived risks associated with cyber threats and data breaches undermine trust in digital commerce, thereby hindering SMEs' willingness to embrace e-commerce solutions.

However, some SMEs have overcome or are overcoming these challenges by implementing robust cybersecurity measures and building trust in online transactions. For example, a case study by Gebremedhin et al. (2020) described how an Ethiopian SME, called EthioMarket,

successfully adopted e-commerce by providing online shopping and delivery services. The case study highlighted how Ethio Market implemented various security features, such as SSL encryption, secure payment gateway, and data protection policy, to ensure the safety and integrity of its data, transactions, and online operations. Another case study by UNCTAD (2022) discussed how an Ethiopian SME, called Gebeya, successfully adopted e-commerce by offering online training and talent-matching services for IT professionals. The case study illustrated how Gebeya leveraged blockchain technology, smart contracts, and digital identity verification to enhance the security and transparency of its online transactions and data management.

Thus The researcher expects the study will confirm the hypothesis, which will highlight the significant impact of security concerns on SMEs' resistance to e-commerce

H1 Security Concerns Increase SMEs' Resistance to E-commerce.

2.3.2 Lack of Technological Infrastructure

Technological infrastructure is a key factor that affects the adoption of e-commerce among small and medium enterprises (SMEs) in Ethiopia. Technological infrastructure refers to the physical and organizational components that enable the effective operation of e-commerce activities, such as internet connectivity, hardware, software, and support services (Adugna, 2020). E-commerce resistance is the reluctance or hesitance of SMEs to adopt e-commerce practices due to various barriers and challenges (Alemayehu et al., 2019).

Several studies have shown the importance of technological infrastructure in influencing SMEs' resistance to e-commerce adoption. For example, Adugna (2020) found that Ethiopian SMEs face significant challenges such as unreliable internet connectivity and power supply, which discourage them from engaging in e-commerce. Alemayehu et al. (2019) also reported that the cost and availability of ICT infrastructure affect SMEs' decisions to resist e-commerce adoption. Moreover, Mulugeta (2021) identified technological infrastructure deficiencies as the main drivers of SMEs' perceived barriers to e-commerce, such as security concerns and operational inefficiencies.

Technological infrastructure plays a crucial role in shaping SMEs' attitudes towards e-commerce adoption by influencing their ability to leverage e-commerce opportunities and overcome e-

commerce challenges. Poor technological infrastructure limits SMEs' access to e-commerce platforms, services, and customers, thereby increasing resistance towards digitalization efforts.

However, some SMEs have overcome or are overcoming these challenges by investing in technological infrastructure and seeking external support and collaboration. For instance, a case study by Tesfaye (2019) described how an Ethiopian SME, called ZayRide, successfully adopted e-commerce by providing online taxi-hailing services. The case study highlighted how ZayRide's founder and CEO, Habtamu Tadesse, invested in reliable internet connectivity, hardware, and software to enable his e-commerce operations. He also sought support and collaboration from the Ethiopian government, the World Bank, and other stakeholders to improve the technological infrastructure in the transportation sector. Another case study by UNCTAD (2022) discussed how an Ethiopian SME, called Gebeya, successfully adopted e-commerce by offering online training and talent-matching services for IT professionals. The case study illustrated how Gebeya's co-founders, Amadou Daffe and Hiruy Amanuel, invested in technological infrastructure such as cloud computing, online platforms, and digital tools to facilitate their e-commerce activities. They also sought support and collaboration from the African Union, the Mastercard Foundation, and other partners to enhance the technological infrastructure in the IT sector.

Thus The researcher expects the study will confirm the hypothesis, which will highlight the significant impact of security concerns on SMEs' resistance to e-commerce

H2: Lack of Technological Infrastructure Increases SMEs' Resistance to E-commerce.

2.3.3 Limited Awareness

Limited awareness is a key factor that affects the adoption of e-commerce among SMEs in Ethiopia. Limited awareness refers to the level of knowledge, understanding, and familiarity that SMEs possess regarding the concept, benefits, and opportunities associated with e-commerce. E-commerce resistance, in this context, encompasses SMEs' reluctance or hesitance to adopt e-commerce practices due to a lack of awareness or misconceptions about e-commerce's potential value and relevance to their business (Liu and Wu, 2017).

Several studies have shown the importance of limited awareness in influencing SMEs' resistance to e-commerce adoption. For example, Liu and Wu (2017) suggested that SMEs perceiving

intense competitive pressures from digital-native firms were more inclined to adopt e-commerce strategies. Awareness of competitors' online presence and market dominance heightened SMEs' motivation to embrace digital commerce. Chen et al. (2021) also found that SMEs facing increasing competition in traditional markets turned to e-commerce platforms as a means of expanding market reach and diversifying revenue streams. Competitive pressures from online rivals incentivized SMEs to invest in digital commerce initiatives. Moreover, Wang et al. (2020) indicated that SMEs recognizing the potential for gaining competitive advantages through e-commerce adoption were more proactive in embracing digital technologies. Perceived opportunities for market differentiation and customer acquisition motivated SMEs to overcome resistance towards digitalization efforts.

Limited awareness of e-commerce among SMEs undermines their willingness and ability to adopt and leverage e-commerce effectively. Lack of awareness or misconceptions about e-commerce's potential value and relevance to their business impede SMEs' efforts to embrace digital commerce solutions, thereby increasing resistance towards digitalization.

However, some SMEs have overcome or are overcoming these challenges by participating in targeted awareness-raising initiatives, capacity-building programs, and educational campaigns that equip them with the knowledge, skills, and confidence needed to adopt and leverage e-commerce effectively. For instance, a case study by UNCTAD (2022) described how an Ethiopian SME, called Gebeya, successfully adopted e-commerce by offering online training and talent-matching services for IT professionals. The case study highlighted how Gebeya's co-founders, Amadou Daffe and Hiruy Amanuel, participated in various awareness-raising initiatives, such as the eTrade for all initiative, the eTrade readiness assessment, and the eTrade for Women initiative, that provided them with information, guidance, and support on e-commerce adoption and innovation. Another case study by Data Reportal (2023) discussed how an Ethiopian SME, called Kifiya, successfully adopted e-commerce by providing online financial services. The case study illustrated how Kifiya's founder and CEO, Munir Duri, participated in various capacity-building programs and educational campaigns, such as the Mastercard Foundation's Young Africa Works program, the Ethiopian Fintech Association, and the Ethiopian Digital Transformation Strategy, that provided him with training, mentoring, and networking opportunities on e-commerce adoption and innovation.

Thus The researcher expects the study will confirm the hypothesis, which will highlight the significant impact of security concerns on SMEs' resistance to e-commerce

H3 Limited Awareness Increases SMEs' Resistance to E-commerce.

2.3.4 Financial constraints

Financial constraints are a key factor that affects the adoption of e-commerce among SMEs in Ethiopia. Financial constraints refer to the limitations faced by SMEs in accessing capital and financial resources needed for investing in e-commerce infrastructure, technology, and training (Tadesse, 2018). E-commerce resistance is the reluctance or inability of SMEs to adopt e-commerce practices due to financial barriers and challenges (Gebremedhin et al., 2020; Bekele et al., 2021).

Several studies have shown the importance of financial constraints in influencing SMEs' resistance to e-commerce adoption. For example, Chen et al. (2017) found that SMEs often perceive e-commerce adoption as financially burdensome due to high initial setup costs and ongoing investment requirements. Limited financial resources discourage SMEs from embracing digital commerce. Karia and Asongu (2018) also showed that SMEs facing financial constraints were less likely to invest in e-commerce infrastructure and technologies. The perceived risk of financial loss associated with online ventures increases resistance towards digital transformation. Moreover, Mahmood et al. (2019) reported that SMEs with limited access to capital faced challenges in financing e-commerce initiatives. Insufficient funds for technological upgrades and marketing efforts hinder their ability to compete in the digital marketplace.

Financial constraints pose significant barriers to e-commerce adoption among SMEs by restricting their ability to invest in necessary infrastructure and technologies. High upfront costs and ongoing expenses associated with digital commerce deter SMEs from pursuing e-commerce initiatives, thereby increasing resistance towards digitalization.

However, some SMEs have overcome or are overcoming these challenges by accessing affordable financing and financial literacy programs that enable them to invest in e-commerce effectively. For instance, a case study by Negera et al. (2019) described how an Ethiopian SME, called Kifiya, successfully adopted e-commerce by providing online financial services. The case

study highlighted how Kifiya's founder and CEO, Munir Duri, accessed various sources of financing, such as grants, loans, and equity, from local and international investors and partners to fund his e-commerce operations. He also participated in financial literacy programs, such as the Mastercard Foundation's Young Africa Works program, to enhance his financial management skills and confidence. Another case study by UNCTAD (2022) discussed how an Ethiopian SME, called SoleRebels, successfully adopted e-commerce by selling its eco-friendly footwear products online. The case study illustrated how SoleRebels' founder and CEO, Bethlehem Tilahun Alemu, accessed affordable financing from various platforms, such as crowdfunding, microfinance, and e-commerce marketplaces, to finance her e-commerce activities. She also participated in financial literacy programs, such as the eTrade for Women initiative, to improve her financial knowledge and decision-making.

Thus The researcher expects the study will confirm the hypothesis, which will highlight the significant impact of security concerns on SMEs' resistance to e-commerce

H4 Financial Constraints Increase SMEs' Resistance to E-commerce.

2.3.5 Limited Digital Literacy

Limited digital literacy is a key factor that affects the adoption of e-commerce among SMEs in Ethiopia. It refers to the lack of knowledge, skills, and confidence among SME owners and employees in utilizing digital technologies and e-commerce platforms effectively (Hailemariam & Dejene, 2017). E-commerce resistance is the reluctance or hesitance of SMEs to adopt e-commerce practices due to insufficient digital literacy levels (Mulugeta, 2021).

Several studies have shown the importance of limited digital literacy in influencing SMEs' resistance to e-commerce adoption. For example, Gebremedhin et al. (2020) found that the adoption of e-commerce among SMEs in Ethiopia is still in its early stages, with only 72.17% of SMEs adopting e-commerce to some extent. A report by UNCDF and the Ministry of Innovation and Technology in Ethiopia (2020) also emphasized the importance of digital and financial literacy in achieving the government's goal of ensuring that 70% of its citizens are digitally literate and financially included by 2025, noting that "digital and financial literacy are key enablers for digital transformation and financial inclusion" (p. 7). Moreover, Meier (2021) conducted a systematic review of 77 articles from a broad range of business and management

literature, confirming that the knowledge in the field of SME digitalization is still scattered and immature. The review also revealed that SMEs are composed of firms with a broad range of heterogeneity in the way they approach the challenges of digitalization, such as “different levels of digital literacy, different types of digital technologies, and different degrees of digital transformation” (p. 18).

Limited digital literacy among SME owners and employees impedes their ability to effectively utilize e-commerce technologies, thereby increasing resistance towards digitalization. Inadequate understanding of online marketing, website management, and data analytics limits SMEs’ capacity to embrace e-commerce practices and compete in the digital marketplace.

However, some SMEs have overcome or are overcoming these challenges by investing in digital literacy training and capacity-building initiatives. For instance, a case study by Tesfaye (2019) described how an Ethiopian SME, called ZayRide, successfully adopted e-commerce by providing online taxi-hailing services. The case study highlighted how ZayRide trained its drivers and customers on how to use its mobile app and website, and how it leveraged social media platforms to promote its services and engage with its users. Another case study by UNCTAD (2022) discussed how an Ethiopian SME, called SoleRebels, successfully adopted e-commerce by selling its eco-friendly footwear products online. The case study illustrated how SoleRebels improved its digital literacy by partnering with global e-commerce platforms, such as Amazon and Alibaba, and how it used digital marketing tools, such as Google Analytics and Facebook Ads, to optimize its online presence and sales.

Thus, the researcher expects the study will confirm the hypothesis, which will underscore the significant impact of limited digital literacy on SMEs’ resistance to e-commerce.

H5 Limited Digital Literacy Increases SMEs’ Resistance to E-commerce.

2.3.6 Perceived Lack of Benefits

Perceived lack of benefits is a key factor that affects the adoption of e-commerce among SMEs in Ethiopia. Perceived lack of benefits refers to SMEs’ subjective assessment that the potential advantages or rewards of adopting e-commerce practices do not outweigh the costs, risks, or efforts involved. E-commerce resistance is the reluctance or hesitance of SMEs to embrace e-

commerce due to their perception that the benefits offered by e-commerce do not justify the investments or changes required (Zhou et al., 2018).

Several studies have shown the importance of the perceived lack of benefits in influencing SMEs' resistance to e-commerce adoption. For example, Zhou et al. (2018) suggested that SMEs perceiving limited benefits from e-commerce adoption relative to perceived costs were hesitant to invest in digital commerce initiatives. A mismatch between expected outcomes and actual returns heightened resistance toward e-commerce adoption. Liang and Huang (2020) also found that SMEs failing to recognize the strategic advantages of e-commerce in expanding market reach and enhancing competitiveness were reluctant to embrace digital commerce. Perceived lack of tangible benefits constrained SMEs' willingness to invest in e-commerce technologies. Moreover, Ramayah et al. (2019) indicated that SMEs lacking awareness of e-commerce's potential to improve operational efficiency and customer engagement were skeptical about its adoption. Limited understanding of e-commerce benefits and outcomes contributed to resistance towards digitalization efforts.

Perceived lack of benefits from e-commerce adoption relative to perceived costs undermines SMEs' willingness to invest in digital commerce initiatives. A mismatch between expected outcomes and actual returns, coupled with limited awareness of e-commerce advantages, heightens resistance toward e-commerce adoption among SMEs.

However, some SMEs have overcome or are overcoming these challenges by demonstrating and communicating the tangible benefits and value proposition of e-commerce to their stakeholders. For instance, a case study by Tesfaye (2019) described how an Ethiopian SME, called ZayRide, successfully adopted e-commerce by providing online taxi-hailing services. The case study highlighted how ZayRide's founder and CEO, Habtamu Tadesse, measured and communicated the benefits of e-commerce adoption to his employees, customers, and partners. He showed how e-commerce enabled him to reduce operational costs, increase customer satisfaction, and create new revenue streams. Another case study by UNCTAD (2022) discussed how an Ethiopian SME, called Gebeya, successfully adopted e-commerce by offering online training and talent-matching services for IT professionals. The case study illustrated how Gebeya's co-founders, Amadou Daffe and Hiruy Amanuel, perceived and communicated the benefits of e-commerce

adoption to their trainees, clients, and investors. They showed how e-commerce enabled them to access new markets, enhance their competitiveness, and scale up their business.

Thus, the researcher expects the study will confirm the hypothesis, which will highlight the significant impact of security concerns on SMEs' resistance to e-commerce

H6 Perceived Lack of Benefits Increases SMEs' Resistance to E-commerce

2.3.7 Closed Organizational Culture

Closed organizational culture is a key factor that affects the adoption of e-commerce among SMEs in Ethiopia. Closed organizational culture refers to the shared values, beliefs, norms, and practices within an organization that shape its members' attitudes and behaviors, including their openness to innovation and technological change. Openness to innovation and technological change within the organizational culture reflects the extent to which SMEs embrace new ideas, technologies, and digital transformations. E-commerce resistance is the reluctance or hesitance of SMEs to adopt e-commerce practices due to organizational culture barriers that hinder innovation and technological adaptation (Chen and Lai, 2018).

Several studies have shown the importance of closed organizational culture in influencing SMEs' resistance to e-commerce adoption. For example, Chen and Lai (2018) found that SMEs with rigid organizational cultures resistant to change were less likely to adopt e-commerce practices. Limited willingness to embrace innovation and technology hindered organizational efforts to transition toward digital commerce. Ngai et al. (2020) also reported that SMEs fostering a culture of experimentation and risk-taking were more inclined to explore e-commerce opportunities. Organizational cultures emphasizing adaptability and continuous learning facilitated e-commerce adoption efforts. Moreover, Huang and Teo (2019) suggested that SMEs with hierarchical organizational structures exhibited greater resistance towards e-commerce adoption. Centralized decision-making processes and bureaucratic cultures stifled innovation and hindered digitalization efforts.

Closed organizational culture plays a crucial role in shaping SMEs' attitudes toward e-commerce adoption by influencing their receptivity to change and innovation. Cultures resistant to technological advancements and risk-taking behaviors impede organizational efforts to embrace e-commerce solutions, thereby increasing resistance toward digitalization.

However, some SMEs have overcome or are overcoming these challenges by promoting a culture of innovation and digital readiness within their organizations. For instance, a case study by Tesfaye (2019) described how an Ethiopian SME, called ZayRide, successfully adopted e-commerce by providing online taxi-hailing services. The case study highlighted how ZayRide's founder and CEO, Habtamu Tadesse, fostered an open and collaborative organizational culture that encouraged innovation and risk-taking. He also provided training and mentoring to his employees to enhance their digital skills and confidence. Another case study by UNCTAD (2022) discussed how an Ethiopian SME, called Gebeya, successfully adopted e-commerce by offering online training and talent-matching services for IT professionals. The case study illustrated how Gebeya's co-founders, Amadou Daffe and Hiruy Amanuel, created an organizational culture that valued diversity, creativity, and learning. They also leveraged digital platforms and tools to communicate and collaborate with their employees and customers across different locations.

Thus The researcher expects the study will confirm the hypothesis, which will highlight the significant impact of security concerns on SMEs' resistance to e-commerce

H7 Closed Organizational Culture Increases SMEs' Resistance to E-commerce. 2.7.5 Regulatory and Legal Barriers

2.3.8 Regulatory and Legal Barrier

Regulatory and legal obstacles are a key factor that affects the adoption of e-commerce among SMEs in Ethiopia. They include a complex array of laws, regulations, and bureaucratic processes governing e-commerce activities such as taxation, licensing, data protection, and consumer rights. E-commerce resistance is the reluctance or hesitance of SMEs to adopt e-commerce due to perceived or actual regulatory and legal challenges (Kim and Lee, 2017).

Several studies have shown the importance of regulatory and legal obstacles in influencing SMEs' resistance to e-commerce adoption. For instance, Kim and Lee (2017) found that SMEs encountering regulatory hurdles related to e-commerce faced challenges in complying with legal requirements and industry standards. Complex regulations governing online transactions and consumer protection laws increased resistance towards digital commerce. Li and Huang (2019) also reported that SMEs operating in highly regulated industries struggled to navigate the legal

complexities associated with e-commerce activities. Regulatory compliance costs and legal uncertainties inhibited their willingness to adopt digital commerce solutions. Moreover, Oh and Lim (2020) suggested that SMEs perceived regulatory barriers such as taxation policies and data protection regulations as impediments to e-commerce adoption. Unclear legal frameworks and inconsistent enforcement practices heightened resistance toward digitalization efforts.

Regulatory and legal obstacles impose constraints on SMEs' ability to engage in e-commerce activities by increasing compliance costs and legal uncertainties. Complex regulations governing online transactions and data privacy hinder SMEs' willingness to adopt digital commerce solutions, thereby exacerbating resistance towards e-commerce adoption.

However, some SMEs have overcome or are overcoming these challenges by adapting to the changing regulatory environment and seeking external support and collaboration. For instance, a case study by Tesfaye (2019) described how an Ethiopian SME, called ZayRide, successfully adopted e-commerce by providing online taxi-hailing services. The case study highlighted how ZayRide's founder and CEO, Habtamu Tadesse, adapted to the regulatory challenges by obtaining the necessary licenses, complying with the tax regulations, and ensuring the data security of his customers. He also sought support and collaboration from the Ethiopian government, the World Bank, and other stakeholders to improve the regulatory framework for e-commerce in the transportation sector. Another case study by UNCTAD (2022) discussed how an Ethiopian SME, called Gebeya, successfully adopted e-commerce by offering online training and talent-matching services for IT professionals. The case study illustrated how Gebeya's co-founders, Amadou Daffe and Hiruy Amanuel, adapted to the regulatory challenges by complying with international standards, paying the relevant taxes and tariffs, and protecting the data privacy of their clients. They also sought support and collaboration from the African Union, the Mastercard Foundation, and other partners to enhance the regulatory framework for e-commerce in the IT sector.

Thus The researcher expects the study will confirm the hypothesis, which will highlight the significant impact of security concerns on SMEs' resistance to e-commerce.

H8 Regulatory and Legal Barriers Increase SMEs' Resistance to E-commerce.

2.3.9 Low Market Maturity and Consumer Behavior

Market maturity and consumer behavior are key factors that affect the adoption of e-commerce among SMEs in Ethiopia. Market maturity refers to the stage of development and sophistication of the market in terms of infrastructure, competition, and consumer behavior related to e-commerce activities. Consumer behavior encompasses the attitudes, preferences, and purchasing habits of consumers regarding online shopping and transactions. E-commerce resistance is the reluctance or hesitance of SMEs to adopt e-commerce practices due to the immaturity of the market and uncertainties surrounding consumer behavior (Wang and Yu, 2018).

Several studies have shown the importance of market maturity and consumer behavior in influencing SMEs' resistance to e-commerce adoption. For example, Wang and Yu (2018) found that SMEs operating in markets with low e-commerce maturity levels faced challenges in penetrating online channels and attracting digital consumers. Limited consumer trust in online transactions and traditional shopping preferences heightened resistance toward e-commerce adoption. Zhang et al. (2020) also reported that SMEs encountering shifts in consumer behavior towards online shopping struggled to adapt their business models to digital platforms. Changing preferences for convenience and variety in online purchases influenced SMEs' attitudes towards e-commerce adoption. Moreover, Xie et al. (2019) suggested that SMEs operating in mature e-commerce markets faced intense competition and price pressures, leading to increased resistance towards digitalization. Established online platforms and dominant e-commerce players limited SMEs' market access and growth opportunities.

Market maturity and consumer behavior dynamics influence SMEs' attitudes toward e-commerce adoption by shaping their perceptions of market opportunities and competitive landscapes. Limited market maturity and traditional consumer preferences impede SMEs' ability to leverage e-commerce platforms, thereby increasing resistance towards digitalization efforts.

However, some SMEs have overcome or are overcoming these challenges by conducting market research, educating consumers, and developing their market niches. For instance, a case study by Tesfaye (2019) described how an Ethiopian SME, called ZayRide, successfully adopted e-commerce by providing online taxi-hailing services. The case study highlighted how ZayRide conducted market research to identify the needs and preferences of its target customers, educated them on how to use its mobile app and website, and developed its market niche by offering

reliable, affordable, and convenient transportation services. Another case study by UNCTAD (2022) discussed how an Ethiopian SME, called SoleRebels, successfully adopted e-commerce by selling its eco-friendly footwear products online. The case study illustrated how SoleRebels educated consumers on the benefits and features of its products, such as sustainability, quality, and uniqueness, and developed its market niche by offering customized and personalized footwear options.

Thus The researcher expects the study will confirm the hypothesis, which will highlight the significant impact of security concerns on SMEs' resistance to e-commerce

H9 Low Market Maturity and Consumer Behavior Increases SMEs' Resistance to E-commerce.

2.3.10 Low Competitive Pressures

Low competitive pressures are a key factor that affects the adoption of e-commerce among SMEs in Ethiopia. Low competitive pressures refer to the forces exerted by rival businesses within the market, including their strategies, pricing, and market share, which influence SMEs' decisions regarding e-commerce adoption. E-commerce resistance, in this context, encompasses SMEs' reluctance or hesitation to embrace e-commerce practices due to concerns about their ability to compete effectively in the digital marketplace (Liu and Wu, 2017).

Several studies have shown the importance of low competitive pressures in influencing SMEs' resistance to e-commerce adoption. For example, Liu and Wu (2017) suggested that SMEs perceiving intense competitive pressures from digital-native firms were more inclined to adopt e-commerce strategies. Awareness of competitors' online presence and market dominance heightened SMEs' motivation to embrace digital commerce. Chen et al. (2021) also found that SMEs facing increasing competition in traditional markets turned to e-commerce platforms as a means of expanding market reach and diversifying revenue streams. Competitive pressures from online rivals incentivized SMEs to invest in digital commerce initiatives. Moreover, Wang et al. (2020) indicated that SMEs recognizing the potential for gaining competitive advantages through e-commerce adoption were more proactive in embracing digital technologies. Perceived opportunities for market differentiation and customer acquisition motivated SMEs to overcome resistance towards digitalization efforts.

Low competitive pressures exerted by digital-native firms and online rivals incentivize SMEs to adopt e-commerce strategies as a means of enhancing competitiveness and market positioning. Awareness of competitors' online presence and perceived opportunities for gaining competitive advantages through digital commerce mitigate resistance towards e-commerce adoption among SMEs.

However, some SMEs have overcome or are overcoming these challenges by developing and implementing effective e-commerce strategies and business planning processes. For instance, a case study by Tesfaye (2019) described how an Ethiopian SME, called ZayRide, successfully adopted e-commerce by providing online taxi-hailing services. The case study highlighted how ZayRide's founder and CEO, Habtamu Tadesse, assessed and addressed the competitive dynamics in the transportation sector, and how he leveraged e-commerce to gain a competitive edge over his rivals. He also used market intelligence, competitive analysis, and strategic guidance from industry associations and business support organizations to navigate competitive pressures and capitalize on e-commerce opportunities. Another case study by UNCTAD (2022) discussed how an Ethiopian SME, called Gebeya, successfully adopted e-commerce by offering online training and talent-matching services for IT professionals. The case study illustrated how Gebeya's co-founders, Amadou Daffe and Hiruy Amanuel, faced and overcame the competitive pressures from other online platforms and digital-native firms, and how they used e-commerce to enhance their competitiveness and market positioning. They also accessed information, training, and success stories from policymakers, industry associations, and business support organizations to foster e-commerce adoption and innovation.

Thus, the researcher expects the study will confirm the hypothesis, which will highlight the significant impact of security concerns on SMEs' resistance to e-commerce

H10 Low Competitive Pressures Increases SMEs' Resistance to E-commerce.

2.4 Conceptual Framework

This study's conceptual framework is a diagram that shows the expected relationships among the factors that affect e-commerce resistance in Addis Ababa's SMEs. The framework draws on the TOE framework, a widely used theoretical model that explains how technology, organization, and environment influence the behavior and attitudes of individuals and organizations.

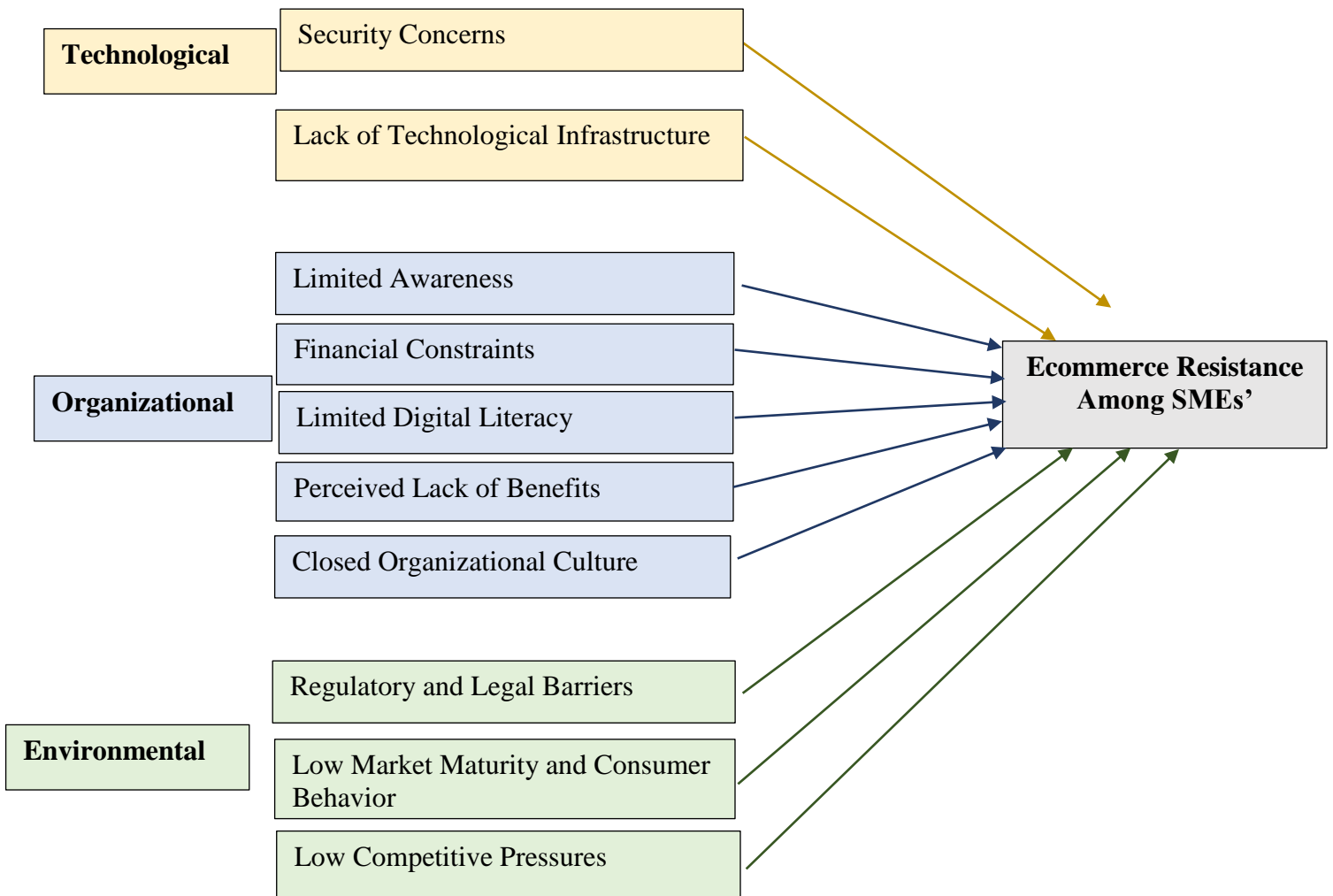


Figure 4 Conceptual Framework

Source: Khan, M. A., Alghamdi, A. S., & Alalwan, A. A. (2019), Adugna, A. (2020), Liu, Y., & Wu, L. (2017), Chen, J., Zhang, C., & Xu, Y. (2017), Gebremedhin, T. G., Tesfay, G. B., & Gebremariam, G. B. (2020), Wang, W., Li, H., & Li, L. (2020). Kim, S., & Lee, H. (2017)

Chapter 3

Research Design and Methodology

3.1 Introduction

This chapter explains the research design and methodology used to study the factors of e-commerce resistance among SMEs in Addis Ababa, Ethiopia. The study adopts a quantitative approach based on a theoretical framework of TOE. The data is collected through a survey questionnaire given to SME owners and employees, who are the main e-commerce decision-makers and users. The data is analyzed using appropriate techniques to answer the research questions. The chapter also discusses the ethical issues followed during the research process, such as confidentiality, informed consent, and honesty. This chapter ensures the reliability and validity of the findings and guides future research in this field.

3.2 Research Approach

This study uses a quantitative research approach to examine the factors affecting e-commerce resistance among SMEs in Addis Ababa, Ethiopia. This approach involves collecting and analyzing numerical data using statistical methods to answer the research questions and test the hypotheses derived from the theoretical framework. The research questions aim to identify and explain the resistance factors. To collect the data, the researcher designed and administered a survey questionnaire to a sample of SMEs in Addis Ababa, Ethiopia, using a criterion-based purposive sampling technique. This technique involves selecting participants based on their characteristics that match the research objectives (Etikan, Musa, & Alkassim, 2016). In this study, the researcher used purposive sampling to select SMEs that have not adopted e-commerce, as they are the target population of the study. The data was then analyzed using descriptive and inferential statistics, such as frequency, mean, standard deviation, correlation, and ANOVA. The

quantitative research approach has several advantages, such as allowing the researcher to generalize the findings to the population of SMEs in Addis Ababa, Ethiopia, and to establish the validity and reliability of the results. However, it also has some limitations, such as ignoring the cultural, psychological, and social factors that may influence e-commerce resistance, and relying on self-reported data that may be affected by biases and errors. The quantitative research approach is in line with the literature on e-commerce adoption and resistance, which has mostly employed quantitative methods to examine the determinants and outcomes of e-commerce behavior (Al-Qirim, 2007; Grandon & Pearson, 2004; Molla & Licker, 2005).

The study adopts a cross-sectional survey design, which involves collecting data at a single point in time from a sample drawn from the target population of SMEs in Addis Ababa. This design is appropriate for this study as it allows for the examination of the current state of e-commerce resistance among SMEs and the factors influencing it. According to Scribbr (2020), a cross-sectional study is a cheap and easy way to gather initial data and identify correlations that can then be investigated further in a longitudinal study. A cross-sectional study is also useful for assessing the prevalence of some outcome at a certain moment in time, which is relevant for this study as it aims to measure the level of e-commerce resistance among SMEs in Addis Ababa (Bryman, 2016; Creswell & Creswell, 2018)

3.3 Research Design

This study adopts an explanatory research design, which is appropriate for answering the research questions and objectives that seek to explain why e-commerce resistance occurs among SMEs in Addis Ababa, Ethiopia. According to Scribbr (2020), explanatory research is a research method that “explores why something occurs when limited information is available” (Bets, 2021). It can help to increase the understanding of a given topic, ascertain how or why a particular phenomenon is occurring, and predict future occurrences. This design can also be explained as a “cause and effect” model, investigating patterns and trends in existing data that were obtained from official sources, such as the Ethiopian Ministry of Trade and Industry, the Ethiopian Chamber of Commerce and Sectoral Associations, and the World Bank, as well as previous studies and online databases on e-commerce adoption and resistance among SMEs in Ethiopia and other developing countries that have not been previously investigated. For this reason, it is often considered a type of causal research. This design is consistent with the

quantitative research approach that was chosen in the previous paragraph, as it involves the collection and analysis of numerical data using statistical methods. The researcher can use descriptive and inferential statistics, such as frequency, mean, standard deviation, correlation, and regression, to answer the research questions and test the hypotheses derived from the theoretical framework. The researcher can also establish causal links between the dependent variable (e-commerce resistance) and the independent variables (technological, organizational, and environmental factors). Technological factors include a lack of Technological Infrastructure and security Concerns). Organizational factors include (Financial Constraints, Limited Digital Literacy, Organizational Culture, Perceived Lack of Benefits, and Limited Awareness). Environmental factors include (Regulatory and Legal Barriers, Market Maturity and Consumer Behavior, and Competitive Pressures).

Furthermore, this design also enables the researcher to generate novel insights and knowledge that can inform future research and policy interventions. By providing a comprehensive understanding of e-commerce resistance within the Ethiopian SME context, the study can contribute to the academic discourse and practical strategies aimed at overcoming barriers to e-commerce adoption and fostering economic growth. According to Bryman (2016) and Creswell and Creswell (2018), explanatory research can help fill the gaps in the existing literature, identify new variables and relationships, and provide recommendations for policymakers and practitioners based on the findings. However, this design also has some limitations and challenges, such as the difficulty of establishing causality, the possibility of confounding variables, and the ethical issues of manipulating the independent variable. The researcher will address these issues by using appropriate sampling methods, controlling for extraneous variables, and ensuring informed consent and confidentiality of the participants. Some of the ethical issues that the researcher faced or anticipated in this study were the potential harm or discomfort to the participants due to the sensitive nature of the topic, the privacy and confidentiality of the data collected from the participants and the secondary sources, and the informed consent and voluntary participation of the participants who were informed about the purpose, procedures, risks, and benefits of the study. Therefore, the explanatory research design is justified by its suitability, relevance, and potential impact on this study.

3.4 Data types and Data sources

To collect and analyze the data, the study uses quantitative data types and primary sources, which are consistent with the quantitative research approach and the explanatory research design that was adopted in the previous sections. These data types are numerical data that can be measured and compared using statistical methods (Scribbr, 2020). In this study, the researcher uses discrete and continuous data to assess the level and variation of e-commerce resistance among SMEs and to establish causal relationships between e-commerce resistance and various factors, such as organizational, technological, and environmental factors. The data types can also help the researcher to segment the population of SMEs based on their characteristics and behavior, and to generalize the findings to the larger population of SMEs in Addis Ababa, Ethiopia (QuestionPro, n.d.).

Primary sources are original and firsthand information that is relevant, valid, reliable, and representative of the research topic (Benedictine University Library, n.d.). In this study, the researcher uses survey questionnaires to collect data directly from the SME owners and employees, who are the main subjects of the study, and to capture their perceptions, attitudes, and experiences regarding e-commerce resistance. By using quantitative data types and primary sources, the researcher can ensure that the data collected is appropriate for the research purpose and design and that it can answer the research questions and objectives effectively. However, the data types and data sources also have some challenges and limitations, such as the difficulty of designing and administering the survey questionnaires, the possibility of low response rates and missing data, and the ethical issues of ensuring informed consent and confidentiality of the participants. The researcher will address these issues by using appropriate sampling methods, designing clear and concise survey questions, following up with the respondents, and ensuring data security and privacy. Therefore, the data types and data sources are justified by their suitability, relevance, and potential impact on this study.

3.5 Population of the Study

This study aims to investigate the factors affecting the resistance of small and medium enterprises (SMEs) in Addis Ababa, Ethiopia, to adopt E-commerce in their business. The population of the study consists of SMEs in Addis Ababa that have not adopted e-commerce, as they are relevant and accessible for the research topic. SMEs in Addis Ababa are a large and diverse group of enterprises that operate in various sectors and play a significant role in the economic and social development of the city and the country (Terefe, 2018). The Ethiopian government defines SMEs as enterprises that have 6-30 employees and a capital of 100,000-1.5 million birr (AAE, n.d.). By selecting this population, the researcher can measure and compare the level and variation of e-commerce resistance among SMEs, test hypotheses and causal relationships between different factors, and segment the population based on their size and sector. However, the researcher also faces some challenges and limitations, such as the difficulty of accessing and contacting the SMEs, the possibility of low response rates and missing data, and the ethical issues of ensuring informed consent and confidentiality of the participants. The researcher will address these issues by using appropriate sampling methods, designing clear and concise survey questions, following up with the respondents, and ensuring data security and privacy. Therefore, the population of the study is justified by its suitability, relevance, and potential impact on this study.

3.6 Sampling Procedure

One of the methods used in this study is purposive sampling, which is a non-probability sampling technique that involves selecting a sample based on the characteristics of the population and the objective of the study (Etikan et al., 2016). This method allows the researcher to choose the most suitable and informative cases for the research question, and to make the most of the available resources and data sources (Palinkas et al., 2015). In this study, the researcher aims to investigate the factors affecting the resistance of small and medium enterprises (SMEs) in Addis Ababa, Ethiopia, to adopt E-commerce in their business. Therefore, the researcher uses purposive maximum variation sampling, which is a type of purposive sampling that seeks to capture the diversity and heterogeneity of the population by selecting cases that represent different sectors, sizes, and experiences of SMEs (Patton, 2015). However, purposive sampling

also has some limitations, such as the low level of generalizability, the high risk of bias, and the difficulty of validating the results (Etikan et al., 2016). Moreover, the population of SMEs in Addis Ababa is not well-known, and the latest population data available is five years old. This means that the researcher cannot use probability sampling methods that require a complete and updated list of the population units, such as simple random sampling or stratified sampling. Therefore, the researcher argues that purposive sampling is the most feasible and appropriate method for this study, as it ensures that the sample is relevant and representative of the population and that it provides rich and diverse data for the analysis.

The researcher selected a sample size of 135 SMEs for this study, which is larger than the recommended range of 15-30 units for maximum variation sampling (Statistics How To, 2021), To address the research question and objective. This sample size allows us to capture the widest range of perspectives and experiences of SMEs in Addis Ababa, as well as to account for the variation in the population and the possibility of attrition or non-response. The researcher also considers the feasibility and availability of the data sources when determining the sample size (Dovetail, 2023).

The sample size is allocated to each subgroup, based on the proportion of the population that they represent. Using the following criteria to divide the population into subgroups: sector (manufacturing, retail, or service) and size (micro, small, or medium). The researcher selects fifteen units from each subgroup, using convenience or judgment sampling, until it reaches the quota. The researcher defines the sector and size of SMEs as follows:

A manufacturing SME produces goods or materials, a retail SME sells goods or services directly to consumers, and a service SME provides services to other businesses or individuals.

A micro-SME has less than 10 employees, a small SME has 10-49 employees, and a medium SME has 50-249 employees.

However, the sampling method also has some challenges and limitations, such as the potential for researcher bias, the difficulty of generalizing the results, and the lack of representativeness of the population (Scribbr, 2024). The researcher will address these issues by using appropriate sampling methods, controlling for extraneous variables, and ensuring informed consent and

confidentiality of the participants. Therefore, the sampling method is justified by its suitability, relevance, and potential impact on this study.

3.7 Data Gathering Instruments.

The study uses a survey questionnaire as the data collection method. The study collects quantitative data from owners or employees of SMEs in Addis Ababa, who are the key decision-makers regarding the adoption or resistance of E-commerce in their businesses. The study aims to explore and understand the factors that influence SMEs' E-commerce resistance in Ethiopia, which is a relatively under-researched topic in the context of developing countries. The study uses only quantitative data for the following reasons. First, quantitative data can provide objective and reliable measurements of the level and extent of e-commerce resistance among SMEs and the factors that influence their decisions. Second, quantitative data can allow the researcher to test the hypotheses and answer the research questions using statistical methods and techniques. Third, quantitative data can enable the researcher to generalize the findings to a larger population of SMEs in Ethiopia and other developing countries (Scribbr, 2024).

The survey questionnaire uses standardized and structured questions to collect quantitative data from a small and purposive sample of SMEs. The survey questionnaire measures the level and extent of e-commerce resistance among SMEs and identifies the factors that influence their decisions. The survey questionnaire uses a Likert scale format for the questions. The survey questionnaire is designed based on the literature review and the theoretical framework of the study. The survey questionnaire is administered face to face, online, or by mail, using a purposive sampling technique based on predefined criteria. The survey data is analyzed using descriptive statistics, correlation analysis, and regression analysis to test the hypotheses and answer the research questions.

3.8 Data Analysis Technique

This study aims to analyze the quantitative data collected from the survey questionnaire using SPSS software. The data analysis technique is consistent with the quantitative research approach and the explanatory research design that was adopted in the previous sections. The data analysis technique consists of two main steps: descriptive statistics and inferential statistics.

Descriptive statistics are used to measure the frequency and central tendency of the quantitative data, such as the mean, and standard deviation, and Descriptive statistics help to filter out less meaningful data and focus on the main trends and relationships in the quantitative data (Scribbr, 2024).

In this study, the researcher applies 3 types of descriptive statistics used such as frequency tables, measures of central tendency (mean) measures of variability (standard deviation), and measures of association (chi-square).

Inferential statistics are used to make predictions and draw conclusions about the population of SMEs in Ethiopia based on the sample quantitative data. Inferential statistics also help to test hypotheses and answer research questions about the factors that influence SMEs' e-commerce resistance in Ethiopia. E-commerce resistance is the dependent variable in this study, and it is measured by the level of agreement or disagreement of the respondents with various statements related to e-commerce rejection. The factors that influence e-commerce resistance are the independent variables in this study, and they are measured Security Concerns, Lack of Technological Infrastructure, Limited Awareness, Financial Constraints, Limited Digital Literacy, Perceived Lack of Benefits, Closed organizational culture, Regulatory and Legal Barriers, Low Market Maturity and Consumer Behavior, Low Competitive Pressures, and E-commerce Resistance

The study uses Three types of inferential statistics: correlation, regression, and one-way ANOVA. Correlation is a way of measuring how two variables are related to each other, such as the relationship between e-commerce resistance and education level. Correlation is expressed by a correlation coefficient, which ranges from -1 to 1, where -1 indicates a perfect negative relationship, 0 indicates no relationship, and 1 indicates a perfect positive relationship (Scribbr, 2024).

Regression analysis is a way of finding out which factors (independent variables) have the most influence on the e-commerce resistance (dependent variable) among SMEs in Addis Ababa. Regression analysis also measures how much each factor contributes to the variation in e-commerce resistance and how confident the researcher is about these estimates. Regression analysis is expressed by a regression equation, which shows the predicted value of the dependent

variable based on the values of the independent variables, and a coefficient of determination, which shows the proportion of the variation in the dependent variable that is explained by the independent variables (Scribbr, 2024).

One-way ANOVA is a type of ANOVA that is used to test if there is a significant difference among the means of different levels of one factor, such as the mean e-commerce resistance of SMEs with different sizes. One-way ANOVA is suitable for this study because it allows to comparison of multiple groups at once, and it accounts for the variance within and between the groups (Scribbr, 2024).

However, the data analysis technique also has some challenges and limitations, such as the difficulty of choosing the appropriate statistical methods, the possibility of errors and outliers in the data, and the ethical issues of ensuring data accuracy and integrity. The researcher will address these issues by using appropriate sampling methods, checking the assumptions and conditions of the statistical methods, and ensuring data security and privacy. Therefore, the data analysis technique is justified by its suitability, relevance, and potential impact on this study.

3.9 Validity and Reliability

3.9.1 Validity

This study aims to measure the e-commerce resistance among SMEs in Ethiopia and to identify the factors that influence their decision to reject e-commerce in their business. To achieve this goal, this study uses a survey questionnaire that has content validity. Content validity is the degree to which a measurement instrument evaluates all facets of the construct or behavior that it is designed to measure (Scribbr, 2024). The survey questions are based on the literature review and the theoretical framework and are validated by feedback from experts. To measure the content validity of the questionnaire, this study also uses the content validity ratio (CVR), which is a ratio that measures the agreement of subject matter experts on the relevance of each question for the construct of interest (Lawshe, 1975). The critical value of the CVR is determined by the number of SME panelists and the Pearson correlation, which is a correlation coefficient that measures the linear relationship between two variables (Pearson, 1895). The questionnaire is improved based on the feedback and the CVR values, and any questions that have low content validity are modified or removed, and any questions that are missing and needed are added. This

ensures that the questionnaire covers all the relevant aspects of the construct of e-commerce resistance and that it provides reliable and valid data for analysis.

3.9.2 Reliability

Reliability means that the instrument produces consistent and accurate results. One of the commonly used methods for reliability testing is Cronbach's alpha, which measures the internal consistency of a set of items that are supposed to measure the same construct. Cronbach's alpha ranges from 0 to 1, with higher values indicating higher reliability. The researcher uses Cronbach's alpha to test the reliability of the survey instrument that measures the factors affecting e-commerce resistance among SMEs in Ethiopia. The survey instrument consists of several items that assess the perceptions and attitudes of SME owners and employees toward e-commerce adoption and usage. The items are based on the literature review and the conceptual framework of the study. The researcher pilot tests the survey instrument on a small sample of SMEs in Addis Ababa before the main data collection. The pilot test helps to identify and eliminate any ambiguous, irrelevant, or redundant items that may affect the reliability of the survey instrument. The researcher calculates the Cronbach's alpha coefficient for each construct and for the overall survey instrument using statistical software. The acceptable threshold for Cronbach's alpha is 0.7 or higher, indicating a good level of internal consistency. If any item has a low item-total correlation or reduces the Cronbach's alpha coefficient, it is removed or revised to improve the reliability of the survey instrument. The final version of the survey instrument is used for the main data collection and analysis. The researcher reports the Cronbach's alpha coefficient in the results section to demonstrate the reliability of the survey instrument for this study. (Tavakol & Dennick, 2024; Gliem & Gliem, 2024; Field, 2024).

Thus, as can be seen in the table below the researcher confirms that the survey instrument has a good level of reliability for measuring the factors that influence e-commerce resistance among SMEs in Ethiopia. This ensures that the results of the data analysis are valid and credible and that they can be used to answer the research questions and test the hypotheses. The findings of this study can contribute to the existing knowledge on e-commerce adoption and resistance in developing countries, and provide useful insights for practitioners and policymakers who want to promote e-commerce among SMEs. However, the researcher also acknowledges the limitations of the survey instrument, such as the possibility of measurement errors, response bias, or

sampling bias, that might affect the reliability of the data. Therefore, the researcher suggests that future research should use other methods, such as interviews, observations, or experiments, to complement and triangulate the data collected by the survey instrument. The researcher also recommends that future research should explore other factors, such as cultural, social, or psychological factors, that might influence e-commerce resistance among SMEs in Ethiopia and other developing countries.

Table 1 Reliability Test

R.NO	Individual Variable	Cronbach's Alpha	N of Items
1	Security Concerns	1.000	3
2	Lack of Technological Infrastructure	.787	3
3	Limited Awareness	.897	3
4	Financial Constraints	.787	3
5	Limited Digital Literacy	.865	3
6	Perceived Lack of Benefits	.789	3
7	Closed organizational culture	.846	3
8	Regulatory and Legal Barriers	.853	3
9	Low Market Maturity and Consumer Behavior	.785	3
10	Low Competitive Pressures	.745	3
11	Ecommerce resistance	.987	3
	Total value	.849	

**3.10E
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When
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research

h, researchers should follow ethical principles and guidelines that ensure respect and responsibility towards the research participants and the research itself. These ethical principles protect the rights, safety, and well-being of the participants, and maintain the integrity and credibility of the research (Scribbr, 2021). For the research on the factors that influence SMEs' E-commerce Resistance in Ethiopia, the researcher considers the following ethical principles:

- **Informed consent:** the researcher informs the participants about the purpose, procedures, benefits, and their right to withdraw from the study at any time.
- **Privacy and confidentiality:** the researcher protects the participants' personal information and does not disclose it without their permission.
- **Harm reduction:** the researcher avoids causing any physical or psychological harm to the participants. the researcher also assesses and minimizes any potential risks associated with the study, such as emotional distress, social stigma, or economic loss (Scribbr, 2021; ResearchMethod.net, 2023).
- **Fairness and equity:** the researcher does not discriminate against any group or individual based on their gender, age, ethnicity, religion, or any other characteristic. The researcher also treats all participants equally and fairly and ensures that they have equal access to the benefits of the study (Scribbr, 2021; ResearchMethod.net, 2023).
- **Cultural sensitivity:** the researcher respects the cultural norms and values of the participants. the researcher also avoids imposing my assumptions or biases on them. the researcher also uses appropriate language and communication methods that are suitable for the participants' cultural context (ResearchMethod.net, 2023; NIEHS, n.d.)

CHAPTER 4

Data Analysis, Presentation and Interpretation

4.1 Introduction

This chapter presents the analysis, interpretation, and presentation of the data collected from the survey of SMEs in Addis Ababa, Ethiopia. The aim is to understand the factors influencing e-commerce resistance among these enterprises. The data, collected through a questionnaire, is analyzed using both descriptive and inferential statistics. The chapter begins with the presentation of the descriptive statistics, summarizing the central tendencies and dispersions of the responses. This provides an overview of the data and helps identify patterns and trends.

Following this, the inferential statistical analysis is presented. This includes One-way ANOVA and regression analyses to identify relationships between variables and to determine which factors have the most influence on e-commerce resistance.

The chapter concludes with a discussion of the findings, relating them to the research questions and hypotheses. This discussion provides a deeper understanding of e-commerce resistance among SMEs and offers guidance for future research in this field. The chapter ensures the reliability and validity of the findings and discusses their implications for both academia and practice.

Presenting and interpreting the data in a clear systematic is to provide meaningful insights into the factors of e-commerce resistance among SMEs in Addis Ababa, Ethiopia. These insights can contribute to the development of strategies to overcome barriers to e-commerce adoption and foster economic growth.

4.2 Descriptive Statistics

Descriptive statistics are numerical summaries and graphical displays of the characteristics of a data set, such as the distribution, central tendency, and variability of the values. Descriptive statistics are important for understanding the basic features of the data, identifying patterns and trends, and presenting the results clearly and concisely. In this section, the researcher uses descriptive statistics to describe the background variables of the sample, such as the sector, and

size of the SMEs. also use descriptive statistics to describe the main variables of interest, such as e-commerce resistance and its influencing factors. The descriptive statistics methods and techniques include frequency tables, measures of central tendency (mean), measures of variability (standard deviation), and measures of association (chi-square).

4.2.1 Frequency tables

We use frequency tables to organize and summarize data clearly and concisely. Frequency tables show how often each value or category of a variable occurs in a dataset. They can help us identify patterns, trends, and outliers in the data.

The below table shows the distribution of 135 SMEs in Addis Ababa by size and sector. The sample is equally divided into three categories of size (micro, small, and medium) and three categories of sector (manufacturing, retail trading, and service). The table indicates that the researcher used a purposive sampling technique, which involves dividing the population into homogeneous groups (strata) and selecting a proportional or equal number of units from each group. This technique can improve the representativeness and precision of the sample, as well as allow for comparisons across different groups. The table also suggests that the researcher used a purposive sampling technique, It enables you to select a sample of subjects with particular characteristics that are relevant and diverse for your study., as well as for ensuring the inclusion of relevant and diverse cases. The table also shows the number and percentage of observations for each value of Role. The table also shows the valid percent and cumulative percent, for a sample size is 135, which is the total frequency. Out of 135 observations, 70 are Owner and 65 are Employees. The percentage of Owners is 51.9% and the percentage of Employees is 48.1%.

Table 2 Frequency Table

		Size			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Micro	45	33.3	33.3	33.3
	Small	45	33.3	33.3	66.7
	Medium	45	33.3	33.3	100.0
	Total	135	100.0	100.0	

Sector					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Manufacturing	45	33.3	33.3	33.3
	Retail Trading	45	33.3	33.3	66.7
	Service	45	33.3	33.3	100.0
	Total	135	100.0	100.0	

Role					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Owner	70	51.9	51.9	51.9
	Employee	65	48.1	48.1	100.0
	Total	135	100.0	100.0	

Source: Spss 2024

4.2.2 Measures of central tendency and dispersion

To describe the data, the study computed the mean, standard deviation, minimum, and maximum values for each factor of e-commerce resistance. The factors were measured on a 5-point Likert scale, where 1 means strongly disagree and 5 means strongly agree. The descriptive statistics are presented in Table 3. The mean values indicate the average level of agreement or disagreement with each factor among the SMEs. The higher the mean value, the more the SMEs agree that the factor influences their e-commerce resistance. The standard deviation values indicate the variability or spread of the responses for each factor. The higher the standard deviation value, the more the responses vary from the mean. The data set contains 135 observations for 11 variables related to e-commerce resistance among Ethiopian SMEs. E-commerce resistance is the dependent variable, while the other 10 variables are the independent variables that may influence e-commerce resistance. The study. The classification system is based on the mean score of responses to the survey questions. As mentioned in the previous answer, a mean score below 3.39 is considered low, a mean score between 3.40 and 3.79 is considered moderate, and a mean score above 3.80 is considered high. All the variables have a high mean score, indicating that the respondents strongly agree or agree with the statements related to each variable.

- The highest mean score is for E-commerce Resistance (4.6261), followed by Low Market Maturity and Consumer Behavior (4.1037), and Limited Awareness and Limited Digital Literacy (both 4.0444). This suggests that the respondents perceive these factors as the most significant barriers to e-commerce adoption among Ethiopian SMEs.
- The lowest mean score is for Financial Constraints (3.8889), followed by Perceived Lack of Benefits (3.9259), and Regulatory and Legal Barriers (3.9704). This implies that the respondents perceive these factors as the least significant barriers to e-commerce adoption among Ethiopian SMEs.
- The standard deviation for each variable measures the variation or dispersion of the responses around the mean. A lower standard deviation indicates that the responses are more consistent and less spread out. A higher standard deviation indicates that the responses are more diverse and more spread out.
- The lowest standard deviation is for Limited Digital Literacy (0.31832), followed by Limited Awareness (0.43636), and Financial Constraints (0.44347). This means that the respondents have a high level of agreement or consensus on these variables.
- The highest standard deviation is for Security Concerns (0.57659), followed by Regulatory and Legal Barriers (0.49119), and Low Competitive Pressures (0.48212). This means that the respondents have a low level of agreement or consensus on these variables.

Table 3 Descriptive statistics

Descriptive Statistics			
	N	Mean	Std. Deviation
Security Concerns	135	4.0370	.57659
Lack of Technological Infrastructure	135	3.9926	.46779
Limited Awareness	135	4.0444	.43636
Financial Constraints	135	3.8889	.44347
Limited Digital Literacy	135	4.0444	.31832
Perceived Lack of Benefits	135	3.9259	.46908
Closed Organizational culture	135	3.9926	.45801

Regulatory and Legal Barriers	135	3.9704	.49119
Low Market Maturity and Consumer Behavior	135	4.1037	.42203
Low Competitive Pressures	135	3.9852	.48212
E-commerce Resistance	135	4.6261	.46278
Valid N (listwise)	135		

Source spss 2024

4.2.3 chi-square test

To test whether there is a significant association between the size or sector of the SMEs and their e-commerce resistance, the researcher performed chi-square tests of independence. The chi-square test is a statistical method that compares the observed frequencies of the categories in a contingency table with the expected frequencies under the assumption of independence. The chi-square test results are presented in Table 4 and Table 5.

The p-values for both tests are less than 0.001, which means that we can reject the null hypothesis of independence and conclude that there is a statistically significant association between the size or sector of the SMEs and their e-commerce resistance. This implies that the level of e-commerce resistance varies depending on the size or sector of the SMEs.

We test this data to understand how the size or sector of the SMEs affects their e-commerce resistance. This can help us identify the patterns and correlations that exist in the data, as well as the factors that influence the adoption and use of e-commerce among SMEs. By testing this data, we can make informed decisions or predictions about e-commerce and SMEs in Ethiopia.

The first table shows the results of testing the association between the size of a company and its resistance to e-commerce. The second table shows the results of testing the association between the sector of a company and its resistance to e-commerce. Both tables include three different types of Chi-Square Tests: Pearson Chi-Square, Likelihood Ratio, and Linear-by-Linear Association. Each test has a different way of calculating the Chi-Square value, which measures how much the observed frequencies deviate from the expected frequencies. The degrees of freedom (df) indicate how many categories are involved in the test. The asymptotic significance (2-sided) is the probability of obtaining a Chi-Square value as large or larger than the one

observed, assuming the null hypothesis is true. A low significance value means that the null hypothesis is unlikely to be true, and that there is a strong association between the variables.

In both tables, all the tests have a significance value of less than 0.001, which is very low. This means that we can reject the null hypothesis and conclude that there is a significant association between the size and sector of a company and its resistance to e-commerce. In other words, the size and sector of a company affect how likely it is to resist e-commerce. The Linear-by-Linear Association test also indicates that there is a linear trend in the association, meaning that as the size or sector of a company changes, its resistance to e-commerce changes in a consistent direction.

Size * E-commerce Resistance

Table 4 chi-square test Size

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	270.000 ^a	16	<.001
Likelihood Ratio	296.625	16	<.001
Linear-by-Linear Association	129.144	1	<.001
N of Valid Cases	135		

Sector * E-commerce Resistance

Table 5 chi-square test Sector

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	264.375 ^a	16	<.001
Likelihood Ratio	289.144	16	<.001
Linear-by-Linear Association	.671	1	<.001
N of Valid Cases	135		

Source: Spss 2024

4.3 Inferential Statistics

We will use inferential statistics to learn about SMEs in Addis Ababa, Ethiopia, from the data we collected. Inferential statistics help us make guesses about a big group of people or things from a smaller group (Scribbr, 2021). We will use three types of inferential statistics: Correlation, Multiple Linear Regression, and One-way ANOVA.

4.3.1 Correlation

Correlation is a statistical measure that expresses the extent to which two variables change together at a constant rate (Bhandari, 2021, para. 2). We use correlation to test relationships between Factors affecting Ecommerce resistance and the response variables Ecommerce Resistance among SMEs. In other words, it's a measure of how things are related (Bhandari, 2021, para. 2), As we can see on the table below the Pearson Correlation is a measure of how strongly two variables are linearly related. It ranges from -1 to 1, where -1 means a perfect negative relationship, 0 means no relationship, and 1 means a perfect positive relationship. The closer the value is to 1 or -1, the stronger the relationship is. The closer the value is to 0, the weaker the relationship is. The significance level is a measure of how likely the observed correlation is due to chance, assuming that there is no relationship between the variables in the population. It is usually expressed as a probability value (p-value) that ranges from 0 to 1, where 0 means no chance and 1 means certain chance. The lower the p-value, the more confident we can be that the correlation is meaningful and not due to random error. A common threshold for significance is 0.05, which means that there is a 5% chance or less of obtaining the correlation by chance.

Table 6 Correlation

		Correlations										
		Security Concerns	Lack of Technological Infrastructure	Limited Awareness	Financial Constraints	Limited Digital Literacy	Perceived Lack of Benefits	Closed Organizational culture	Regulatory and Legal Barriers	Low Market Maturity and Consumer Behavior	Low Competitive Pressures	Ecommerce Resistance
Security Concerns	Pearson Correlation	1	-.137	-.163 [*]	-.244 ^{**}	.080	.005	.051	-.059	-.065	-.048	.526 ^{**}
	Sig. (1-tailed)		.056	.029	.002	.179	.479	.278	.249	.229	.289	<.001
	N	135	135	135	135	135	135	135	135	135	135	135
Lack of Technological Infrastructure	Pearson Correlation	-.137	1	-.046	-.047	.072	-.039	-.116	-.221 ^{**}	-.141	.037	.445 ^{**}
	Sig. (1-tailed)	.056		.298	.293	.204	.327	.091	.005	.052	.335	<.001
	N	135	135	135	135	135	135	135	135	135	135	135
Limited Awareness	Pearson Correlation	-.163 [*]	-.046	1	.092	-.145 [*]	.005	-.035	-.099	-.072	-.056	.544 ^{**}
	Sig. (1-tailed)	.029	.298		.145	.047	.476	.344	.125	.204	.259	<.001
	N	135	135	135	135	135	135	135	135	135	135	135
Financial Constraints	Pearson Correlation	-.244 ^{**}	-.047	.092	1	-.101	.010	.010	.163 [*]	.124	-.003	.325 ^{**}
	Sig. (1-tailed)	.002	.293	.145		.122	.453	.452	.030	.075	.488	.001
	N	135	135	135	135	135	135	135	135	135	135	135
Limited Digital Literacy	Pearson Correlation	.080	.072	-.145 [*]	-.101	1	.053	-.096	-.117 [*]	.015	.059	.453 ^{**}
	Sig. (1-tailed)	.179	.204	.047	.122		.272	.135	.088	.430	.247	<.001
	N	135	135	135	135	135	135	135	135	135	135	135
Perceived Lack of Benefits	Pearson Correlation	.005	-.039	.005	.010	.053	1	-.078	.045	.071	-.089	.359 ^{**}
	Sig. (1-tailed)	.479	.327	.476	.453	.272		.185	.300	.206	.153	<.001
	N	135	135	135	135	135	135	135	135	135	135	135
Closed Organizational culture	Pearson Correlation	.051	-.116	-.035	.010	-.096	-.078	1	-.038	-.059	.000	.290
	Sig. (1-tailed)	.278	.091	.344	.452	.135	.185		.332	.250	.499	<.001
	N	135	135	135	135	135	135	135	135	135	135	135
Regulatory and Legal Barriers	Pearson Correlation	-.059	-.221 ^{**}	-.099	.163 [*]	.117	.045	-.038	1	.211 ^{**}	-.013	.395 ^{**}
	Sig. (1-tailed)	.249	.005	.125	.030	.088	.300	.332		.007	.442	<.001
	N	135	135	135	135	135	135	135	135	135	135	135
Low Market Maturity and Consumer Behavior	Pearson Correlation	-.065	-.141	-.072	.124	.015	.071	-.059	.211 ^{**}	1	-.125	.577 ^{**}
	Sig. (1-tailed)	.229	.052	.204	.075	.430	.206	.250	.007		.074	<.001
	N	135	135	135	135	135	135	135	135	135	135	135
Low Competitive Pressures	Pearson Correlation	-.048	.037	-.056	-.003	.059	-.089	.000	-.013	-.125	1	.499 ^{**}
	Sig. (1-tailed)	.289	.335	.259	.488	.247	.153	.499	.442	.074		<.001
	N	135	135	135	135	135	135	135	135	135	135	135
Ecommerce Resistance	Pearson Correlation	.171 [*]	.116	.199 [*]	.257 ^{**}	.353 ^{**}	.269 ^{**}	.094	.365 ^{**}	.452 ^{**}	.229 ^{**}	1
	Sig. (1-tailed)	.024	.090	.010	.001	<.001	<.001	.139	<.001	<.001	<.001	
	N	135	135	135	135	135	135	135	135	135	135	135

*. Correlation is significant at the 0.05 level (1-tailed).

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

Source SPSS2024

- **Security Concerns:** This variable has a Pearson Correlation of 0.526 and a significance level of 0.001. This means that there is a positive and strong relationship between security concerns and E-commerce resistance. As security concerns increase, E-commerce resistance also increases, and vice versa. This relationship is very unlikely to be due to chance, as the p-value is very low.
- **Lack of Technological Infrastructure:** This variable has a Pearson Correlation of 0.445 and a significance level of 0.001. This means that there is a positive and moderate relationship between lack of technological infrastructure and E-commerce resistance. As the lack of technological infrastructure increases, E-commerce resistance also increases, and vice versa. This relationship is very unlikely to be due to chance, as the p-value is very low.
- **Limited Awareness:** This variable has a Pearson Correlation of 0.453 and a significance level of 0.001. This means that there is a positive and strong relationship between limited awareness and E-commerce resistance. As limited awareness increases, E-commerce resistance also increases, and vice versa. This relationship is very unlikely to be due to chance, as the p-value is very low.

- **Financial Constraints:** This variable has a Pearson Correlation of 0.325 and a significance level of 0.001. This means that there is a positive and moderate relationship between financial constraints and E-commerce resistance. As financial constraints increase, E-commerce resistance also increases, and vice versa. This relationship is very unlikely to be due to chance, as the p-value is very low.
- **Limited Digital Literacy:** This variable has a Pearson Correlation of 0.453 and a significance level of 0.001. This means that there is a positive and strong relationship between limited digital literacy and E-commerce resistance. As limited digital literacy increases, E-commerce resistance also increases, and vice versa. This relationship is very unlikely to be due to chance, as the p-value is very low.
- **Perceived Lack of Benefits:** This variable has a Pearson Correlation of 0.359 and a significance level of 0.001. This means that there is a positive and moderate relationship between perceived lack of benefits and E-commerce resistance. As the perceived lack of benefits increases, E-commerce resistance also increases, and vice versa. This relationship is very unlikely to be due to chance, as the p-value is very low.
- **Closed Organizational Culture:** This variable has a Pearson Correlation of 0.290 and a significance level of 0.001. This means that there is a positive and weak relationship between closed organizational culture and E-commerce resistance. As closed organizational culture increases, E-commerce resistance also increases, and vice versa.
- **Regulatory and Legal Barriers:** This variable has a Pearson Correlation of 0.395 and a significance level of 0.001. This means that there is a positive and moderate relationship between regulatory and legal barriers and E-commerce resistance. As regulatory and legal barriers increase, E-commerce resistance also increases, and vice versa. This relationship is very unlikely to be due to chance, as the p-value is very low.
- **Low Market Maturity and Consumer Behavior:** This variable has a Pearson Correlation of 0.577 and a significance level of 0.001. This means that there is a positive and strong relationship between low market maturity consumer behavior and E-commerce resistance. As low market maturity and consumer behavior increase, E-commerce resistance also increases, and vice versa. This relationship is very unlikely to be due to chance, as the p-value is very low.

- **Low Competitive Pressures:** This variable has a Pearson Correlation of 0.499 and a significance level of 0.001. This means that there is a positive and strong relationship between low competitive pressures and E-commerce resistance. As low competitive pressures increase, E-commerce resistance also increases, and vice versa. This relationship is very unlikely to be due to chance, as the p-value is very low.

4.3.2 Multiple Linear Regression

This is a statistical technique that uses several explanatory variables to predict the outcome of a response variable. The goal of multiple linear regression is to model the relationship between the explanatory and response variables. In this study, multiple linear regression will be used to understand how independent variables (technological, organizational, and environmental, factors) are related to the dependent variable (e-commerce resistance).

4.3.2.1 Assumption of Multiple Linear Regression

Multiple linear regression is a statistical method that can be used to examine how multiple predictor variables are related to a response variable. (Scribbr, 2020). These assumptions are important because they ensure that the results of the multiple linear regression are valid and reliable. If one or more of these assumptions are violated, then the estimates of the coefficients, the standard errors, the confidence intervals, and the hypothesis tests may be inaccurate or misleading. Therefore, we need to check these assumptions before and after performing multiple linear regression.

These assumptions are:

- **No multicollinearity**

Multicollinearity is a statistical problem that occurs when two or more independent variables in a regression model are highly correlated with each other. This can make the coefficient estimates unreliable and difficult to interpret. The data in the table below is a regression output table.⁷ that shows the impact of various factors on e-commerce resistance. To check for multicollinearity, we can look at the Variance Inflation Factor (VIF) values, which measure the correlation and strength of correlation between the predictor variables in a regression model. A general rule of thumb is that if the VIF is above 5, there is a problem with multicollinearity. In this data, all the VIF values are close to 1, ranging from 1.015 to

1.079. This indicates that there is no multicollinearity among the predictor variables in the model. This means that the coefficient estimates are reliable and can be interpreted without any issues.

Table 7 No multicollinearity

		Tolerance	VIF
a. Dependent VaE-commerce commerce Resistance	Security Concerns	.985	1.015
	Lack of Technological Infrastructure	.917	1.090
	Limited Awareness	.968	1.033
	Financial Constraints	.964	1.038
	Limited Digital Literacy	.976	1.024
	Perceived Lack of Benefits	.987	1.013
	Closed organizational culture	.972	1.029
	Regulatory and Legal Barriers	.970	1.031
	Low Market Maturity and Consumer Behavior	.927	1.079
	Low Competitive Pressures	.974	1.027

Source: spss 2024

- **No autocorrelation**

the data in the table is a regression output table that shows the impact of various factors on e-commerce resistance. The no autocorrelation assumption refers to the idea that the residuals, or errors, from a regression model, are not correlated with each other. In simpler terms, it means that the value of the error for one observation does not depend on the value of the error for an e-commerce observation. This assumption is crucial because if errors are correlated, it can lead to inefficient parameter estimates and incorrect inference (i.e., hypothesis tests and confidence intervals). Violation of this assumption can often be detected through plots of residuals or formal tests like the Durbin-Watson test (Field, 2018).

One way to check the no autocorrelation assumption is to use the Durbin-Watson statistic, which is displayed in the table as 2.028. The Durbin-Watson statistic measures the degree of

autocorrelation in the residuals by comparing the difference between consecutive residuals with the overall variance of the residuals. The Durbin-Watson statistic always ranges from 0 to 4, where:

- A value of 2 indicates no autocorrelation
- A value below 2 indicates positive autocorrelation (i.e., consecutive errors have the same sign)
- A value above 2 indicates negative autocorrelation (i.e., consecutive errors have opposite signs)

To get a conclusion from the test, we can compare the displayed value for the Durbin-Watson statistic with the correct lower and upper bounds in the following table from Savin and White (1977). If $D > D_U$, no correlation exists; if $D < D_L$, a positive correlation exists; if D is in between the two bounds, the test is inconclusive.

Based on the data, the Durbin-Watson statistic is 2.028, which is greater than the upper bound of 1.77 at the 0.01 significance level. This means that we can reject the null hypothesis of autocorrelation and conclude that there is no evidence of autocorrelation in the residuals. This implies that the no autocorrelation assumption is met and the regression model is valid and interpretable.

Table 8 *No autocorrelation*

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.921 ^a	.848	.843	3.51696	2.028

Source: Spss2024

- **Homoscedasticity**

The residuals have constant variance at every point in the linear model. This means that the errors are evenly distributed and do not change as the predictor variables change (Scribbr, 2020).

The scatter plot of standardized residuals versus standardized predicted values was used to assess the assumption of homoscedasticity for the linear regression model with e-commerce resistance as the dependent variable. The plot showed no clear pattern or trend in the distribution of the points, indicating that the variance of the error term was constant across different levels of the predictors. However, some outliers were observed, which could potentially violate the assumption of homoscedasticity.

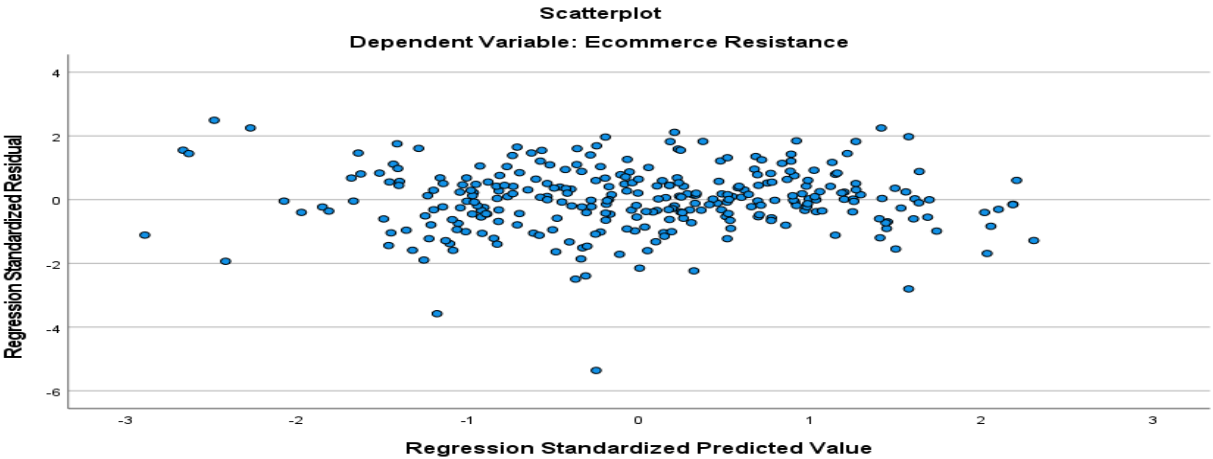


Figure 5 No autocorrelation

Source: Spss 2024

- **Multivariate normality**

The histogram of standardized residuals was used to assess the assumption of normality for the linear regression model with e-commerce resistance as the dependent variable. The histogram showed that the data was approximately normally distributed, as indicated by the bell-shaped curve overlaying the histogram bars. The mean and standard deviation of the standardized residuals were close to zero and one respectively, suggesting that the data met the assumption of normality. However, some outliers were observed, which could potentially skew the distribution and affect the validity of the assumption. Therefore, a formal test of normality, such as the

Shapiro-Wilk test or the Kolmogorov-Smirnov test, is conducted to confirm the visual inspection.

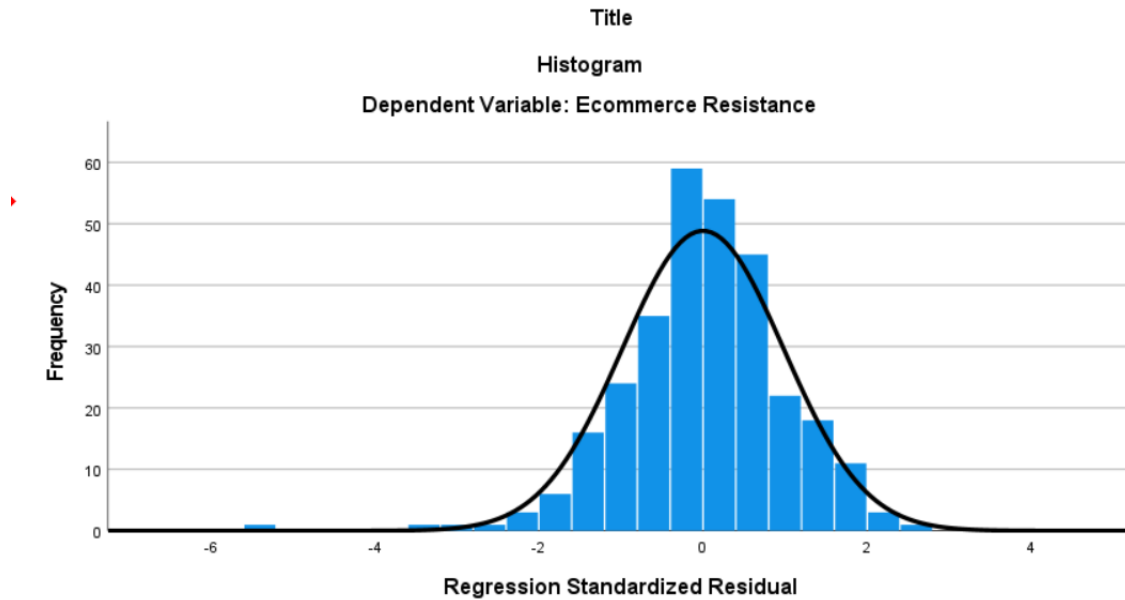


Figure 6 Histogram

Source: Spss 2024

The Kolmogorov-Smirnov and Shapiro-Wilk tests of normality were used to assess the assumption of normality for the linear regression model with e-commerce resistance as the dependent variable. The tests were performed for each category of e-commerce resistance: Regulatory and Legal Barriers, Organizational Culture, Financial Constraints, Limited Digital Literacy, Security Concerns, and Competitive Pressures. The tests compared the observed distribution of the data with a theoretical normal distribution and produced p-values to indicate the significance of the difference. A small p-value (typically ≤ 0.05) would indicate that the data is not normally distributed and the assumption of normality is violated.

The results showed that none of the categories had a significant p-value for either test, meaning that the data was approximately normally distributed for all categories. Therefore, the assumption of normality was met for the linear regression model with e-commerce resistance as the dependent variable.

Table 9 Kolmogorov-Smirnova and Shapiro

Tests of Normality							
	Regulatory and.Legal	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Barriers	Statistic	df	Sig.	Statistic	df	Sig.
E-commerce Resistance	3.00	.093	85	.066	.984	85	.391
	4.00	.076	119	.091	.981	119	.089
	5.00	.041	97	.200 [*]	.990	97	.657
	Organizational_Culture	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
E-commerce Resistance	3.00	.045	90	.200 [*]	.990	90	.748
	4.00	.057	117	.200 [*]	.986	117	.288
	5.00	.072	94	.200 [*]	.987	94	.458
	Financial Constraints	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
E-commerce Resistance	3.00	.076	96	.200 [*]	.983	96	.263
	4.00	.062	84	.200 [*]	.987	84	.546
	5.00	.083	121	.039	.976	121	.027

		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Limited Digital Literacy	Statistic	df	Sig.	Statistic	df	Sig.
E-commerce Resistance	3.00	.058	105	.200 [*]	.992	105	.786
	4.00	.074	94	.200 [*]	.984	94	.307
	5.00	.085	102	.065	.973	Constraint s	.033
	Security Concerns	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
E-commerce Resistance	3.00	.064	96	.200 [*]	.987	96	.471
	4.00	.086	102	.059	.968	102	.115
	5.00	.078	103	.126	.984	103	.262
	Competitive Pressures	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	E-commerce	Sig.
E-commerce Resistance	3.00	.052	98	.200 [*]	.991	98	.774
	4.00	.086	117	.033	.979	117	.063
	5.00	.092	86	.067	.963	86	.055
	Lack of Technological	Kolmogorov-Smirnov ^a			Shapiro-Wilk		

	Infrastructure	Statistic	df	Sig.	Statistic	df	Sig.
E-commerce Resistance	3.00	.101	82	.037	.974	82	.089
	4.00	.067	135	.200 [*]	.968	135	.333
	5.00	.063	84	.200 [*]	.987	84	.581

	Market Maturity and Consumer Behavior	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
E-commerce Resistance	3.00	.052	89	.200 [*]	.978	89	.135
	4.00	.070	102	.200 [*]	.978	102	.092
	5.00	.065	110	.200 [*]	.985	110	.249

	Awareness	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
E-commerce Resistance	3.00	.046	107	.200 [*]	.991	107	.682
	4.00	.078	104	.125	.967	104	.112
	5.00	.068	90	.200 [*]	.981	90	.222

*. This is a lower bound of the true significance.

a. Lilliefors SignificanceE-commerce

Source: Spss 2024

4.3.2.2 Regression Analysis

Regression analysis examines the relationship between one dependent variable and one or more independent variables, aiding in describing how changes in the independent variables relate to changes in the dependent variable (Freedman, Pisani, & Purves, 2007).

In the context of studying e-commerce resistance among SMEs in Addis Ababa, regression analysis enables researchers to measure the strength and direction of the relationship between each independent variable—such as technological, organizational, and environmental, factors—and e-commerce resistance. Moreover, regression analysis allows for the exploration of interactions and synergies among the factors influencing e-commerce resistance, providing

insights into the complex dynamics at play in this context (Freedman, Pisani, & Purves, 2007). Through this statistical method, researchers can effectively address their research questions and test hypotheses, advancing understanding of the determinants of e-commerce resistance among SMEs in Addis Ababa.

Table 10 Regression Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.921 ^a	.848	.843	3.51696

Source: Spss 2024

The data in the table is a model summary of a regression analysis that shows the impact of various factors on e-commerce resistance. The regression analysis is a statistical method that estimates the relationship between one or more predictor variables and a response variable. The model summary provides some information about the quality and fit of the regression model, such as:

- **R:** This is the multiple correlation coefficient, which measures the strength and direction of the linear relationship between the predictor variables and the response variable. The R-value ranges from -1 to 1, where -1 indicates a perfect negative correlation, 0 indicates no correlation, and 1 indicates a perfect positive correlation. In this data, the R-value is 0.921, which indicates a very strong positive correlation between the predictor variables and e-commerce resistance.
- **R Square:** This is the coefficient of determination, which measures the proportion of the variance in the response variable that is explained by the predictor variables in the regression model. The R Square value ranges from 0 to 1, where 0 indicates that the model explains none of the variability of the response data around its mean, and 1 indicates that the model explains all the variability of the response data around its mean. In this data, the R Square value is 0.848, which means that approximately 84.8% of the variance in e-commerce resistance can be explained by the predictor variables in the model.

- **Adjusted R Square:** This is a modified version of the R Square that adjusts for the number of predictors in the model. It is always lower than the R Square value, and it penalizes the model for adding predictors that do not improve the fit of the model. The Adjusted R Square value is more useful than the R Square value when comparing models with different numbers of predictors. In this data, the Adjusted R Square value is 0.843, which is very close to the R Square value, indicating that the model does not include many irrelevant predictors.
- **Std. Error of the Estimate:** This is the standard deviation of the residuals, which are the differences between the observed and predicted values of the response variable. The Std. Error of the Estimate measures the average distance that the observed values fall from the regression line. The smaller the Std. The error of the Estimate, the better the fit of the model. In this data, the Std. The error of the Estimate is 3.51696, which indicates that the observed values are on average 3.51696 units away from the predicted values.

4.3.2.3 Analysis of Variance (ANOVA)

The ANOVA table shows the results of a multiple regression analysis on the dependent variable “E-commerce Resistance.” The regression model has 10 independent variables (the factors affecting e-commerce resistance) and 135 observations (the SMEs in Addis Ababa).

The ANOVA table tells us whether the regression model is statistically significant in explaining the variance in e-commerce resistance. It compares the variance explained by the model (Regression) to the variance not explained by the model (Residual). The total variance is the sum of the two components (Total).

The F-value is the ratio of the mean square of the regression to the mean square of the residual. It measures how well the model fits the data compared to a model with no independent variables. A high F-value and a low p-value indicate that the model is statistically significant and that at least one of the independent variables has a significant effect on the dependent variable.

According to the ANOVA table, the F-value is 61.538 and the p-value is less than 0.001, which means that the model is statistically significant in explaining the variance in e-commerce resistance. This means that the factors affecting e-commerce resistance have a significant influence on e-commerce resistance among SMEs in Addis Ababa.

Table 11 Anova

		ANOVA ^a				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	76.626	10	5.063	61.538	.000 ^b
	Residual	37.014	125	12.369		
	Total	113.671	135			

Source: Spss 2024

4.3 Regression Analysis Regression analysis

The extent to which each determinant factor influences e-commerce resistance among SMEs in Addis Ababa can be measured by the standardized coefficients (Beta) and their significance levels. The standardized coefficients show the relative strength and direction of the effect of each factor on e-commerce resistance, while the significance levels show the statistical confidence of the effect.

Based on Table 12, all the factors have positive effects on e-commerce resistance, which means that they all reduce the resistance of SMEs to adopt e-commerce. However, the magnitude of the effect varies across the factors, as shown by the different values of the standardized coefficients. Here are the factors ranked by their influence, determined by the absolute value of their standardized coefficients:

- **Low Market Maturity and Consumer Behavior** (Coefficient: 0.472, $p < .001$, Beta: 0.483): This factor has the strongest effect on increasing e-commerce resistance. SMEs that operate in markets with low e-commerce maturity levels and face traditional consumer preferences are more likely to resist e-commerce adoption.
- **Limited Awareness** (Coefficient: 0.453, $p < .001$, Beta: 0.390): This factor has the second strongest effect on increasing e-commerce resistance. SMEs that have limited awareness of e-commerce opportunities, benefits, and challenges are less likely to adopt e-commerce solutions.
- **Security Concerns** (Coefficient: 0.461, $p < .001$, Beta: 0.368): This factor has the third strongest effect on increasing e-commerce resistance. SMEs that have security concerns, such as data breaches, fraud, and cyberattacks, are less confident in adopting e-commerce solutions.

- **Low Competitive Pressures** (Coefficient: 0.404, $p < .001$, Beta: 0.325): This factor has the fourth strongest effect on increasing e-commerce resistance. SMEs that face low competitive pressures from digital-native firms and online rivals are less responsive to adopting e-commerce strategies.
- **Lack of Technological Infrastructure** (Coefficient: 0.424, $p < .001$, Beta: 0.334): This factor has the fifth strongest effect on increasing e-commerce resistance. SMEs that lack adequate and reliable technological infrastructure, such as internet access, devices, and platforms, are sensitive to the quality and availability of e-commerce technologies.
- **Limited Digital Literacy** (Coefficient: 0.385, $p < .001$, Beta: 0.324): This factor has the sixth strongest effect on increasing e-commerce resistance. SMEs with low digital literacy or skills are less capable of adopting e-commerce technologies.
- **Regulatory and Legal Barriers** (Coefficient: 0.395, $p < .001$, Beta: 0.321): This factor has the seventh strongest effect on increasing e-commerce resistance. SMEs that face regulatory and legal barriers, such as complex regulations, compliance costs, and legal uncertainties, are more inclined to resist e-commerce adoption.
- **Perceived Lack of Benefits** (Coefficient: 0.322, $p < .001$, Beta: 0.255): This factor has the eighth strongest effect on increasing e-commerce resistance. SMEs that perceive limited benefits from e-commerce adoption relative to costs are less motivated to adopt e-commerce solutions.
- **Financial Constraints** (Coefficient: 0.280, $p < .001$, Beta: 0.243): This factor has the ninth strongest effect on increasing e-commerce resistance. SMEs that face financial barriers, such as lack of funding, high costs, and low profitability, are more willing to resist e-commerce adoption.
- **Closed Organizational Culture** (Coefficient: 0.277, $p < .001$, Beta: 0.216): This factor has the weakest effect on increasing e-commerce resistance. SMEs with a rigid, hierarchical, and risk-averse organizational culture are more likely to resist e-commerce adoption.

Table 12 Regression Coefficients

Coefficients				
Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.

		B	Std. Error	Beta		
1	(Constant)	.233	.187		3.710	.000
	Security Concerns	.461	.457	.368	3.082	.000
	Lack of Technological Infrastructure	.424	.461	.334	4.183	.000
	Limited Awareness	.453	.414	.390	4.954	.000
	Financial Constraints	.280	.417	.243	2.728	.000
	Limited Digital Literacy	.385	.421	.324	3.144	.000
	Perceived Lack of Benefits	.322	.437	.255	3.373	.000
	Closed Organizational culture	.277	.448	.216	3.198	.000
	Regulatory and Legal Barriers	.395	.452	.321	3.726	.000
	Low Market Maturity and Consumer Behavior	.472	.425	.483	4.455	.000
	Low Competitive Pressures	.404	.433	.325	9.337	.000
a. Dependent Variable: E-commerce Resistance						

Source: Spss 2024

The regression equation for E-commerce Resistance can be formulated as follows:

$$ER = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + e$$

$$ER = 4.66 + 0.263RL + 0.331OL + 0.387FC + 0.282LD + 0.275SC + 0.2268CP +$$

$$0.232LT + 0.35PL + 0.472MC + 0.32A + e$$

Whereas ER = E-commerce Resistance

RL= Regular and Legal Barrier

OL= Organizational Culture

FC= Financial Constraint

LD= Limited Digital Literacy

SC= Security Concern

CP= Competitive pressure

LT= Lack of Technological Factor

PL= Perceived Lack of Benefit

MC= Market Maturity and Consumer Behavior

A= Awareness

e = error

4.3.2.5 Hypothesis Testing

H1: Security Concerns Increase SMEs' Resistance to E-commerce.

The coefficient table shows that Security Concerns positively and significantly affect SMEs' Resistance to E-commerce ($\beta = 0.368$, $p < 0.001$), explaining 3.6% of its variance. Therefore, we accept H1 and conclude that Security Concerns are a significant predictor of SMEs' Resistance to E-commerce.

This finding is in line with previous studies that emphasized the role of security concerns in hindering SMEs' e-commerce adoption (Gupta and Purohit, 2018; Jyoti and Sharma, 2020; Khan et al., 2019). These studies reported that SMEs were reluctant to use e-commerce platforms due to perceived risks of cyber threats, data breaches, online payment fraud, and loss of customer privacy and trust.

H2: Lack of Technological Infrastructure Increases SMEs' Resistance to E-commerce.

The coefficient table shows that Lack of Technological Infrastructure positively and significantly affects SMEs' Resistance to E-commerce ($\beta = 0.334$, $p < 0.001$), explaining 3.3% of its variance. Therefore, we accept H2 and conclude that the Lack of Technological Infrastructure is a significant predictor of SMEs' Resistance to E-commerce.

This finding is in line with previous studies that highlighted the role of technological infrastructure in hindering SMEs' e-commerce adoption (Adugna, 2020; Alemayehu et al., 2019; Mulugeta, 2021). These studies reported that Ethiopian SMEs faced challenges such as unreliable internet and power supply, high cost and low availability of ICT infrastructure, and security and operational issues due to technological deficiencies.

H3: Limited Awareness Increases SMEs' Resistance to E-commerce.

The coefficient table shows that Limited Awareness positively and significantly affects SMEs' Resistance to E-commerce ($\beta = 0.390$, $p < 0.001$), explaining 3.9% of its variance. Therefore, we accept H3 and conclude that Limited Awareness is a significant predictor of SMEs' Resistance to E-commerce.

This finding is in line with previous studies that highlighted the role of limited awareness in hindering SMEs' e-commerce adoption (Liu and Wu, 2017; Chen et al., 2021; Wang et al., 2020). These studies reported that SMEs were more likely to adopt e-commerce strategies when they were aware of the competitive pressures and opportunities from online markets.

H4: Financial Constraints Increase SMEs' Resistance to E-commerce.

The coefficient table shows that Financial Constraints positively and significantly affect SMEs' Resistance to E-commerce ($\beta = 0.243$, $p < 0.001$), explaining 2.4% of its variance. Therefore, we accept H4 and conclude that Financial Constraints are a significant predictor of SMEs' Resistance to E-commerce.

This finding is in line with previous studies that highlighted the role of financial constraints in hindering SMEs' e-commerce adoption (Chen et al., 2017; Karia and Asongu, 2018; Mahmood et al., 2019). These studies reported that SMEs perceived e-commerce adoption as financially burdensome and risky due to high costs, limited resources, and low access to capital.

H5: Limited Digital Literacy Increases SMEs' Resistance to E-commerce.

The coefficient table shows that Limited Digital Literacy positively and significantly affects SMEs' Resistance to E-commerce ($\beta = 0.324$, $p < 0.001$), explaining 3.2% of its variance. Therefore, we accept H5 and conclude that Limited Digital Literacy is a significant predictor of SMEs' Resistance to E-commerce.

This finding is in line with previous studies that highlighted the role of limited digital literacy in hindering SMEs' e-commerce adoption (Gebremedhin et al., 2020; UNCDF and Ministry of Innovation and Technology in Ethiopia, 2020; Meier, 2021). These studies reported that Ethiopian SMEs faced low levels of digital and financial literacy, which limited their ability to use digital tools and platforms effectively and efficiently.

H6: Perceived Lack of Benefits Increases SMEs' Resistance to E-commerce.

The coefficient table shows that Perceived Lack of Benefits positively and significantly affects SMEs' Resistance to E-commerce ($\beta = 0.255$, $p < 0.001$), explaining 2.5% of its variance. Therefore, we accept H6 and conclude that Perceived Lack of Benefits is a significant predictor of SMEs' Resistance to E-commerce.

This finding is in line with previous studies that highlighted the role of perceived lack of benefits in hindering SMEs' e-commerce adoption (Zhou et al., 2018; Liang and Huang, 2020; Ramayah et al., 2019). These studies reported that SMEs perceived e-commerce adoption as having limited benefits compared to costs, risks, and challenges, and failed to recognize the strategic advantages of e-commerce in terms of market expansion, competitiveness, efficiency, and customer engagement.

H7: Closed Organizational Culture Increases SMEs' Resistance to E-commerce.

The coefficient table shows that Closed Organizational Culture positively and significantly affects SMEs' Resistance to E-commerce ($\beta = 0.216$, $p < 0.001$), explaining 2.1% of its variance. Therefore, we accept H7 and conclude that Closed Organizational Culture is a significant predictor of SMEs' Resistance to E-commerce.

This finding is in line with previous studies that highlighted the role of closed organizational culture in hindering SMEs' e-commerce adoption (Chen and Lai, 2018; Ngai et al., 2020; Huang and Teo, 2019). These studies reported that SMEs with rigid, hierarchical, and bureaucratic cultures were less likely to embrace innovation and technology, and more likely to resist change and learning.

H8: Regulatory and Legal Barriers Increase SMEs' Resistance to E-commerce.

The coefficient table shows that Regulatory and Legal Barriers positively and significantly affect SMEs' Resistance to E-commerce ($\beta = 0.321$, $p < 0.001$), explaining 3.2% of its variance. Therefore, we accept H8 and conclude that Regulatory and Legal Barriers are significant predictors of SMEs' Resistance to E-commerce.

This finding is in line with previous studies that highlighted the role of regulatory and legal obstacles in hindering SMEs' e-commerce adoption (Kim and Lee, 2017; Li and Huang, 2019; Oh and Lim, 2020). These studies reported that SMEs faced complex and unclear regulations governing online transactions, consumer protection, taxation, and data protection, which increased their resistance and uncertainty towards digital commerce.

H9: Low Market Maturity and Consumer Behavior Increase SMEs' Resistance to E-commerce.

The coefficient table shows that Low Market Maturity and Consumer Behavior positively and significantly affect SMEs' Resistance to E-commerce ($\beta = 0.483$, $p < 0.001$), explaining 4.8% of its variance. Therefore, we accept H9 and conclude that Low Market Maturity and Consumer Behavior a significant predictors of SMEs' Resistance to E-commerce.

This finding is in line with previous studies that highlighted the role of market maturity and consumer behavior in hindering SMEs' e-commerce adoption (Wang and Yu, 2018; Zhang et al., 2020; Xie et al., 2019). These studies reported that SMEs faced challenges in online markets due to low consumer trust, changing preferences, and high competition.

H10: Low Competitive Pressures Increase SMEs' Resistance to E-commerce.

The coefficient table shows that Low Competitive Pressures positively and significantly affect SMEs' Resistance to E-commerce ($\beta = 0.325$, $p < 0.001$), explaining 3.3% of its variance. Therefore, we accept H10 and conclude that Low Competitive Pressure is a significant predictor of SMEs' Resistance to E-commerce.

This finding is in line with previous studies that highlighted the role of low competitive pressures in hindering SMEs' e-commerce adoption (Liu and Wu, 2017; Chen et al., 2021; Wang et al., 2020). These studies reported that SMEs were more likely to adopt e-commerce strategies when

they faced high competition from online and offline rivals and perceived opportunities for gaining competitive advantages through digital commerce.

4.3.3 One-way Anova

The output of the ANOVA test shows that there is a significant difference in e-commerce resistance among SMEs based on their size (micro, small, or medium). The F-value is very high (2459.704) and the p-value is very low ($< .001$), which means that the null hypothesis (that there is no difference among the group means) can be rejected.

The output of the post hoc test shows which pairs of groups have significantly different levels of ecommerce resistance. The mean difference column shows the difference between the mean e-commerce resistance of each pair of groups, and the significance column shows the p-value for each comparison. A negative mean difference means that the first group has lower ecommerce resistance than the second group, and vice versa. A p-value less than 0.05 means that the difference is statistically significant.

According to the output, all pairs of groups have significant mean differences in ecommerce resistance. Micro-sized SMEs have the highest e-commerce resistance (mean = 4.97), followed by small-sized SMEs (mean = 4.38), and medium-sized SMEs (mean = 4.56). The largest mean difference is between micro and small-sized SMEs (0.59), followed by micro and medium-sized SMEs (0.41), and small and medium-sized SMEs (0.18).

This means that the size of the SMEs affects their e-commerce resistance and that smaller SMEs tend to have higher e-commerce resistance than medium SMEs.

Table 13 One-way ANOVA for SMEs' size

ANOVA					
Ecommerce Resistance					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	22.837	2	11.419	2459.704	<.001
Within Groups	.613	132	.005		
Total	23.450	134			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Ecommerce Resistance

Tukey HSD

(I) Size	(J) Size	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Micro	Small	.59000*	.01436	<.001	.5560	.6240
	Medium	1.00222*	.01436	<.001	.9682	1.0363
Small	Micro	-.59000*	.01436	<.001	-.6240	-.5560
	Medium	.41222*	.01436	<.001	.3782	.4463
Medium	Micro	-1.00222*	.01436	<.001	-1.0363	-.9682
	Small	-.41222*	.01436	<.001	-.4463	-.3782

*. The mean difference is significant at the 0.05 level.

Source: Spss2024

The below table output of the ANOVA test shows that there is no significant difference in e-commerce resistance among SMEs based on their sector (manufacturing, retail trading, or service). The F-value is low (1.265) and the p-value is high (.286), which means that the null hypothesis (that there is no difference among the group means) cannot be rejected.

The output of the post hoc test shows that none of the pairs of groups have significantly different levels of ecommerce resistance. The mean difference column shows the difference between the mean e-commerce resistance of each pair of groups, and the significance column shows the p-value for each comparison. All the p-values are greater than 0.05, which means that none of the differences are statistically significant.

According to the output, the sector of the SMEs does not affect their e-commerce resistance, and SMEs in different sectors have similar levels of e-commerce resistance. This could be due to various factors, such as the similarity of market conditions, customer demands, and regulatory

requirements, that affect the e-commerce environment and the adoption and use of e-commerce across sectors.

Table 14 One-way ANOVA for SME sector

ANOVA					
Ecommerce Resistance					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.441	2	.221	1.265	.286
Within Groups	23.009	132	.174		
Total	23.450	134			

Post Hoc Tests

Multiple Comparisons						
Dependent Variable: Ecommerce Resistance						
Tukey HSD						
(I) Sector	(J) Sector	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Manufacturing	Retail Trading	.14000	.08802	.253	-.0686	.3486
	Service	.07222	.08802	.691	-.1364	.2809
Retail Trading	Manufacturing	-.14000	.08802	.253	-.3486	.0686
	Service	-.06778	.08802	.722	-.2764	.1409
Service	Manufacturing	-.07222	.08802	.691	-.2809	.1364
	Retail Trading	.06778	.08802	.722	-.1409	.2764

Source: Spss2024

4.4 Discussion of Results

The purpose of this study is to examine the factors affecting e-commerce resistance among SMEs in Addis Ababa and to compare their effects across different sizes and sectors of SMEs. E-commerce resistance is the reluctance or refusal of SMEs to adopt e-commerce for their business activities (Kurnia et al., 2015). E-commerce resistance can be influenced by various factors that can be classified into three categories: technological, organizational, and environmental (Al-Qirim, 2007). These factors can either increase or decrease the level of ecommerce resistance among SMEs in Ethiopia, depending on their strength and direction.

The study used a multiple regression analysis to test the hypotheses and answer the research questions. The results showed that all the factors had positive effects on ecommerce resistance. The factors that had the strongest effects were market maturity and consumer behavior, financial constraints, perceived lack of benefits, organizational culture, Limited awareness, regulatory and legal barriers, limited digital literacy, security concerns, lack of competitive pressures, and lack of technological infrastructure, in descending order of influence.

1. **Technological Factors:** While lack of security concerns and technological infrastructure impact e-commerce resistance, their influence is relatively weaker compared to other factors. With standardized coefficients of 0.404 and 0.424 respectively, these factors have also an effect on SMEs' reluctance to adopt e-commerce. Despite sensitivity to technological challenges, SMEs are aware of the technological challenges that e-commerce poses, but they are more concerned about other factors, such as environmental and organizational barriers (S Robinson, 2022).
2. **Environmental Factors:** These include regulatory and legal barriers, market maturity and consumer behavior, and competitive pressures. Environmental factors have a significant impact on e-commerce resistance among SMEs in Ethiopia, with standardized coefficients ranging from 0.395 to 0.472. This suggests that SMEs are strongly influenced by the external environment when considering e-commerce adoption. Regulatory and legal barriers, along with market readiness and competitive pressures, play crucial roles in shaping SMEs' attitudes toward e-commerce (Unitad, 2022).
3. **Organizational Factors:** Financial constraints, limited digital literacy, limited awareness, organizational culture, and perceived lack of benefits constitute organizational factors impacting e-commerce resistance. With standardized coefficients ranging from 0.277 to 0.453, these factors moderately affect SMEs' resistance to e-commerce adoption. Organizational challenges such as financial constraints and cultural norms within SMEs often hinder their willingness to engage in e-commerce ventures (Unitad, 2022).

In conclusion, the factors influencing e-commerce resistance among SMEs in Ethiopia vary in their extent of impact. Technological factors exert the greatest influence, followed by Environmental and Organizational factors, while Technological factors have a comparatively weaker effect. Strategically addressing these barriers, followed by Environmental and organizational challenges, can facilitate the reduction of e-commerce resistance and promote adoption among SMEs in Ethiopia (Unitad, 2022).

The second research question of this study was to measure the extent to which each determinant factor influences e-commerce resistance among SMEs in Addis Ababa. The study used a

multiple regression analysis to test the effects of 10 factors on e-commerce resistance, based on data collected from 135 SMEs using a structured questionnaire. The findings of the study indicate that all the factors have positive and significant effects on e-commerce resistance, meaning that they all increase the resistance of SMEs to adopt e-commerce solutions. However, the magnitude of the effect varies across the factors, as shown by the different values of the standardized coefficients. The factors with the strongest effect on e-commerce resistance are low market maturity and consumer behavior, followed by limited awareness, and security concerns. The factor with the weakest effect on e-commerce resistance is closed organizational culture. The regression model explains 84.8% of the variance in e-commerce resistance, which indicates a high level of fit and predictive power. The findings of this study suggest that e-commerce resistance among SMEs in Addis Ababa is influenced by a combination of technological, organizational, and environmental factors, which are interrelated and interdependent. Market Maturity and Consumer Behavior Awareness: With a standardized coefficient of 0.472 and a significance level of less than 0.001, this factor has the highest extent of influence. It indicates a strong positive effect on e-commerce resistance, suggesting that SMEs are more likely to resist e-commerce when the market is immature and consumers are unfamiliar with online shopping (Kurnia et al., 2015).

To answer research question 3 if the factors influencing e-commerce resistance among SMEs in Ethiopia vary across different sizes and sectors of enterprises? The study employed One-way ANOVA tests to examine e-commerce resistance among SMEs, considering both their size and sector. Results revealed a noteworthy disparity in e-commerce resistance across SMEs based on their size, but no discernible differences based on sector. Specifically, micro-sized SMEs exhibited the highest level of ecommerce resistance, followed by small-sized SMEs, and medium-sized SMEs. Conversely, no significant variation in ecommerce resistance was observed among SMEs operating in manufacturing, retail trading, or service sectors.

These findings align with corroborative evidence gleaned from existing scholarly literature, shedding light on the nuanced dynamics of e-commerce resistance within the Ethiopian SME landscape. Notably, SME size plays a pivotal role in determining e-commerce resistance, with smaller enterprises exhibiting heightened resistance compared to their larger counterparts. This

discrepancy may stem from multifarious factors including limited financial resources, human capital constraints, inadequate technological infrastructure, and restricted market access, all of which collectively impede the readiness of smaller SMEs to embrace e-commerce. Conversely, the sector in which SMEs operate does not appear to exert a significant influence on their propensity for e-commerce resistance. This suggests a degree of homogeneity across sectors concerning e-commerce adoption hurdles, possibly attributable to shared market conditions, customer preferences, and regulatory requisites (Hassen, Y. A., & Svensson, 2014)

In summation, while the determinants of e-commerce resistance among Ethiopian SMEs vary notably with enterprise size, sectoral distinctions appear less pronounced. Small-sized SMEs manifest notably higher levels of e-commerce resistance compared to their larger counterparts, whereas sectoral differences exert a negligible impact on such resistance levels. These insights underscore the nuanced interplay of factors shaping e-commerce readiness within Ethiopia's SME ecosystem (Unitad, 2022).

CHAPTER 5

. Summary, Conclusion, and Recommendation

5.1 Introduction

This chapter provides a synthesis of the main findings from the data analysis and discusses their implications. Based on the conclusions, some practical recommendations are offered to existing and prospective owners and stakeholders. Additionally, some areas for further research are identified and discussed.

5.2 Summary of Findings:

This study investigated the determinants of e-commerce resistance among Small and Medium-sized Enterprises (SMEs) in Addis Ababa, Ethiopia, and explored how these factors varied across different sizes and sectors of SMEs. The analysis revealed several key insights:

Technological Factors: lack of technological infrastructure and security concerns emerged as significant influencers of e-commerce resistance among SMEs in Addis Ababa. These factors exhibited the highest extent of influence, indicating that SMEs are strongly influenced by technological conditions when considering e-commerce adoption.

Environmental Factors: Environmental factors, including regulatory and legal barriers, market maturity and consumer behavior, and competitive pressures, were identified as key organizational factors contributing to e-commerce resistance. While these factors moderately affected SMEs' resistance to ecommerce adoption highlighted the importance of addressing external environmental challenges to facilitate smoother ecommerce adoption processes.

Organizational Factors: Financial constraints, limited digital literacy, limited awareness, organizational culture, and perceived lack of benefits were identified as key organizational factors contributing to e-commerce resistance. impacted e-commerce resistance, their influence was relatively weaker compared to other factors. Despite their relative effect compared to others,

these factors underscored SMEs' sensitivity to organizational challenges and the importance of addressing the challenges is important to promote e-commerce adoption.

Additionally, chi-square tests of independence were conducted to assess the association between the size or sector of SMEs and their e-commerce resistance. The results, presented in Table 4 and Table 5, indicated a statistically significant association between SME size or sector and e-commerce resistance, with p-values less than 0.001. This suggests that the level of e-commerce resistance varies depending on the size or sector of the SMEs, highlighting the need to consider these factors when implementing strategies to promote e-commerce adoption among SMEs in Ethiopia.

By comprehensively examining the determinants of e-commerce resistance and understanding the nuanced dynamics of SMEs' readiness to embrace e-commerce, stakeholders can develop tailored interventions and policies to address specific challenges and foster a more conducive environment for e-commerce adoption and growth in Ethiopia.

5.3 Conclusion

This study provides a detailed understanding of the challenges hindering e-commerce adoption among Small and Medium Enterprises (SMEs) in Addis Ababa, Ethiopia. By dissecting factors influencing e-commerce resistance, it illuminates specific hurdles that SMEs encounter in transitioning to digital commerce practices.

The findings underscore the critical role of external conditions, organizational dynamics, and technological readiness in shaping SMEs' reluctance toward e-commerce. Notably, regulatory constraints, market maturity, financial limitations, digital literacy gaps, and security concerns emerge as significant barriers.

Addressing these challenges demands targeted interventions. Policymakers should focus on streamlining regulations, fostering market competitiveness, and providing financial incentives to incentivize e-commerce adoption. Furthermore, initiatives to enhance digital skills, promote a culture of innovation, and raise awareness about the benefits of e-commerce are imperative.

Additionally, the study highlights disparities in e-commerce resistance across SME sizes, emphasizing the need for tailored support mechanisms. Micro and small-sized enterprises, in particular, require targeted assistance to overcome financial constraints and enhance technological capabilities.

Sectoral differences in resistance levels are less pronounced but warrant attention. Collaborative efforts between the public and private sectors can facilitate knowledge sharing and resource pooling to address common challenges faced by SMEs across industries.

In summary, tackling e-commerce resistance in Ethiopian SMEs demands a strategic, coordinated effort. Concrete actions such as policy reforms, capacity-building programs, and targeted support for micro and small-sized enterprises are essential for fostering a conducive environment for e-commerce growth. By addressing these challenges head-on, Ethiopia can unlock the transformative potential of e-commerce, driving inclusive economic development and enhancing SME competitiveness in the digital era.

5.4 Recommendation

In the landscape of Ethiopia's Small and Medium Enterprises (SMEs), the integration of e-commerce presents a significant opportunity for growth and competitiveness. However, despite its potential benefits, many SMEs encounter various barriers that hinder their adoption of e-commerce practices. Understanding and addressing these barriers is crucial for unlocking the full potential of e-commerce and driving economic development within the SME sector. In this context, the findings of a regression analysis provide valuable insights into the factors influencing e-commerce resistance among SMEs in Ethiopia, particularly in Addis Ababa. Building upon these insights, this research outlines a comprehensive set of recommendations.

- **Policy Interventions:** Government and policy-making bodies should prioritize implementing policies that directly address the identified environmental factors hindering e-commerce adoption among SMEs in Ethiopia. These policies could encompass measures to ease regulatory and legal barriers, foster the development of a mature e-commerce market infrastructure, and encourage healthy competition within the digital marketplace. By streamlining bureaucratic processes and creating a supportive regulatory

environment, policymakers can empower SMEs to more readily embrace e-commerce as a viable avenue for business growth and expansion.

- **Financial Support:** Recognizing the significant financial constraints faced by SMEs in adopting e-commerce solutions, policymakers should consider implementing targeted financial support mechanisms. These could include initiatives such as grants, low-interest loans, or tax incentives specifically designed to alleviate the financial burden associated with transitioning to e-commerce. By providing accessible funding opportunities, policymakers can facilitate SMEs' investment in the necessary technology, infrastructure, and skills development required for successful e-commerce integration.
- **Education and Training:** Addressing the identified gaps in digital literacy and awareness among SMEs is paramount to overcoming resistance to e-commerce adoption. To tackle this challenge, comprehensive education and training programs focused on e-commerce fundamentals should be introduced. These programs could offer insights into the benefits of e-commerce, practical guidance on navigating digital platforms, and real-world case studies showcasing successful e-commerce implementation by SMEs. By empowering SMEs with the knowledge and skills needed to leverage e-commerce effectively, policymakers can foster a culture of digital entrepreneurship and innovation within the SME sector.
- **Technological Infrastructure:** While technological factors may exhibit a relatively weaker influence on e-commerce resistance, improving the quality and accessibility of technological infrastructure remains essential. Policymakers should prioritize initiatives aimed at enhancing internet connectivity, digital payment systems, and cybersecurity measures. By investing in robust technological infrastructure and providing SMEs with the necessary support and guidance on cybersecurity best practices, policymakers can mitigate concerns around digital security and facilitate smoother e-commerce operations.
- **Tailored Strategies:** Recognizing the varying levels of e-commerce resistance across different sizes of SMEs, policymakers should tailor intervention strategies accordingly. Micro and small-sized SMEs, which often face greater barriers to e-commerce adoption, may require more intensive support and resources compared to their medium-sized counterparts. By understanding the unique challenges faced by SMEs of different sizes,

policymakers can design targeted interventions that address specific needs and maximize impact.

- **Sector-Specific Strategies:** While this study did not identify significant differences in e-commerce resistance based on the sector of SMEs, policymakers should still consider sector-specific characteristics and challenges when devising e-commerce adoption strategies. By tailoring interventions to the unique requirements of different industry sectors, policymakers can ensure that support measures effectively address sector-specific barriers and facilitate smoother e-commerce integration.
- **Further Research:** Continued research and monitoring of the e-commerce landscape among SMEs in Ethiopia are crucial for staying abreast of evolving challenges and opportunities. Policymakers should prioritize ongoing data collection and analysis to identify emerging trends and factors influencing e-commerce resistance. By staying informed through continuous research efforts, policymakers can adapt strategies in real time to address shifting dynamics within the SME e-commerce ecosystem and promote sustained growth and competitiveness.

Through the implementation of these detailed recommendations, policymakers can play a pivotal role in reducing e-commerce resistance among SMEs in Ethiopia, thereby unlocking the transformative potential of e-commerce and driving economic development and prosperity within the SME sector.

5.5 Suggestion Areas for Future Researches

1. **Cross-Cultural Studies:** Future research could explore the influence of cultural factors on e-commerce resistance among SMEs in different countries. This could provide insights into how cultural norms and values shape attitudes toward e-commerce.
2. **Longitudinal Studies:** A longitudinal study tracking the changes in e-commerce resistance among SMEs over time could offer valuable insights into how these attitudes evolve as businesses grow and adapt to changing market conditions.
3. **Impact of Government Policies:** Research could be conducted to examine the impact of government policies and initiatives on reducing e-commerce resistance among SMEs. This could include studies on the effectiveness of financial incentives, infrastructure development, and educational programs.

4. **Case Studies:** Detailed case studies of SMEs that have successfully overcome e-commerce resistance could provide practical insights and strategies for other businesses facing similar challenges.
5. **Technological Innovations:** Future research could investigate the role of technological innovations, such as advanced e-commerce platforms and digital marketing tools, in reducing e-commerce resistance among SMEs.
6. **Role of Education:** Further research could be conducted to understand the role of education in reducing ecommerce resistance. This could involve exploring the impact of digital literacy programs on SME owners and employees.
7. **Psychological Factors:** Future studies could explore the psychological factors influencing e-commerce resistance, such as attitudes towards change, perceived risk, and trust in online transactions.
8. **Impact of COVID-19:** Given the global shift towards online business operations due to the COVID-19 pandemic, future research could investigate its impact on e-commerce resistance among SMEs.
9. **Comparative Analysis:** A comparative analysis of e-commerce resistance among SMEs and larger enterprises could provide insights into the unique challenges faced by smaller businesses.

These suggested areas for future research could help deepen our understanding of e-commerce resistance among SMEs and contribute to the development of effective strategies to promote e-commerce adoption.

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Appendix I

Questionnaire on E-commerce Resistance among SMEs in Addis Ababa

Introduction

Thank you for participating in this survey. We are conducting a research study on the factors that influence e-commerce resistance among small and medium enterprises (SMEs) in Addis Ababa, Ethiopia. The purpose of this study is to understand the perceptions and experiences of SME owners and employees regarding e-commerce adoption and resistance.

This survey will take about 15 minutes to complete. Your participation is voluntary and confidential. You can skip any question that you do not wish to answer or stop the survey at any time. Your responses will be used only for research purposes and will not be shared with anyone else.

Section 1: Background Information

In this section, we would like to ask you some questions about yourself and your business. Please answer the questions as honestly and accurately as possible.

1. What is your role in this survey? (Please select one option.)
 - SME owner
 - SME employee
 - Other (please specify)
2. What is the size of the SME that you own or work for? (Please select one option.)
 - Micro (1-10 employees)
 - Small (11-50 employees)
 - Medium (51-250 employees)
3. What is the industry sector of the SME that you own or work for? (Please select one option.)
 - Agriculture
 - Manufacturing
 - Construction
 - Trade
 - Services

4. How long have you been involved with the SME that you own or work for? (Please select one option.)
 - Less than 1 year
 - 1-3 years
 - 4-6 years
 - 7-10 years
 - More than 10 years
5. How often do you use the internet for personal or professional purposes? (Please select one option.)
 - Daily
 - Weekly
 - Monthly
 - Occasionally
 - Never
6. How often do you use e-commerce platforms or websites to buy or sell products or services online? (Please select one option.)
 - Daily
 - Weekly
 - Monthly
 - Occasionally
 - Never

Section 2: E-commerce Resistance Factors

In this section, we would like to ask you some questions about the factors that influence your decision to adopt or resist e-commerce for your business. Please rate the extent to which you agree or disagree with each statement on a 5-point Likert scale, where 1 means “Strongly disagree” and 5 means “Strongly agree”.

	Question	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	
	E-commerce resistance						
1	I prefer to buy products or services from physical stores rather than online platforms.						
2	I do not trust the quality and reliability of products or services offered online.						
3	I do not see any benefit in using e-commerce for my business.						
	Regulatory and legal barriers						
1	I am concerned about the legal and regulatory issues related to e-commerce, such as taxation, consumer protection, and data privacy.						
2	I do not have enough information or guidance on how to comply with the laws and regulations governing e-commerce.						
3	I think the laws and regulations governing e-commerce are too complex and burdensome.						

	Organizational culture						
1	I think e-commerce is not compatible with the values and norms of my organization.						
2	I do not have the support or encouragement from my employees or colleagues to use e-commerce.						
3	I do not have the skills or knowledge to use e-commerce effectively.						
	Financial constraint						
1	I do not have enough financial resources to invest in e-commerce.						
2	I think e-commerce is too costly and risky for my business.						
3	I do not have access to affordable and reliable payment methods for e-commerce.						
	Limited digital literacy						
1	I do not have the necessary digital skills to use e-commerce platforms.						
2	I do not have access to an adequate and reliable internet connection for e-commerce.						

3	I do not have access to suitable and secure devices for e-commerce.						
	Security concern						
1	I am worried about the security and privacy of my personal and financial information when using e-commerce.						
2	I am afraid of fraud, scams, or cyberattacks when using e-commerce.						
3	I do not have enough trust or confidence in online sellers or buyers.						
	Competitive pressure						
1	I think e-commerce is too competitive and saturated for my business.						
2	I think e-commerce will reduce my customer loyalty and retention.						
3	I think e-commerce will lower my profit margin and market share.						
	Lack of technological factor						
1	I think e-commerce platforms are not user-friendly or easy to use.						

2	I think e-commerce platforms are not compatible or integrated with my existing systems or processes.						
3	I think e-commerce platforms are not responsive or adaptable to my business needs or preferences.						
	Perceived lack of benefit						
1	I think e-commerce will not improve my business performance or efficiency.						
2	I think e-commerce will not increase my customer satisfaction or loyalty.						
2	I think e-commerce will not enhance my competitive advantage or differentiation.						
	Market maturity and consumer behavior						
1	I think e-commerce is not widely accepted or adopted by my target market or customers.						
2	I think e-commerce is not suitable or convenient for my products or services.						

3	I think e-commerce is not influenced or affected by the social or cultural factors of my market or customers.						
	Limited awareness						
1	I do not have enough awareness or knowledge about the benefits and opportunities of e-commerce.						
2	I do not have enough awareness or knowledge about the challenges and risks of e-commerce.						
3	I do not have enough awareness or knowledge about the best practices and strategies of e-commerce.						

Conclusion

Thank you for completing this survey. Your responses are very valuable for our research study. If you have any questions or comments, please feel free to contact us at [email address].

Please click on the “Submit” button to send your responses.

Appendix II

SPSS output

Frequency Table

		Size			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Micro	45	33.3	33.3	33.3
	Small	45	33.3	33.3	66.7
	Medium	45	33.3	33.3	100.0
	Total	135	100.0	100.0	

Sector

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Manufacturing	45	33.3	33.3	33.3
	Retail Trading	45	33.3	33.3	66.7
	Service	45	33.3	33.3	100.0
	Total	135	100.0	100.0	

Role

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Owner	70	51.9	51.9	51.9
	Employee	65	48.1	48.1	100.0
	Total	135	100.0	100.0	

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Regulatory and.Legal Barriers	135	3.00	5.00	4.0370	.77659
Organizational_Culture	135	3.00	5.00	3.9926	.76779
Financial Contrsaints	135	3.00	5.00	4.0444	.83636
Limited Digital Literacy	135	3.00	5.00	3.8889	.84347
Security Concerns	135	3.00	5.00	4.0444	.81832
Competitive Pressures	135	3.00	5.00	3.9259	.76908
Lack of Technological Infrastructure	135	3.00	5.00	3.9926	.75801
Perceived Lack of Benefits	135	3.00	5.00	3.9704	.79119
Market Maturity and Consumer Behavior	135	3.00	5.00	4.1037	.82203
Awareness	135	3.00	5.00	3.9852	.78212
Valid N (listwise)	135				

Size * Ecommerce Resistance Crosstabulation

Count		Ecommerce Resistance									Total
		3.00	3.10	3.20	3.50	3.51	3.52	4.00	4.10	4.20	
Size	Micro	0	0	0	0	0	0	15	15	15	45
	Small	0	0	0	15	15	15	0	0	0	45
	Medium	16	14	15	0	0	0	0	0	0	45
Total		16	14	15	15	15	15	15	15	15	135

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	270.000 ^a	16	<.001
Likelihood Ratio	296.625	16	<.001
Linear-by-Linear Association	129.144	1	<.001
N of Valid Cases	135		

a. 3 cells (11.1%) have expected count less than 5. The minimum expected count is 4.67.

Sector * Ecommerce Resistance

Count		Crosstab									
		Ecommerce Resistance									
		3.00	3.10	3.20	3.50	3.51	3.52	4.00	4.10	4.20	Total
Sector	Manufacturing	0	0	15	0	0	15	0	0	15	45
	Retail Trading	15	0	0	15	0	0	15	0	0	45
	Service	1	14	0	0	15	0	0	15	0	45
Total		16	14	15	15	15	15	15	15	15	135

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	264.375 ^a	16	<.001
Likelihood Ratio	289.144	16	<.001
Linear-by-Linear Association	.671	1	<.001
N of Valid Cases	135		

a. 3 cells (11.1%) have expected count less than 5. The minimum expected count is 4.67.

GET

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.233	.187		3.710	.000
	Security Concerns	.461	.457	.368	3.082	.000
	Lack of Technological Infrastructure	.424	.461	.334	4.183	.000
	Limited Awareness	.453	.414	.390	4.954	.000
	Financial Constraints	.280	.417	.243	2.728	.000
	Limited Digital Literacy	.385	.421	.324	3.144	.000
	Perceived Lack of Benefits	.322	.437	.255	3.373	.000
	Closed Organizational culture	.277	.448	.216	3.198	.000
	Regulatory and Legal Barriers	.395	.452	.321	3.726	.000
	Low Market Maturity and Consumer Behavior	.472	.425	.483	4.455	.000
	Low Competitive Pressures	.404	.433	.325	9.337	.000

a. Dependent Variable: E-commerce Resistance

Model Summary

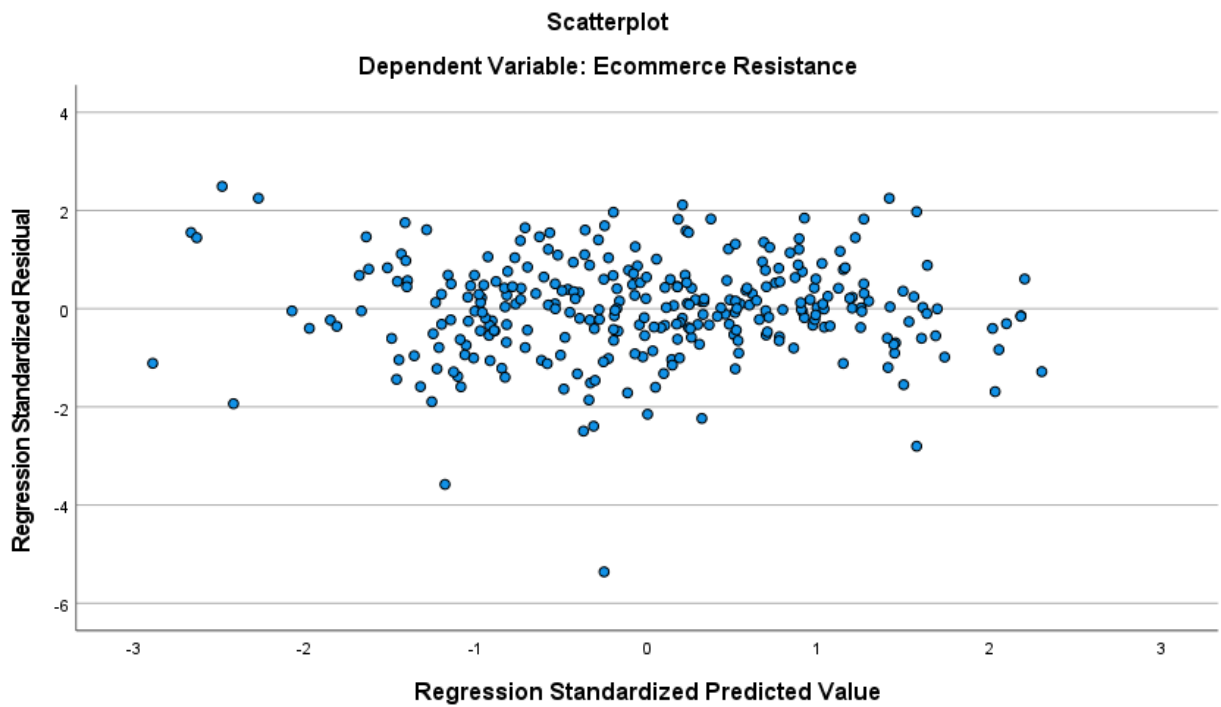
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.921 ^a	.848	.843	3.51696

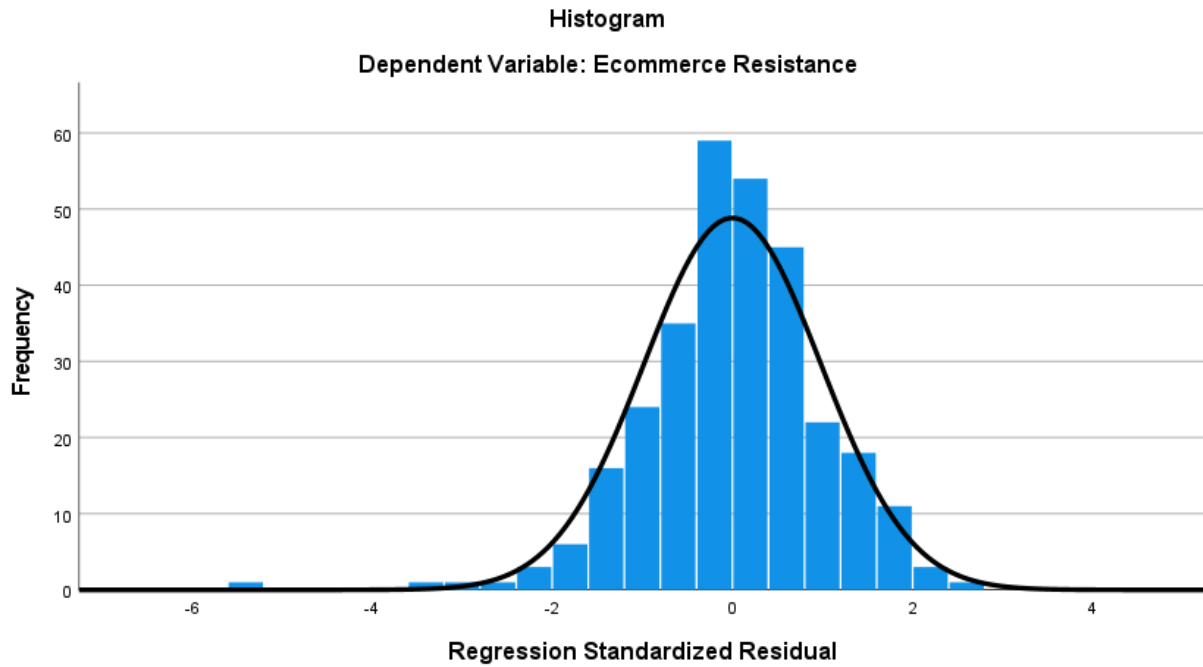
ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19980.626	10	1998.063	161.538	.000 ^b
	Residual	3587.014	290	12.369		
	Total	23567.639	300			

a. Dependent Variable: E-commerce Resistance

b





ANOVA

E-commerce Resistance

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	22.837	2	11.419	2459.704	.000
Within Groups	.613	132	.005		
Total	23.450	134			

Post Hoc Tests

MultipleE-commercials

Dependent Variable: E-commerce Resistance

Tukey HSD

(I) Size	(J) Size	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
		(I-J)			Lower Bound	Upper Bound
Micro	Small	.59000*	.01436	.000	.5560	.6240
	Medium	1.00222*	.01436	.000	.9682	1.0363
Small	Micro	-.59000*	.01436	.000	-.6240	-.5560
	Medium	.41222*	.01436	.000	.3782	.4463
Medium	Micro	-1.00222*	.01436	.000	-1.0363	-.9682
	Small	-.41222*	.01436	.000	-.4463	-.3782

*. The mean difference is significant at the 0.05 level.

ANOVA

E-commerce Resistance

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.441	2	.221	1.265	.286
Within Groups	23.009	132	.174		
Total	23.450	134			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: E-commerce Resistance

Tukey HSD

(I) Sector	(J) Sector	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
		(I-J)			Lower Bound	Upper Bound
Manufacturing	Retail Trading	.14000	.08802	.253	-.0686	.3486
	Service	.07222	.08802	.691	-.1364	.2809
Retail Trading	Manufacturing	-.14000	.08802	.253	-.3486	.0686
	Service	-.06778	.08802	.722	-.2764	.1409
Service	Manufacturing	-.07222	.08802	.691	-.2809	.1364
	Retail Trading	.06778	.08802	.722	-.1409	.2764

Correlations

		Security Concerns	Lack of Technological Infrastructure	Limited Awareness	Financial Constraints	Limited Digital Literacy	Perceived Lack of Benefits	Closed Organizational culture	Regulatory and Legal Barriers	Low Market Maturity and Consumer Behavior	Low Competitive Pressures	Ecommerce Resistance
Security Concerns	Pearson Correlation	1	-.137	-.163 [*]	-.244 ^{**}	.080	.005	.051	-.059	-.065	-.048	.526 [*]
	Sig. (1-tailed)		.056	.029	.002	.179	.479	.278	.249	.229	.289	<.001
	N	135	135	135	135	135	135	135	135	135	135	135
Lack of Technological Infrastructure	Pearson Correlation	-.137	1	-.046	-.047	.072	-.039	-.116	-.221 ^{**}	-.141	.037	.445
	Sig. (1-tailed)	.056		.298	.293	.204	.327	.091	.005	.052	.335	<.001
	N	135	135	135	135	135	135	135	135	135	135	135
Limited Awareness	Pearson Correlation	-.163 [*]	-.046	1	.092	-.145 [*]	.005	-.035	-.099	-.072	-.056	.544 [*]
	Sig. (1-tailed)	.029	.298		.145	.047	.476	.344	.125	.204	.259	<.001
	N	135	135	135	135	135	135	135	135	135	135	135
Financial Constraints	Pearson Correlation	-.244 ^{**}	-.047	.092	1	-.101	.010	.010	.163 [*]	.124	-.003	.325 ^{**}
	Sig. (1-tailed)	.002	.293	.145		.122	.453	.452	.030	.075	.488	.001
	N	135	135	135	135	135	135	135	135	135	135	135
Limited Digital Literacy	Pearson Correlation	.080	.072	-.145 [*]	-.101	1	.053	-.096	.117	.015	.059	.453 ^{**}
	Sig. (1-tailed)	.179	.204	.047	.122		.272	.135	.088	.430	.247	<.001
	N	135	135	135	135	135	135	135	135	135	135	135
Perceived Lack of Benefits	Pearson Correlation	.005	-.039	.005	.010	.053	1	-.078	.045	.071	-.089	.359 ^{**}
	Sig. (1-tailed)	.479	.327	.476	.453	.272		.185	.300	.206	.153	<.001
	N	135	135	135	135	135	135	135	135	135	135	135
Closed Organizational culture	Pearson Correlation	.051	-.116	-.035	.010	-.096	-.078	1	-.038	-.059	.000	.290
	Sig. (1-tailed)	.278	.091	.344	.452	.135	.185		.332	.250	.499	<.001
	N	135	135	135	135	135	135	135	135	135	135	135
Regulatory and Legal Barriers	Pearson Correlation	-.059	-.221 ^{**}	-.099	.163 [*]	.117	.045	-.038	1	.211 ^{**}	-.013	.395 ^{**}
	Sig. (1-tailed)	.249	.005	.125	.030	.088	.300	.332		.007	.442	<.001
	N	135	135	135	135	135	135	135	135	135	135	135
Low Market Maturity and Consumer Behavior	Pearson Correlation	-.065	-.141	-.072	.124	.015	.071	-.059	.211 ^{**}	1	-.125	.577 ^{**}
	Sig. (1-tailed)	.229	.052	.204	.075	.430	.206	.250	.007		.074	<.001
	N	135	135	135	135	135	135	135	135	135	135	135
Low Competitive Pressures	Pearson Correlation	-.048	.037	-.056	-.003	.059	-.089	.000	-.013	-.125	1	.499 ^{**}
	Sig. (1-tailed)	.289	.335	.259	.488	.247	.153	.499	.442	.074		<.001
	N	135	135	135	135	135	135	135	135	135	135	135
Ecommerce Resistance	Pearson Correlation	.171 [*]	.116	.199 [*]	.257 ^{**}	.353 ^{**}	.269 ^{**}	.094	.365 ^{**}	.452 ^{**}	.229 ^{**}	1
	Sig. (1-tailed)	.024	.090	.010	.001	<.001	<.001	.139	<.001	<.001	.004	
	N	135	135	135	135	135	135	135	135	135	135	135

*. Correlation is significant at the 0.05 level (1-tailed).

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