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TITLE: - ASSESSING THE OPPORTUNITIES, CHALLENGES AND OPERATIONAL
CHANGES GAS STATIONS ENCOUNTERED WHILE ADOPTING MOBILE TELEBIRR
PAYMENT SYSTEM

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ASSESSING THE OPPORTUNITIES, CHALLENGES AND OPERATIONAL CHANGES
GAS STATIONS ENCOUNTERED WHILE ADOPTING MOBILE TELEBIRR PAYMENT
SYSTEM

A Thesis Submitted to Addis Ababa University School of commerce in Partial Fulfillment of the
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STATEMENT OF DECLARATION

I hereby declare that this thesis titled “*Assessing the opportunities, Challenges and Operational changes gas stations encountered while adopting mobile telebirr payment system*” has been carried out by me under the guidance and supervision of my Advisor Eyob N. (Ph.D) The thesis is original and has not been submitted for the award of any degree or diploma to any university or institution.

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Date

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July 2024

STATEMENT OF CERTIFICATION

This is to certify that this thesis titled “*Assessing the opportunities, Challenges and Operational changes gas stations encountered while adopting mobile telebirr payment system*” submitted to Addis Ababa University, Department of business information systems (MBIS) is a record of genuine research work carried out by *Hermela Yohannes*, under my guidance and supervision.

Therefore, I hereby declare that no part of this thesis has been submitted to any other university or institution for the award of any degree or diploma.

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ABSTRACT

This paper studies the opportunities, challenges, and operational changes that Addis Ababa gas stations faced when they implemented the Telebirr mobile payment system. Using a mixed-methods approach, the study integrates quantitative and qualitative data to offer a thorough assessment of the effects of this technological revolution. Surveys are used to collect quantitative data on the extent of Telebirr's adoption and its impact on customer happiness and transaction efficiency. Semi-structured interviews with gas station administrators yield qualitative insights that provide a thorough grasp of the operational changes needed, customer reactions, and transitional obstacles.

The results show that although the use of Telebirr has simplified payment procedures and decreased the dangers involved with managing currency, there have been drawbacks as well, including the requirement for employee training and early customer reluctance. To guarantee the seamless integration of mobile payment systems, the study emphasizes the significance of ongoing assistance and education for both operators and customers. Policymakers and other stakeholders hoping to improve digitalization and financial inclusion in underdeveloped economies will find these lessons invaluable. All things considered, this study adds to the expanding amount of research on the acceptance of mobile payments and offers insightful guidance for comparable situations around the world.

Key word: Mobile Payment Systems, Tele birr, Gas Stations, Digital Payments, Operational Efficiency

Contents

ACKNOWLEDGEMENT	v
ABSTRACT.....	vi
List of tables.....	x
List of Abbreviation.....	xi
CHAPTER ONE	1
Introduction.....	1
1.1 Background of the Study.....	1
1.2 Statement of the Problem.....	5
1.3 Research Question	6
1.5 Research Objective	6
1.5.1 General Objectives:.....	6
1.5.2 Specific Objectives:	6
1.6 Significance of the Study	6
1.7 Scope of the Study	7
CHAPTER TWO	8
Literature Review.....	8
2.1 Theoretical Framework.....	8
2.2 Empirical Findings.....	9
2.3. Related Work Literature Review:	11
2.4 Conceptual Framework.....	12
2.4.1 Mapping of the conceptual framework	14
2.4.2 Dependent and independent variables:	15
CHAPTER THREE	17
Research Design and Methods.....	17
3.1 Research Design.....	17
3.2 Research Approach	17
3.3 Target Population.....	19
3.3.1 Population	19

3.4 Sample size and Sampling Technique	19
3.5 Data Sources and Collection Methods	21
3.5.1 Data Sources	21
3.5.2 Data Collection Method	21
3.5.2.1. Mapping of the questionnaires	22
3.6 Data Collection Procedures.....	24
3.7 Method of Data Analysis	25
3.7.1 Quantitative analysis method.....	25
3.7.2 Qualitative analysis.....	26
3.8 Validity and Reliability Test.....	27
3.8.1 Validity	27
3.8.2 Reliability.....	27
3.9 Ethical Considerations	28
3.9.1 Informed Consent.....	28
3.9.2 Confidentiality and Anonymity	28
CHAPTER FOUR.....	29
Data Analysis and Discussion.....	29
4.1. Background Information of Respondents	29
4.2 Quantitative Analysis.....	29
4.2.1 Descriptive Statistics.....	30
4.3 Qualitative Analysis.....	37
4.3.1 Familiarization with the data.....	37
4.3.2. Theme category creation and grouping.....	38
4.3.3. Theme relationship.....	39
4.3.4. Results of the interview analysis.....	39
4.3.5. Qualitative Results and Their Support for Quantitative Methods.....	41
4.3.6. Discussion.....	44
CHAPTER FIVE	46
Conclusion and Recommendation	46
5.1 Summary	46
5.2 Conclusion	46
5.3 Recommendation	47

Reference	49
APPENDIX A:	53

List of tables

Table 1 Transaction efficiency..... 31

Table 2 Profitability 32

Table 3 Challenges- initial adoption..... 33

Table 4 Technical issues 34

Table 5 Operational changes..... 35

Table 6 Effect on customers 36

Table 7 Start Codes for Thematic Analysis 38

Table 8 Themes emerged from analysis 38

List of Abbreviation

MNO	Mobile network operator
SC	Smart Communications
GSMA	Global system for mobile communications association
M-BIRR	Money birr
CBE	Commercial bank of Ethiopia
TAM	Technology Acceptance Model
UTAUT	Unified Theory of Acceptance and Use of Technology
BDO	Banco de Oro

CHAPTER ONE

Introduction

1.1 Background of the Study

During the many lifespans of humanity, there have been numerous revolutions to take place that made living life easier today than yesterday. One of the primary examples is money. Before money became paper notes there were coins and earlier before that humankind bartered with cattle as a form of purchasing and selling goods (Beattie, 2022). Since then, the exchange for goods and services slowly developed over centuries as well as banks were created, and these made things easier for humankind. In the 21st century, a novel form of payment gave rise to a novel form of payment called mobile payment. According to (Au and Kauffman, 2008; Dahlberg et al.), mobile payment is defined as a form of payment procedure which makes use of mobile devices to allow, initiate, and assure a money transaction, which has resulted in a disruptive revolt in our modern society, as well as a significant economic and social impact on digital payment ecosystems.

Mobile payment systems have become an important means of payment for nowadays companies (Dahlberg, 2008) and have several benefits over other technologies, such as being accessible to anyone, anywhere, functioning separately. Businesses or sellers accepting mobile payments represent one side of the market, while customers using the service represent the other (Tatjana, 2013).

The Philippines witnessed the evolution of the world's first mobile money services in 2001, when Smart Communications (SC) deployed the Smart Money service in collaboration with Banco de Oro (BDO) to address the issue of limited access to financial services. After the successful deployment of Smart Money, Globe Telecom later launched GCash in 2004 (Coins, 2019). Mobile money quickly became prevalent throughout Africa and made possible fast and flawless money transfers with the simple touch of a button. Sub-Saharan Africa continues to be a market leader in mobile money, which makes up 70% of the worldwide market (GSMA, 2021).

Mobile money is not only a part of everyday life in countries such as Zimbabwe, Kenya, and Tanzania, but it is also an important tool that allows individuals living in remote, rural areas to have access to money for livelihood in situations of dire need (Shahid, 2023). Because mobile money is a relatively new idea in developing countries, perhaps one of the earliest and most effective implementations is Kenya's "M-PESA." M-PESA had been accepted by approximately 70% of Kenya's young people in just four years following its launch in 2007 (Donovan, 2012).

M-BIRR created Ethiopia's first mobile payment service. M-BIRR service has been challenged by various stakeholders at various stages of service deployment since its inception. M-BIRR, a service provided by five microfinance institutions in Ethiopia, began as a project in 2009 and went into full operation in 2010 (Meles, 2020).

Even though the service was supposed to be launched in 2012, it was not a success. Ethiopia did not have a regulatory law in place at the time to control financial institutions' mobile money services. As a result, M-BIRR service and a few others had to wait until NBE developed a workable directive for Ethiopian financial institutions (Meles, 2020). By the end of 2017, mobile money reached less than 5% (2 million) of mobile subscribers (Demirguc-Kunt, 2017). In 2020, the Ethiopian government announced plans to liberalize the telecoms sector and modify legislation to allow non-banks to provide mobile money services. This included mobile network operators (MNOs), who have had tremendous success boosting access to finance through mobile money in other parts of Sub-Saharan Africa (Shahid, 2023).

Ethio Telecom, the state-owned mobile operator and the market's sole mobile network operators until 2022, recently launched telebirr, a mobile money service. Safaricom entered the Ethiopian market in September 2022 and was granted a mobile money license in May 2023 (Shahid, 2023). Mobile money is a financial service typically provided by a mobile network operator (MNO) that allows the user to access a financial account for receiving, sending, and paying for products or services from their mobile phone (Au and Kauffman, 2018). Telebirr, Ethiopia's first operator-led mobile money system was created in partnership with Huawei. Its acceptance percentage is surprisingly high, with telebirr acquiring 36 million customers (about twice the population of New York) in just two years of operation and managing transactions worth over 1 trillion Birr.

According to (HUAWEI, 2023), Telebirr provides a range of services that vary from simple mobile wallet services to improved mobile digital money services like micro credit, micro saving, overdraft services, P2P, credit pay, and more. People can make deposits, make purchases, send money to relatives and close associates, transfer money globally and additionally get immediate micro-credit with just a mobile phone.

Telebirr's achievements arise from its 99.1% coverage of the country's broadening network, in addition to its broad client base of exceeding 72 million, 300,000 point-of-presence by means of associates, merchants, distributors, franchisees, and its own customer service centers (HUAWEI, 2023). The customized names assigned to the services, as well as the commission-based form for customers and intermediaries, have contributed to telebirr's growing popularity. The organization launched aggressive social media campaigns and recommended advertising initiatives such as cash back, cash for recharge, as well as additional future transactions.

Since it supplies fuel for industrial processes, electricity production, and transportation, the gas station industry is important to Ethiopia's economy. The rising demand for gasoline and the growth of the transportation sector have caused the industry to expand quickly in recent years (Bultynck and Reliquet, 2003). Because they guarantee fuel availability at several places, gas stations are crucial to the economy's smooth operation as they facilitate people's capacity to travel and move goods around the nation. In addition, the industry provides jobs and generates income for the government through taxes and other levies. Despite its significance, Ethiopia's gas station business confronts several difficulties, including poor supply chains, regulatory obstacles, and inadequate infrastructure.

Gas stations in Ethiopia mostly accepted cash and credit/debit cards as forms of payment. Nevertheless, there were drawbacks to both approaches that may reduce the sector's effectiveness. In Ethiopia, cash transactions are still common, and many clients choose to make their payments in cash (Hirvonen and Hoddinott, 2021). However, cash transactions can be dangerous and time-consuming for gas station employees as well as customers. The manual nature of cash transactions makes handling big sums of cash more prone to theft and the possibility of accounting errors. Additionally, the transaction process might be slowed down by

counting cash and giving change, which will keep consumers waiting longer. All things considered, the shortcomings of conventional payment methods at Ethiopian petrol stations underscored the necessity for creative solutions, such mobile payment systems like telebirr.

According to (Ethiopian Monitor, 2023), as a response to the growing illegal activity, the government decided to make digital fuel transactions at gas stations mandatory. Criminals who traffic the products to neighboring countries' markets frequently focus on Ethiopia's heavily taxpayer-funded petrol products. Following months of testing, on Monday, April 24, 2023, all 153 gas stations in Addis Ababa began implementing Digital Fuel Transaction, which means that all payments must now be made using digital payment platforms, completely replacing cash. Although the state-owned Commercial Bank of Ethiopia introduced its CBE-Nedaj (translated as CBE-Fuel) app in August 2022, the service initially went live using the recently launched EthioTelecom's Super app Telebirr.

Since Telebirr's new cashless payment system on gas stations became mandatory, it provoked a frantic response from drivers, resulting in significant traffic jams. All of this took place given that many drivers weren't equipped with the Telebirr app, never utilized it for making a payment, and were thrown off guard when they arrived at the gas station. Surprisingly, many drivers did not have smart phones capable of downloading the Super Cash app or any other payment app required to fuel up (Mamma & Tesfaye, 2023). While the service was available on their phone, some clients found the registration and depositing process to be too lengthy. Others arrived at the station with no knowledge that the payment had been transferred electronically. A number of these factors clearly caused delays in pumping gas and making payments, resulting in long and erratic lines. However, as the months passed, both the drivers and the gas stations acclimated and resumed their day-to-day interactions.

Adopting involves fully embracing and implementing a new idea, technology, or practice. It goes beyond simply adjusting and entails integrating the new concept into one's routine or operations. And gas station owners were mandated to change the way they transacted and operated by the country government. The traditional payment system which is exchanging cash as a form of payment the new payment system may have forced them to use technologies to operate as mandated. This research assessed how the gas station owners had to adapt, if they had made operational, technological and infrastructural changes and the opportunities and challenges they

faced while adopting the change. This research aimed to provide a comprehensive understanding of the effect of mobile Telebirr payment on gas stations and contribute to the limited existing literature and recommendations.

1.2 Statement of the Problem

The convenience that mobile payment systems provide to customers has been the driving force behind their increased popularity in recent years. The emergence of mobile payment solutions, like Telebirr, has completely changed how individuals pay for goods and services in Ethiopia. Among the companies that have embraced mobile payment methods are gas stations, and this has had a big effect on how they operate. It is vital to comprehend the impact of mobile Telebirr payment on gas stations.

Gas stations in Ethiopia were facing significant challenges in adopting and integrating the Telebirr payment system, hindering the smooth transition to mobile payments and impacting operational efficiency. The introduction of Telebirr, a mobile payment solution, has presented several issues that are impeding the seamless integration of digital payment methods within the gas station industry (Mamma & Tesfaye, 2023). Technical challenges, including connectivity issues and system downtime, have created obstacles for gas station owners, leading to inefficiencies in transaction processing. Moreover, customer resistance towards using Telebirr and employee reluctance to adapt to the new payment method has further complicated the adoption process. The lack of adequate training programs and support for staff members, coupled with network connectivity issues, has exacerbated the challenges faced by gas station owners in embracing mobile payments (Hirvonen and Hoddinott, 202). These issues highlight the need for targeted interventions and strategic solutions to address the barriers to successful adoption and integration of the Telebirr payment system in the Ethiopian market.

Addressing these challenges through targeted interventions, such as technical support, training programs, improved network infrastructure, and change management initiatives, was crucial for gas station owners to successfully adopt and integrate the Telebirr payment system. Overcoming these issues would enable gas stations to leverage the benefits of mobile payments, enhance operational efficiency, and provide a seamless payment experience for customers in the Ethiopian market.

1.3 Research Question

- What are the challenges faced by gas stations in adopting and using mobile Telebirr payment?
- What type of opportunities did gas stations receive by being required to adopt telebirr?
- What are the operational changes the gas stations had to make in order to adopt telebirr mobile payment?
- What is the comparative analysis the gas stations faced due to mobile telebirr payment?

1.5 Research Objective

1.5.1 General Objectives:

To assess the opportunities, challenges and operational changes gas stations encountered while adopting mobile telebirr payment system.

1.5.2 Specific Objectives:

The specific objectives of the study are: -

- To assess the impact of mobile Telebirr payment adoption on the revenue and profitability of gas stations in Ethiopia.
- To analyze the challenges faced by gas stations in adopting and using mobile Telebirr payment.
- To analyze the opportunities gas stations encountered due to adopting mobile telebirr payment system.
- To provide recommendations for improving the adoption and use of mobile Telebirr payment by gas stations in Ethiopia.

1.6 Significance of the Study

The adoption of mobile payment technologies has been on the rise in Ethiopia, and it has the potential to transform the way businesses operate and interact with their customers. Understanding how gas stations are adopting to this new payment system is crucial in assessing the overall impact of mobile payment adoption on the Ethiopian economy.

Gas stations are critical infrastructures that provide fuel for transportation and other essential services. As such, any changes in their operations and business processes can have a ripple effect on the entire economy. By investigating the impact of mobile Telebirr payment adoption on gas station owners, this study provides insights into how the technology is changing the way businesses operate and interact with their customers.

The study helps to identify the challenges and opportunities that gas stations faced when adopting mobile payment technologies. This information can be useful for policymakers and other stakeholders in developing strategies to support businesses in the adoption of new technologies and ensuring that they have access to the necessary infrastructure and resources. Finally, the study can contribute to the growing body of literature on mobile payment adoption in developing countries. As mobile payment technologies continue to gain traction in these regions, understanding their impact on businesses and customers is essential in ensuring that the benefits of these technologies are realized by all stakeholders. This paper provides valuable insights that can be used for future research, offering a comprehensive and detailed analysis

1.7 Scope of the Study

The scope of the research focus was on assessing the opportunities, challenges and operational changes the selected 33 gas stations underwent while adopting mobile telebirr payment system in Addis Ababa, Ethiopia. The study focused on how the opportunities, challenges and operational changes affected the gas stations and how the gas station were able to use the opportunities and overcome the challenges while assessing if the operational changes they encountered had any short comings in the adoption process. The research takes the independent variable as ‘Mobile Telebirr Payment System’ and the dependent variables as ‘Opportunities, challenges and operational changes’. It involved collecting data from the selected 33 gas station administrators.

CHAPTER TWO

Literature Review

Increasing technological innovation has significantly impacted the landscape of financial transactions, with mobile payment systems emerging as a prominent means of doing business. This chapter contains the evolution of mobile payment systems and the benefit and challenge of mobile payment systems.

2.1 Theoretical Framework

The theoretical frameworks provide a lens through which to understand the factors influencing gas station owners' adoption of mobile payment systems is Institutional Theory.

Institutional Theory sheds light on the external pressures and norms that shape the adoption behavior of gas stations. This theory suggests that institutions, such as regulatory bodies and industry associations, play a crucial role in shaping the adoption of mobile payment systems by gas stations. For example, regulatory bodies may require gas stations to adopt mobile payment systems as a condition of doing business, while industry associations may promote the adoption of these systems to improve efficiency and customer satisfaction (DiMaggio & Powell, 1983).

Mobile payment systems, often known as mobile money or mobile wallet services, allow consumers to execute financial transactions utilizing their mobile devices and these systems have grown and now provide a variety of services, such as among peers payments, bill payments, retail transactions, and more (Dahlberg, 2008).

According to Akinyemi & Mushunje (2020), key Features of mobile money payments are convenience meaning users can make transactions anytime, anywhere, using their mobile devices and security meaning to mobile payment systems use encryption and authentication methods to ensure the security of transactions. Mobile payment systems continue to evolve, offering new opportunities for financial inclusion, innovation, and improved access to financial services around the world.

According to Shahid (2023), mobile money as financial transactions made using a mobile device, like a smartphone. With the use of a financial service called mobile money, customers may

transfer, receive, and store money using their smartphones. It offers a practical and easily obtainable method of handling financial transactions, particularly in places where traditional banking services are not readily available. The factors that drive mobile money access and use are accessibility, cost, awareness, relevance, knowledge, digital skills, safety, and trust (Shahid, 2023).

2.2 Empirical Findings

Empirical studies have shown that the adoption of mobile payment systems in the gas retail industry leads to increased operational efficiency, improved security, and enhanced customer experience. For example, a study by Dahlberg, Guo, and Ondrus (2015), found that the adoption of mobile payment systems resulted in a significant reduction in transaction times and an increase in customer satisfaction. Another study by Liébana-Cabanillas, Sánchez-Fernández, and Muñoz-Leiva (2014), found that the adoption of mobile payment systems improved security by reducing the risk of cash theft and counterfeiting.

Digital literacy has been identified as a significant challenge that gas stations face during the adoption process. Digital literacy refers to the ability to effectively use digital technologies, such as mobile payment systems. A study by Alalwan, Dwivedi, and Rana (2017), found that digital literacy was a significant barrier to the adoption of mobile payment systems, as many gas stations lacked the necessary skills and knowledge to use the technology effectively.

Internet connectivity is another significant challenge that gas stations faced during the adoption process. A study by Dahlberg (2015), found that internet connectivity was a significant challenge, as many gas stations lacked reliable and fast internet connections necessary for the smooth functioning of mobile payment systems.

Training is also a significant challenge that gas stations faced during the adoption process. A study by Alalwan (2017), found that training was a significant challenge, as many gas stations lacked the necessary training and support to effectively use mobile payment systems.

Mobile payment in Ethiopia has evolved significantly over the years, as a result to technical improvements, legal reforms, and rising demand for quick and secure financial services (Mauree,

2013). The launch of mobile money services and expansion of digital financial solutions across the country paved the way for the evolution of mobile payment in Ethiopia. This progress has not only altered how Ethiopians conduct financial transactions, but it has also aided in financial inclusion and economic development (Kanagwa, 2016).

The introduction of mobile money services by telecommunication providers marked the beginning of the evolution of mobile payment in Ethiopia. In 2021, Ethio Telecom, Ethiopia's leading telecommunications operator, released "Telebirr," a mobile money service that allows customers to do different financial operations such as money transfers, bill payments, and airtime purchases using their mobile phones (Yimam, 2023). Telebirr is a form of electronic money that allows you to use your phone to access a number of financial services without the need for a bank account. It enables cashless payments, which reduces dependency on cash and allows tracking of transaction records. (Yimam, 2023).

In Ethiopia, the evolution of mobile payment has had a significant impact on financial inclusion and the empowerment of the economy. Mobile payments solutions have helped bridge the gap between traditional financial institutions and unbanked or under banked communities by offering quick access to essential financial services (GSMA, 2023). This has facilitated small business growth by allowing entrepreneurs to access credit, manage cash flow, and expand their customer base through digital payments (GSMA, 2023).

Evolution of mobile payment in Kenya

The use of mobile payments via the M-PESA network has transformed Kenya's financial landscape (Etim, 2014). Safaricom's introduction of M-PESA in 2007 let consumers utilize their mobile phones to access financial services such as depositing, withdrawing, moving money, paying for products and services, and accessing credit (Okereke, 2017). M-PESA's swift success in Kenya was exceptional, with a sizable section of the population using the service for various financial activities. M-PESA had about 185 billion KSH in 2012 and controlled 68 percent of Kenya's mobile money market (Bigne, 2007).

M-PESA was essential in encouraging financial inclusion in Kenya by giving access to financial services to the unbanked and under banked population. Coordination between banks and mobile network providers to provide mobile phone-based money transfer services was an essential

strategy in Kenya's adoption of mobile payments, with Kenya leading the Eastern African region (Okereke, 2017). Mobile payments have had a tremendous economic impact in Kenya, offering sustained growth and economic opportunities to the country's substantial unbanked population, demonstrating the transformative potential of mobile payments in emerging countries (Etim, 2014).

2.3. Related Work Literature Review:

Several studies have examined the impact of mobile payment systems on transaction efficiency, profitability, customer satisfaction, and operational strategies within the retail sector, providing valuable insights into the implications of adopting such technologies in diverse business settings.

In a study by Li and Chen (2018), the authors investigated the effects of mobile payment adoption on transaction efficiency and customer satisfaction in retail businesses. The findings revealed that the implementation of mobile payment systems led to improved transaction speeds, reduced payment delays, and enhanced customer experiences. This study highlights the potential of mobile payment technologies to streamline operations and enhance customer service in retail environments, aligning with the operational changes and customer feedback themes identified in the current research.

Similarly, research by Wang et al. (2019) focused on the challenges and opportunities of mobile payment adoption in small and medium-sized enterprises (SMEs). The study identified barriers such as technical issues, security concerns, and customer resistance, emphasizing the importance of addressing these challenges to facilitate successful adoption. The study also highlighted the opportunities presented by mobile payment systems, including increased operational efficiency, cost savings, and improved customer engagement. These findings resonate with the challenges and possibilities themes identified in the present study, underscoring the need for gas stations to navigate obstacles and leverage the benefits of mobile payment technologies effectively.

Moreover, a study by Kim and Kim (2020) explored the impact of mobile payment adoption on profitability and operational strategies in the hospitality industry. The research demonstrated that mobile payment systems contributed to higher transaction values, increased profitability, and operational improvements such as faster service delivery and enhanced customer interactions. This study underscores the positive outcomes associated with mobile payment adoption, aligning

with the profitability and operational changes themes identified in the current research on gas stations.

Overall, the literature on mobile payment adoption in various business sectors provides valuable insights into the opportunities, challenges, and operational changes associated with integrating digital payment technologies. By drawing on existing research, the current study contributes to the growing body of knowledge on the implications of mobile payment adoption for gas stations, offering a nuanced understanding of how these technologies impact transaction efficiency, profitability, and customer experiences in the retail sector.

2.4 Conceptual Framework

Drawing on the theoretical and empirical insights, a conceptual framework emerges for understanding the adoption of mobile payment systems by gas stations.

Implementing mobile payments presents several challenges, including technological, regulatory, and customer adoption barriers. One of the primary problems in implementing mobile payments is security concerns. It is critical to develop trust in these systems by ensuring transaction security and preserving sensitive financial information. Hacking, phishing, and identity theft are continual dangers to mobile payment networks, and providers must take precautions to prevent these assaults (Okereke, 2017).

Another barrier to widespread use of mobile payments, particularly in developing countries, is infrastructure development. Building the technological infrastructure required to support mobile payment systems necessitates substantial investments in telecommunications networks, payment processing systems, and other associated technologies (FinCoNet, 2016).

Because of worries regarding security, dependability, and convenience of use, customers may be hesitant to adopt new payment methods. To increase consumer trust, providers must address these concerns and illustrate the benefits of mobile payments (Alexandre.C, 2011). The difficulty of ensuring compatibility between multiple mobile payment platforms and systems must be addressed to support seamless transactions. Lack of interoperability can cause market fragmentation, making it harder for users to make payments across many platforms (Aydin, & Burnaz, 2016). Addressing the ethical and social consequences of mobile payments is a difficult implementation task. To guarantee that mobile payments do not exclude specific segments of the

population, issues such as inclusion, accessibility, and digital divide must be addressed (FinCoNet, 2016).

The benefits of integrating mobile payments are numerous, and they include ease, efficiency, and financial inclusion. Users benefit from mobile payments in a variety of ways, including convenience. Mobile payments enable users to conduct transactions at any time and from any location, eliminating the need for real currency or credit cards. It additionally makes it easier for consumers to make purchases, especially when carrying cash or credit cards is not possible (Okereke, 2017).

Mobile payments help enhance financial inclusion by giving underserved groups, notably those in developing economies, access to financial services. Individuals and businesses can benefit from this by participating in the formal economy and improving their financial well-being. By lowering dependency on traditional payment systems and accompanying infrastructure, mobile payments save businesses and consumers money. Lower transaction costs and better efficiency can arise from this (Gregory, 2012).

Although security is a concern, mobile payments have the potential to provide increased security features such as biometric verification and encryption, which can help to safeguard transactions. This helps to increase trust in mobile payment systems and boost their use. Organizations that use mobile payment systems obtain a competitive advantage through innovation and satisfying consumers' changing needs (Lerner, 2013). Mobile payments provide for personalized and localized services, which increases consumer engagement and loyalty. In conclusion, while mobile payments present some problems in their implementation, they provide various benefits to both customers and enterprises. Mobile payments assist in promoting financial inclusion, cost savings, and innovation in the payments industry by addressing security concerns, maintaining interoperability, and negotiating regulatory settings (Okereke, 2017).

2.4.1 Mapping of the conceptual framework

The conceptual framework graph in the research provided a visual representation of the relationships between key variables and concepts under investigation. The graph illustrated how various factors interact and influence each other within the context of the study.

Dependent Variable: Profitability of Gas Stations

The central focus of the conceptual framework was the profitability of gas stations, which serves as the dependent variable in the study. Profitability was a crucial measure of financial performance and success for gas stations, and the research aimed to assess how the adoption of mobile Telebirr payment systems impacts this aspect of their operations.

Independent Variables (Antecedents):

- a. **Operational Efficiency of Gas Stations:** This variable represented the operational efficiency of gas stations, which was expected to improve as a result of adopting mobile Telebirr payment systems. Operational efficiency encompassed factors such as streamlined processes, reduced errors, and enhanced productivity, all of which can contribute to improved profitability.
- b. **Positive Perception of Mobile Telebirr Payment by Gas Stations:** The positive perception of mobile Telebirr payment systems among gas stations was another independent variable in the framework. A favorable attitude towards mobile payment adoption led to increased efficiency and potentially higher profitability, as it influenced decision-making processes and operational adjustments.
- c. **Positive Feedback from Customers Regarding Mobile Telebirr Payment:** Customer feedback played a significant role in shaping the perception and success of mobile payment systems at gas stations. Positive feedback from customers regarding the convenience, speed, and reliability of mobile Telebirr payment contributed to a positive perception among gas station owners, ultimately impacting profitability.

Relationships:

The conceptual framework graph illustrated the relationships between the independent variables (operational efficiency, positive perception, customer feedback) and the dependent variable

(profitability). It suggested that improvements in operational efficiency, positive perceptions of mobile payment systems, and favorable customer feedback can collectively influence the profitability of gas stations following the adoption of mobile Telebirr payment systems.

Direction of Influence:

The arrows in the conceptual framework graph indicated the direction of influence between variables. They showed how changes in operational efficiency, positive perceptions, and customer feedback can potentially led to changes in gas stations' profitability, highlighting the interconnected nature of these factors in the context of mobile payment adoption. Overall, the conceptual framework graph provided a structured representation of the key variables and their interrelationships in the study on mobile payment adoption at gas stations.

2.4.2 Dependent and independent variables:

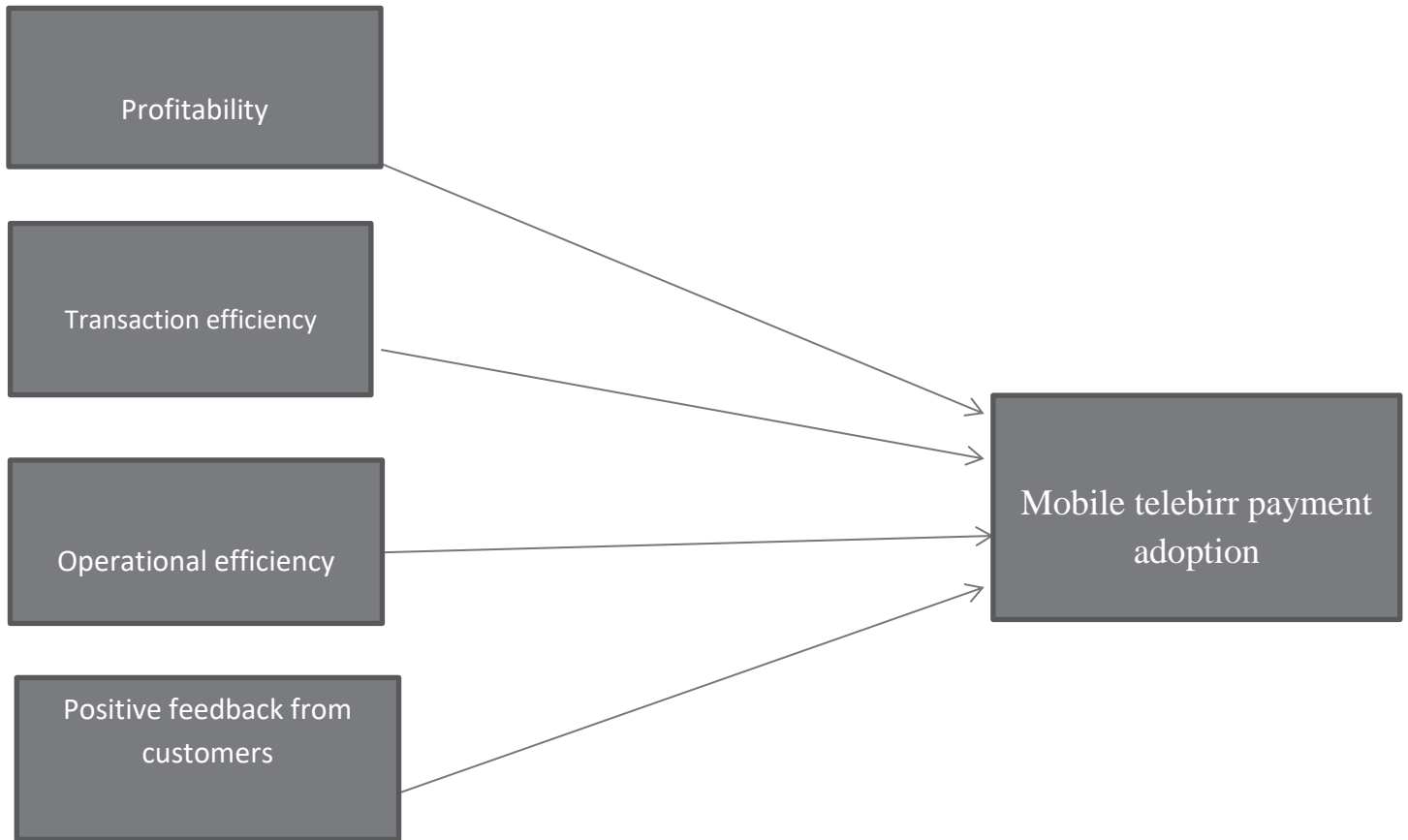
The conceptual framework aimed to explore the opportunities, challenges, and operational changes faced by gas station owners in complying with the mandatory adoption policy. The framework examines how the compulsory adoption of the telebirr payment system influences the decision-making processes, operational adjustments, and outcomes for gas stations.

Dependent Variable: Profitability of gas stations (Impacted by the independent variables)

Independent Variables (Antecedents): Operational efficiency of gas stations (Improved by mobile Telebirr payment adoption). Positive perception of mobile Telebirr payment by gas stations (Leads to increased efficiency and potentially higher profitability). Positive feedback from customers regarding mobile Telebirr payment (Contributes to a positive perception among gas stations).

(Independent variables)

(Dependent variables)



CHAPTER THREE

Research Design and Methods

This chapter presents details of the research design and methodology. This includes the research design, sample size and sampling technique, data source and collection method, procedure of data collection, questionnaire and reliability test. At the end the method of data analysis was presented.

3.1 Research Design

The objective of this study which has a descriptive research design was to give a thorough explanation of the opportunities, difficulties, and operational adjustments faced by Ethiopian gas stations as they implemented the mobile Telebirr payment system. Exploring the state of phenomena, seeing trends, and characterizing the relationships between variables without changing them are all excellent uses for descriptive research.

The report looked at how Addis Ababa's required cashless fuel transactions, which went into effect in April 2023, are being implemented. It investigated the viewpoints and experiences of gas stations as they switch from a cash-based payment system to one that is based on digital technology and is based on the Telebirr mobile wallet.

The descriptive technique enabled the research to capture the subtleties of this change, including the difficulties gas stations have in operating their businesses, the rates of acceptance among drivers, and the function of other digital payment platforms as CBE Birr and M-PESA.(Njuguna S. Ndung'u, 2021).

In the end, the descriptive design allowed for a thorough comprehension of the challenges and opportunities faced by gas station operators throughout Ethiopia's shift to a cashless fuel market. The results helps stakeholders and policymakers understand the real-world effects of this change and direct future fuel industry digitization initiatives.

3.2 Research Approach

This study used a mixed-methods research design to collect both quantitative and qualitative data. The approach the research used was Sequential Explanatory Design. The Sequential Explanatory Design is a research approach that involves two distinct phases: a quantitative phase

followed by a qualitative phase. In the quantitative phase, researchers collected and analyzed numerical data to identify patterns, relationships, or trends. This phase often involved the use of surveys, experiments, or other structured data collection methods.

Following the quantitative phase, the research then moved into the qualitative phase. In this phase, researchers delved deeper into the quantitative results to gain a more comprehensive understanding. This involved conducting interviews or open-ended surveys to explore the underlying reasons behind the numerical data, explain unexpected findings, or provide context to the quantitative results

Qualitative Approach The qualitative component of the research design allowed for a deeper exploration of the challenges and opportunities faced by gas stations during the transition to mandatory cashless fuel transactions. This includes conducting interviews with the administrations of the gas stations. The qualitative data provided context and nuance to the quantitative findings, enabling a more general understanding of the phenomenon.

Quantitative Approach

Likert scale questionnaire was used to gather quantitative data on factors such as transaction efficiency, profitability, challenges faced during adoption, technical issues, operational changes, and customer feedback. This structured approach provided numerical data for statistical analysis.

Statistical Analysis for the Quantitative data was collected through the survey and was analyzed using statistical tool such as descriptive statistics to identify patterns and relationships among variables.

Link between the qualitative and quantitative

Qualitative methods played a crucial role in complementing and supporting quantitative methods in research on the adoption of mobile payment systems at gas stations. The qualitative data obtained through interviews with gas station administrators provided valuable context, depth, and richness to the quantitative findings derived from surveys and statistical analyses. By delving into the subjective experiences, perspectives, and challenges faced by individuals involved in the adoption process, qualitative methods offered a more nuanced understanding of the human factors influencing the implementation of mobile payment systems. These qualitative insights

helped interpret and explain the quantitative results, shedding light on the underlying reasons for certain trends or patterns observed in the numerical data. Additionally, qualitative data uncovered unexpected findings, identify new research questions, and generate hypotheses that can be further explored through quantitative analysis. By integrating qualitative and quantitative methods, researchers can triangulate their findings, validate their conclusions, and provide a more comprehensive and holistic understanding of the opportunities, challenges, and operational changes associated with the adoption of mobile payment systems at gas stations.

3.3 Target Population

3.3.1 Population

All gas stations in Addis Ababa, Ethiopia, make up the study's population. The major urban area in Ethiopia is Addis Ababa, the capital city, where a sizable portion of gas stations have embraced the Telebirr mobile payment system. Because of its varied customer base and range of gas station sizes, this urban setting offers a thorough illustration of the influence of mobile payments on gas station operations. Based on current data, Addis Ababa has about 153 gas stations in operation.

3.4 Sample size and Sampling Technique

The study used a stratified random sampling technique to guarantee a representative sample of the population. To ensure that every grouping within the population is fairly represented, stratified sampling is selected to take into consideration the differences in gas station location and size. The two primary factors that were used to categorize the gas stations are their size (small, medium, and large) and their location inside Addis Ababa (central, suburban, and periphery).

A random sample was chosen from each stratum. There will be 33 gas station administrators in the study's total sample size. The determination of sample size is contingent upon the practicality of carrying out comprehensive questionnaires and interviews while maintaining statistical validity and reliability.

The selection process proceeded as follows:

Stratification: Divided the 153 gas stations into strata based on their location and size.

- **Location:**
 - Central (e.g., within the city center)
 - Suburban (e.g., residential areas surrounding the city center)
 - Peripheral (e.g., outskirts and less densely populated areas)
- **Size:**
 - Small (e.g., fewer than 5 fueling pumps)
 - Medium (e.g., 5 to 10 fueling pumps)
 - Large (e.g., more than 10 fueling pumps)

Random Sampling: From each stratum, it was randomly selected a proportionate number of gas stations to achieve a total sample of 33. For instance:

- Central - Small: 3 gas stations
- Central - Medium: 4 gas stations
- Central - Large: 3 gas stations
- Suburban - Small: 4 gas stations
- Suburban - Medium: 5 gas stations
- Suburban - Large: 4 gas stations
- Peripheral - Small: 3 gas stations
- Peripheral - Medium: 4 gas stations
- Peripheral - Large: 3 gas stations

By using a stratified random sampling technique, the sample guaranteed to represent many kinds of gas stations found in Addis Ababa. It also aided in capturing the various experiences and effects the Telebirr mobile payment system had on various populations within gas stations.

Justification of Sample Size

The selection of 33 gas station administrators as the sample size strikes a compromise between the scope and depth of the data gathering. Given the uniform nature of gas station operations within the urban context of Addis Ababa, the chosen sample size was sufficient to detect significant patterns and trends. Furthermore, this sample size was appropriate for both quantitative surveys and qualitative interviews, guaranteed thorough data collection within the time and budget restrictions of the project.

The study reduced the possibility of selection bias and guaranteed all relevant subgroups were fairly represented by using stratified random sampling, which improved the validity and reliability of the results.

3.5 Data Sources and Collection Methods

3.5.1 Data Sources

The data for this study was collected from multiple sources to ensure a comprehensive understanding of the impact of the Telebirr mobile payment system on gas stations in Addis Ababa. The primary data sources include:

Survey Questions were used to collect quantitative data on a range of operational features and experiences with the Telebirr system, structured questionnaires was sent to a selected sample of gas station administrators.

Semi-structured Interviews was used obtain qualitative insights into the opportunities and obstacles related to the use of the Telebirr payment system, in-depth interviews were carried out with a selection of gas station administrators.

Before and after the Telebirr system was implemented, changes in transaction efficiency, average transaction value, and overall profitability was analyzed through the collection of operational and financial records from gas stations to collect sales data.

3.5.2 Data Collection Method

To give a thorough examination of the study issues, a mixed-methods approach including both quantitative and qualitative methodologies were used for data gathering.

1. Quantitative Data Collection

Survey Questionnaires

A systematic Likert scale survey intended to gauge profitability, transaction efficiency, adoption difficulties, technical problems, operational adjustments, and client feedback. In Addis Ababa, 33 gas station administrators in various strata (size and location) received the questionnaire. A representative sampling of the population was guaranteed as a result.

Depending on the convenience and preference of the gas station administrators, questionnaires were given either in person or electronically. The answers offered numerical data on several aspects affected by the Telebirr technology.

2. Qualitative Data Collection

Semi-Structured Interviews

An open-ended interview guide was designed to delve deeply into the opinions, experiences, and difficulties faced by gas station administrators.

Thirty-three gas station administrators who have implemented the Telebirr system were chosen for interviews using a purposive sample. Interviews were done in-person or over the phone, recorded with participants' permission, and transcriptions made for analysis.

3.5.2.1. Mapping of the questionnaires

The questionnaire in research on the adoption of mobile payment systems at gas stations was typically mapped based on the title and objectives of the study. In this context, the questionnaire served as a tool for gathering quantitative data on the impact of mobile payment adoption on gas station owners in Addis Ababa, Ethiopia. The questionnaire was designed to cover factors such as transaction efficiency, profitability, challenges faced during adoption, technical issues, operational changes, and customer feedback, aligning with the research focus on assessing the opportunities, challenges, and operational changes experienced by gas stations when adopting mobile Telebirr payment systems.

Given the title of the research, which centered on the impact of mobile Telebirr payment adoption on gas stations, the questionnaire may have included the following key components:

1. **Transaction Efficiency:** Questions related to transaction efficiency aimed to assess how the adoption of mobile Telebirr payment systems had affected the speed, accuracy, and reliability of transactions at gas stations. This aligned with the research objective of evaluating the operational changes and improvements in transaction processes resulting from mobile payment adoption.

2. **Profitability:** The questionnaire likely included inquiries about the financial impact of mobile Telebirr payment adoption on gas stations' profitability. Questions may have focused on revenue generation, cost savings, and overall financial performance to understand the economic implications of transitioning to mobile payment systems.
3. **Challenges Faced During Adoption:** To address the challenges encountered during the adoption of mobile Telebirr payment systems, the questionnaire may have included queries about obstacles, barriers, and difficulties faced by gas station owners in implementing the new payment technology. This component aligned with the research focus on identifying and overcoming challenges associated with mobile payment adoption.
4. **Technical Issues:** Questions related to technical issues aimed to explore any technological challenges or limitations experienced by gas stations when integrating mobile Telebirr payment systems into their operations. This section of the questionnaire helped assess the technical readiness and infrastructure requirements for successful mobile payment adoption.
5. **Operational Changes:** The questionnaire likely included items that investigated the operational changes implemented by gas stations following the adoption of mobile Telebirr payment systems. Questions may have covered training programs, process modifications, and customer service enhancements to understand how mobile payment adoption influenced day-to-day operations.
6. **Customer Feedback:** To capture customer perspectives and feedback on mobile Telebirr payment systems, the questionnaire may have included inquiries about customer satisfaction, preferences, and experiences with the new payment technology. This component aligned with the research objective of assessing the impact of mobile payment adoption on customer interactions and satisfaction levels at gas stations.

By mapping the questionnaire based on the title and objectives of the research, researchers were able to collect relevant data to analyze the effects of mobile Telebirr payment adoption on gas stations comprehensively. The questionnaire served as a structured tool for gathering quantitative

insights that aligned with the research focus on evaluating the opportunities, challenges, and operational changes associated with mobile payment adoption in the retail sector.

3.6 Data Collection Procedures

The distribution of survey questionnaires and the execution of semi-structured interviews were the two primary approaches used in the data collection procedure for this study. To ensure representation across various locations and station sizes, gas station administrators in Addis Ababa were first chosen using a stratified random sample technique. Likert scale-formatted survey questionnaires was sent both electronically and physically to collect quantitative data on transaction efficiency, profitability, and adoption difficulties, technical problems, operational modifications, and customer opinions regarding mobile Telebirr adoption. Gas station administrators were able to choose to actively engage in the study by giving them explicit instructions and an informed consent procedure.

Second, a stratified sampling of gas station administrators who have embraced mobile Telebirr payment were participates in semi-structured interviews. These interviews were focused more on the qualitative aspects, going over issues like customer resistance, training resource adequacy, financial burden from implementation costs, obstacles faced during initial adoption, technical difficulties, and operational changes brought on by mobile Telebirr integration. The interview process was involved in obtaining verbal informed consent from participants and using a predetermined set of open-ended questions to guide the interviews to ensure consistency and thoroughness of data collection.

Strict quality control procedures were followed during the data collection process. While interviews were audio recorded (with consent) and precise transcribed for thematic analysis, completed survey questionnaires were subjected to data verification for accuracy and completeness. Regular data integrity checks were carried out to guarantee validity and dependability. By combining quantitative and qualitative data, the study's objectives were further advanced by gaining a thorough grasp of how mobile Telebirr payments affected Addis Ababa's gas station administrators.

3.7 Method of Data Analysis

3.7.1 Quantitative analysis method

Quantitative information on variables like the following was gathered using a Likert scale questionnaire. These variables include Efficiency of transactions both before and after the deployment of Telebirr, Revenue fluctuations and profitability; Obstacles encountered throughout the adoption procedure, technical problems with the Telebirr platform Modifications to the way things are done to make room for the new payment method and Client opinions and contentment with Telebirr.

Respondents were asked to rate their degree of agreement on a scale from "strongly disagree" to "strongly agree" with a series of statements relating to each of these variables in the questionnaire. Numerical data that was statistically examined was collected using this format.

The questionnaires were distributed to 33 gas station administrators in Addis Ababa, in terms of size and location. This provided a representative sampling of the population. Gas stations of various sizes and locations were evenly represented in the study obliged to the stratified random sampling approach. Questionnaires were distributed electronically or in person, based on the convenience and preferences of the gas station owners. Participants received detailed instructions to guarantee uniformity in answers and lower the possibility of misinterpretations or inaccurate answers.

Numbers regarding the several aspects that the Telebirr technology affected were provided via the survey results. This covered metrics for profitability, transaction efficiency, adoption difficulties, technical problems, operational adjustments, and customer feedback. These elements were quantified using the Likert scale format, which made it possible to use statistical analysis to find patterns and associations.

The implementation of Telebirr had an impact on gas station operations, and the quantitative findings were given a broad picture of this impact; the qualitative interviews were given these findings more context and depth. The study provided a thorough knowledge of how mandatory Telebirr adoption had affected Addis Ababa gas stations by incorporating both quantitative and qualitative data.

3.7.2 Qualitative analysis

A more thorough examination of the difficulties and opportunities encountered by gas stations as they were made to switch to a required cashless gasoline purchases were made possible by the qualitative element of the research design. Interviewing administrators of the gas stations was part of this. A more comprehensive understanding of the phenomenon was made possible by the qualitative data, which offered context and subtlety to the quantitative conclusions.

To fully explore the viewpoints, experiences, and challenges experienced by gas stations, an open-ended interview guide was created. The interview guide addressed subjects like, Operational changes implemented to support Telebirr Customer comments and responses to the new payment mechanism, Obstacles encountered throughout the adoption procedure, technical problems with the Telebirr platform Modifications to company strategy brought on by the adoption need. Thirty-three gas station owners who had installed the Telebirr system were selected for interviews.

Depending on the convenience and preferences of the participants, interviews were conducted over the phone or in person. The interviews were precisely transcribed for analysis after being audio recorded with the interviewees' consent.

Rich, contextual information regarding the operational adjustments, customer comments, and strategic adjustments made by gas stations in reaction to the required implementation of Telebirr were obtained through qualitative interviews. Because the questions are open-ended, participants were free to express in their own words the distinctive experiences and viewpoints they have had.

A thematic analysis of the interview transcripts was carried out to pinpoint recurrent themes, patterns, and insights. This entailed going through the transcripts with great attention, marking relevant portions, and organizing the codes into larger themes that encapsulated the main conclusions. The quantitative results were enhanced and given more contexts by the qualitative discoveries. The integration of both quantitative and qualitative data organized to facilitate a more thorough comprehension of the effects of Addis Ababa's mandated Telebirr adoption on gas stations.

3.8 Validity and Reliability Test

The precision, consistency, and credibility of study finding were guaranteed by the vital components of research design known as validity and reliability. Validity and dependability were improved in this study, which focuses on how mobile Telebirr payments affect gas stations in Addis Ababa, Ethiopia.

3.8.1 Validity

To ensure content validity, the survey instrument's questions were created using expert opinions, published literature, and industry participant interaction. The questionnaire's Likert scale was carefully selected to ensure that it doesn't contain any biased or leading questions and accurately captures respondents' opinions. To enhance the qualitative validity of the data, probing approaches and open-ended questions were employed during the interviews to delve further into participants' opinions.

3.8.2 Reliability

The stability and consistency of measurements or data collection techniques were referred to as reliability. This research implemented strategies to improve the accuracy of the information gathered. To ensure uniformity in responses, the survey questionnaires were first standardized and sent to each participant in an equal manner. To reduce miscommunications or incorrect responses, participants received clear instructions. The questionnaire's Likert scale structure enabled quantitative analysis to evaluate the reliability and internal consistency of the questionnaire items. To ensure the consistency and dependability of the qualitative data, a predetermined set of open-ended questions were employed in all semi-structured interviews.

This study intended to create solid and reliable results that appropriately reflect the effect of mobile Telebirr payment on gas station owners by putting these validity and reliability standards into practice. This helped to contribute significant insights to the research domain and decision-making processes.

3.9 Ethical Considerations

3.9.1 Informed Consent

All gas station administrators received a thorough explanation of the study's goals, methods, possible risks, and advantages prior to enrollment. A fact sheet describing the goals, design, and rights of participants in the study was given out.

Entire voluntary participation in the study was required. The right to refuse participation or to leave the study at any time without facing any repercussions was made clear to participants. Prior to the beginning of data collection, all participants were provided written informed consent. The study's purpose, the kinds of data that was gathered, and guarantees about data security and confidentiality were included in the consent form.

3.9.2 Confidentiality and Anonymity

The identities of the participants were safeguarded by anonymizing all personally identifiable information. Each participant received a unique identifying code for the purpose of data analysis.

Encrypted storage devices and computers with password protection were used to store electronic data. Physical data were safely kept in secured cabinets. This included printed questionnaires and transcripts of interviews.

The study's findings were reported in a collected manner to prevent participant identity from being revealed. There won't be any publications or reports that contain any personal information.

CHAPTER FOUR

Data Analysis and Discussion of Results

The chapter explores the research's findings. The organization of this section is to provide a thorough examination of the quantitative and qualitative information gathered from surveys and interviews. It starts by describing the methodologies used for data analysis, such as theme analysis for qualitative insights and statistical procedures for quantitative data. After that, the chapter methodically summarizes the findings, looking at important factors such transaction efficiency, profitability, adoption barriers, technical problems, operational adjustments, and client feedback. The results are analyzed considering the body of current research, emphasizing both the similarities and differences with earlier investigations. The chapter intends to provide a nuanced knowledge of how mandatory Telebirr adoption has affected the strategic and operational aspects of Addis Ababa's gas station businesses through a thorough discussion.

4.1. Background Information of Respondents

Gas stations from all throughout Addis Ababa made up the study's respondents, who were chosen through a stratified random sampling procedure to provide a representative sample. To capture the wide range of experiences and effects associated with the deployment of the Telebirr payment system, the sample consisted of gas stations of various sizes and locations.

The study's respondents, who were selected using a stratified random sampling technique to provide a representative sample, were gas station administrators from across Addis Ababa. The sample was made up of gas stations in a variety of sizes and locations to represent the wide range of experiences and consequences related to the implementation of the Telebirr payment system.

Additionally, the survey documented the respondents' varying operational scales, ranging from smaller, independently owned stations to bigger, potentially franchise-based enterprises.

4.2 Quantitative Analysis

Quantitative analysis is the systematic use of numerical data to assess and understand patterns, trends, and relationships. In the context of this survey, the objective was to analyze the numerical responses to each question to draw meaningful conclusions about the impact of mobile Telebirr on transactional efficiency, Challenges, Technical Issues, Operational Changes, profitability and Customer feedback at gas stations.

4.2.1 Descriptive Statistics

The key elements of the dataset, which was collected from gas station administrators on their experiences with the Telebirr mobile payment system, were summed up and described using descriptive statistics. This statistical method offered a concise synopsis of the measures and the sample, revealing general patterns and trends in the data.

This study leveraged descriptive statistics, specifically measures of central tendency (mean, median, mode) and dispersion (range, variance, standard deviation), to elucidate the overarching patterns and distribution of opinions held by gas stations regarding the Telebirr payment system. These statistical tools provided a concise overview of the general sentiment surrounding transaction efficiency, profitability, operational adjustments, technical difficulties, and customer feedback.

By using descriptive statistics, the study showed the respondents' perceptions towards various components of the Telebirr system. For instance, a high mean score coupled with a low standard deviation for the question on technical support signified a strong consensus among the gas station owners concerning the effectiveness of Telebirr's technical assistance. This implies that a majority of respondents shared a similar positive (or negative) experience with the technical support offered by Telebirr.

The analysis of descriptive statistics facilitated the interpretation of the data by highlighting both the common experiences and outlying viewpoints expressed by the gas station administrators.

Overall, the data can be easily interpreted by highlighting the common experiences and outliers among the gas stations through the examination of descriptive statistics. This served as the basis for more in-depth statistical analysis and debates in the study's later sections.

Table 1 Transaction efficiency

Transaction Efficiency					
Statements	N	Minimum	Maximum	Mean	Std. Deviation
1. I believe mobile Telebirr offers a more convenient payment option for my customers compared to cash.	33	3	5	4.24	.830
2. Mobile Telebirr has helped reduce queues at my gas station by expediting transactions.	33	4	5	4.64	.489
3. Since adopting mobile Telebirr, the speed of processing transactions at my gas station has significantly improved.	33	4	5	4.52	.508
4. Overall, mobile Telebirr has positively impacted the efficiency of my gas station's operations.	33	3	5	4.00	.707
Valid N(listwise)	33				

Source: Primary data, 2024.

There was widespread agreement among participants, as evidenced by the high mean scores obtained from a variety of questions, that mobile Telebirr had greatly increased transaction efficiency at gas stations. For instance, there was broad agreement that Telebirr has significantly sped up transactions, as evidenced by the extremely high mean score and low standard deviation on the transaction processing times question. The high mean and low standard deviation also showed that participants firmly believed that Telebirr had improved the accuracy of transaction records. The implementation of mobile Telebirr had resulted in significant improvements in the speed and accuracy of gasoline purchase transactions at gas stations, as seen by the consistently high mean scores and low standard deviations across these questions. Overall, the evidence

pointed to a beneficial impact of mobile Telebirr on transaction efficiency, including notable gains in speed, accuracy, and shorter payment times.

Table 2 Profitability

Profitability					
Statements	N	Minimum	Maximum	Mean	Std. Deviation
1. Since adopting mobile Telebirr, my gas station's operational costs related to payment processing has decreased.	33	3	5	4.24	.830
2. Since adopting mobile Telebirr, the volume of transactions at my gas station has increased.	33	4	5	4.48	.508
3. Since adopting mobile Telebirr, I have observed an increase in the average transaction value at my gas station.	33	4	5	4.52	.508
4. I believe the adoption of mobile Telebirr has positively impacted my gas station's profitability.	33	4	5	4.52	.508
Valid N(listwise)	33				

Source: Primary data, 2024.

According to the study's findings, gas station administrators had consistently and resolutely agreed that mobile Telebirr has a good impact on profitability. There appeared to be widespread agreement that Telebirr has increased average transaction values based on the extremely high mean scores and lower standard deviations across several questions. This suggested that participants have a strong belief that mobile Telebirr has enhanced their gas stations' overall financial performance. The combination of high mean scores and low standard deviations

indicates that gas station owners have a consistent and unambiguous opinion that Telebirr's adoption has improved their profitability.

Table 3 Challenges- initial adoption

Challenges - Initial Adoption					
Statements	N	Minimum	Maximum	Mean	Std. Deviation
1. I encountered significant difficulties during the initial process of adopting mobile Telebirr technology at my station.	33	2	4	2.76	.830
2. The training resources provided for my staff on using mobile Telebirr were sufficient and clear.	33	3	4	3.27	.452
3. The initial cost of implementing mobile Telebirr systems created a financial burden for my gas station	33	3	4	3.30	.467
4. I experienced customer resistance to using mobile Telebirr during the initial adoption phase.	33	2	4	3.12	.600
Valid N(listwise)	33				

Source: Primary data, 2024.

The mean score reflected the findings, which showed a neutral to slightly positive opinion on the clarity and sufficiency of training materials. The reduced standard deviation, which indicated comparatively consistent replies, provided more confidence to this. The standard deviation showed some variation in the responses, but the mean score reflected a modest opinion on the financial burden of beginning costs. Furthermore, the standard deviation indicated some variety in replies and the neutral to slightly positive experience with consumer resistance pointed to

some initial hesitancy but not a great deal. Additionally, the standard deviation showed considerable response variety, and the lower mean implied that while some challenges were faced, they were not significant for most individuals.

Table 4 Technical issues

Technical Issues					
Statements	N	Minimum	Maximum	Mean	Std. Deviation
1. Since adopting mobile Telebirr, I have encountered technical problems or malfunctions with the system.	33	2	4	2.55	.564
2. Technical issues with mobile Telebirr were resolved promptly and efficiently.	33	4	5	4.24	.435
Valid N(listwise)	33				

Source: Primary data, 2024.

The lower mean score suggested that participants had a generally pleasant experience with the Telebirr system, with less technical issues being encountered. The standard deviation, on the other hand, suggested that replies varied somewhat, suggesting that not every participant encountered the same degree of technical difficulties.

On the other hand, the high mean score indicated that participants strongly agreed that Telebirr service providers handled any technical issues they encountered quickly and effectively. This was further supported by the reduced standard deviation, which indicated generally consistent replies about the efficiency of technical help and issue resolution.

Table 5 Operational changes

Operational Changes					
Statements	N	Minimum	Maximum	Mean	Std. Deviation
1. I needed to modify my gas station's workflow or processes to accommodate mobile Telebirr transactions.	33	3	4	3.73	.452
2. Since adopting mobile Telebirr, there has been a need to hire additional staff to handle the new payment system.	33	2	4	2.97	.728
3. Mobile Telebirr adoption has increased the need for additional training for my existing staff members.	33	3	4	3.27	.452
4. Integrating mobile Telebirr into my gas station operations presented significant challenges.	33	3	4	3.52	.508
Valid N(listwise)	33				

Source: Primary data, 2024.

The mean score reflected the findings, which showed that certain workflow modifications were necessary yet manageable. The reduced standard deviation, which indicated comparatively consistent replies, provided more credibility to this. Furthermore, as indicated by the mean score, the replies ranged from neutral to slightly negative, indicating that more personnel were not a critical need. The standard deviation showed some diversity in the responses, suggesting that although some individuals could have had needed more substantial adjustments, the revisions was generally accepted as manageable. Additionally, the mean score's mild increase in training needs indicated that some additional support was required but not excessive. The fact that the standard deviation is lower implied that the replies were comparatively consistent, meaning that

most participants needed comparable amounts of training. The mean score shows that, overall, the replies were just above neutral, suggesting that, despite obstacles, they were not very important. The standard deviation suggested that there may have been some variety in the responses given, implying that some individuals may have encountered greater difficulties than others.

Table 6 Effect on customers

Effect on Customers					
Statements	N	Minimum	Maximum	Mean	Std. Deviation
1. The positive feedback I have been receiving from customers have increased from the initial obstacles we faced when we first implemented the telebirr payment system	33	4	5	4.24	.435
2. I have had to implement specific actions to address negative customer feedback about mobile Telebirr.	33	2	4	2.76	.830
Valid N(listwise)	33				

Source: Primary data, 2024.

There has been a notable improvement in positive feedback from customers since the initial challenges faced during the system's implementation. With a mean rating and a narrow standard deviation, it is evident that the majority of respondents have expressed satisfaction with the service. The minimum and maximum ratings of 4 and 5 respectively indicate a consistent positive sentiment among customers, reflecting a significant enhancement in their overall experience with Telebirr.

On the other hand, the data also highlights the presence of negative feedback that necessitated specific actions to address customer concerns. The mean rating suggests a more mixed response

to addressing these issues. The higher standard deviation indicates a wider range of opinions among customers regarding the effectiveness of the actions taken. The minimum and maximum ratings of 2 and 4 respectively demonstrate a varied perception of the measures implemented to tackle negative feedback, indicating the need for further improvements in this area. Overall, the findings suggest a positive path in customer sentiment towards the Telebirr payment system, with a clear increase in positive feedback over time. While efforts have been made to address negative feedback, there is room for continued refinement to ensure a more consistent and satisfactory customer experience. By leveraging the insights gained from this analysis, businesses can further enhance their services and strengthen customer relationships in the competitive mobile payment market.

In general, the descriptive statistics study showed that mobile Telebirr had a generally good effect on gas station profitability and transactional efficiency. In addition to increased profitability through higher transaction values and overall financial success, participants claimed faster transaction speeds, accuracy, and shorter payment delays. The early adoption obstacles were mild and controllable, and technological problems were quickly fixed. Most of the customer response has been favorable, which lends more belief to the effective integration of mobile Telebirr in improving the operations of gas stations.

4.3 Qualitative Analysis

Investigating non-numerical data to comprehend ideas, viewpoints, or experiences is known as qualitative analysis. This entails examining open-ended replies, interviews, and observations in the context of your study to learn more about the uptake and effects of mobile Telebirr at gas stations. In this section, the qualitative data collected through interviews was presented and analyzed. The process of data familiarization, coding, theme creation, and thematic analysis was discussed in detail.

4.3.1 Familiarization with the data

The first step in the thematic analysis process was familiarizing the material by reading it again and making a list of the main concepts. Initial codes for this study were created based on research questions that examined the advantages, difficulties, and operational adjustments that gas stations faced when implementing TeleBirr. The following table illustrates the variety of start codes that arose in relation to the deployment of mobile payments:

Table 7 Start Codes for Thematic Analysis

START CODE	MEANING	Justification
Operational Changes	The changes gas stations made to their business processes and workflows to accommodate the TeleBirr system	Adopting a new technology often requires changes to existing operational procedures (Tornatzky & Fleischer, 1990)
Challenges	The difficulties and barriers gas stations faced in adopting and using the TeleBirr system	Understanding the challenges is crucial for identifying areas for improvement and support (Awa et al., 2016)
Opportunities	The benefits and advantages gas stations experienced or expect to gain from using TeleBirr	Identifying the opportunities helps to highlight the value proposition of the mobile payment system (Dahlberg,2008)

4.3.2. Theme category creation and grouping

The next step involves grouping the codes into broader themes that represent significant patterns in the data.

Table 8 Themes emerged from analysis

Theme Category	Theme	Definition
Operational Changes	Employee Training	The need for gas stations to provide training to their employees to adapt to the new mobile payment system, Telebirr.
	Customer Reactions	The initial reluctance of customers to adopt the new payment method and the subsequent changes in customer behavior after the adoption.
	Liquidity Management	The challenges faced by gas stations in managing their liquidity after implementing Telebirr, include the need for cash reserves and the impact on transaction efficiency.

Challenges	Technical Issues	The technical problems encountered by gas stations during the implementation of Telebirr, such as connectivity issues and system downtime.
	Customer Resistance	The resistance faced by gas stations is from customers who were initially hesitant to adopt the new payment method.
	Employee Resistance	The resistance faced by gas stations came from their employees who were initially hesitant to adapt to the new payment method.
Opportunities	Increased Efficiency	The benefits of Telebirr in terms of increased efficiency in transactions, reduced cash handling, and improved customer satisfaction.
	Enhanced Customer Experience	The positive impact of Telebirr on the customer experience, including faster transactions and reduced waiting times.
	Reduced Risks	The reduction in risks associated with managing cash, such as theft and loss, after the implementation of Telebirr.

4.3.3. Theme relationship

The themes identified in the qualitative data analysis were interconnected and influence each other. For example, the operational changes made by gas stations in response to the implementation of Telebirr were influenced by the challenges they faced during the adoption process. Similarly, the opportunities presented by Telebirr were influenced by the operational changes made by gas stations.

4.3.4. Results of the interview analysis

Several themes emerged from the qualitative data analysis of the semi-structured interviews with gas station administrators in Addis Ababa, Ethiopia, highlighting the operational adjustments,

difficulties, and possibilities they encountered when the Telebirr mobile payment system was put into place.

A few themes emerged from the qualitative data analysis of the semi-structured interviews with gas station administrators in Addis Ababa, Ethiopia, highlighting the operational adjustments, challenges, and possibilities they encountered when the Telebirr mobile payment system was put into place. Among the themes found are:

1. **Operational Changes:** Following the deployment of Telebirr, gas station administrators reported considerable changes to their operations, including staff training, customer responses, and liquidity management.
2. **Challenges:** During the adoption process, gas stations encountered several difficulties, as reported by the interviewers. These included technical difficulties, system outages, and connectivity issues and customers inconvenience.
3. **Possibilities:** The interviewees also emphasized the advantages that Telebirr offers, including more productivity, quicker transactions, and fewer errors.

These thematic results not only provided a structured framework for organizing the qualitative data but also offered a deeper understanding of how the adoption of Telebirr impacted various aspects of gas station operations. By exploring the themes of operational changes, challenges, and possibilities, the study was able to uncover the multifaceted nature of transitioning to a mobile payment system and its implications for gas station businesses.

Operational Changes: One of the central themes that emerged from the thematic analysis was operational changes. Gas station administrators reported significant adjustments to their business processes, including staff training, customer responses, and liquidity management, in response to the implementation of Telebirr. These operational changes were essential for ensuring a smooth transition to the new payment system and optimizing the efficiency of gas station operations. By examining the theme of operational changes, the study highlighted the practical implications of adopting mobile payment technology and underscored the importance of adapting business processes to leverage the benefits of Telebirr. This theme directly relates to the title of the study by emphasizing the operational adjustments required for gas stations to integrate mobile payment systems effectively and enhance their operational efficiency.

Challenges: Another key theme identified in the thematic analysis was challenges. Gas stations encountered various difficulties during the adoption process, including technical issues, system outages, connectivity problems, and customer inconvenience. These challenges posed obstacles to the seamless integration of Telebirr and required proactive measures to address and overcome. By exploring the theme of challenges, the study shed light on the barriers faced by gas stations in transitioning to a mobile payment system and highlighted the importance of identifying and mitigating challenges to ensure a successful implementation. This theme directly relates to the title of the study by emphasizing the hurdles that gas stations must navigate when adopting new payment technologies and the strategies needed to overcome these challenges effectively.

Possibilities: The theme of possibilities emerged as a contrasting element to challenges, focusing on the opportunities and advantages that Telebirr offered to gas stations. Gas station administrators emphasized the increased productivity, quicker transactions, and reduced errors enabled by the mobile payment system, highlighting the positive impact on operational efficiency and financial success. By exploring the theme of possibilities, the study underscored the transformative potential of mobile payment technology in enhancing the operations of gas stations and improving customer experiences. This theme directly relates to the title of the study by showcasing the opportunities presented by mobile payment systems like Telebirr and their role in driving operational efficiency and profitability at gas stations.

In conclusion, the thematic results of the study provided a comprehensive overview of the opportunities, challenges, and operational changes experienced by gas stations during the adoption of the mobile Telebirr payment system. By examining these themes in detail, the study offered valuable insights into the complexities of transitioning to a mobile payment system and the implications for gas station businesses. The thematic analysis not only enriched the research findings but also established a clear connection between the study's objectives and the practical realities faced by gas stations in embracing digital payment technologies.

4.3.5. Qualitative Results and Their Support for Quantitative Methods

The qualitative analysis conducted in this study delved into the experiences, challenges, and operational adjustments encountered by gas stations during the adoption of the mobile Telebirr payment system. Through open-ended interviews with gas station administrators, rich contextual information was gathered to provide a deeper understanding of the impact of Telebirr on their

operations. The qualitative data complemented the quantitative findings by offering nuanced insights and perspectives that added depth to the statistical analysis and improved the operations and financial success of gas station operators.

In the context of assessing the opportunities, challenges, and operational changes gas stations encountered while adopting the mobile Telebirr payment system, qualitative analysis offered valuable insights that complement and enrich the quantitative methods employed in the study. By conducting open-ended interviews with gas station administrators in Addis Ababa, Ethiopia, the research was able to capture the real-world experiences, perceptions, and responses of key stakeholders involved in the adoption of Telebirr.

Operational Changes: One of the central themes that emerged from the qualitative interviews was the operational changes implemented by gas stations in response to the adoption of Telebirr. Gas station administrators shared detailed accounts of the adjustments made to their business processes and workflows to accommodate the new mobile payment system. These qualitative insights provided a nuanced understanding of the practical implications of integrating Telebirr into daily operations, shedding light on the specific challenges and opportunities faced by gas station owners and operators. The qualitative data on operational changes offered a rich narrative that complemented the quantitative data collected through structured surveys, enhancing the overall depth and breadth of the research findings.

Customer Comments and Responses: Qualitative interviews also captured valuable information regarding customer comments and responses to the implementation of Telebirr. Gas station administrators shared feedback from customers regarding their experiences with using the mobile payment system, highlighting aspects such as convenience, satisfaction, and challenges encountered. By exploring customer perspectives through qualitative means, researchers gained a deeper understanding of the impact of Telebirr on customer behavior and satisfaction levels. This qualitative data provided a human-centered view of the adoption process, offering insights that may not have been captured through quantitative measures alone. The qualitative findings on customer responses complemented the quantitative data on client opinions and satisfaction levels, providing a comprehensive view of the customer experience.

Obstacles and Technical Problems: Qualitative interviews also revealed the obstacles and technical problems faced by gas stations during the adoption of Telebirr. Gas station administrators shared insights into the challenges encountered, such as system outages, connectivity issues, and customer inconvenience. By exploring these obstacles in detail through qualitative analysis, researchers gained a deeper understanding of the complexities and nuances of the adoption process. The qualitative data on obstacles and technical problems provided context and depth to the quantitative analysis of challenges faced by gas stations, enriching the overall research findings with real-world examples and detailed accounts of the difficulties encountered.

Modifications to Company Strategy: Furthermore, qualitative interviews shed light on the modifications to company strategy brought about by the adoption of Telebirr. Gas station administrators shared how they adjusted their business strategies in response to the new payment method, highlighting changes in marketing approaches, operational procedures, and customer engagement strategies. By exploring these strategic adjustments through qualitative means, researchers gained insights into the broader implications of adopting Telebirr on business operations and decision-making processes. The qualitative data on modifications to company strategy provided a holistic view of the strategic implications of mobile payment adoption, complementing the quantitative data on operational changes and profitability metrics.

Overall, the qualitative results from the interviews with gas station administrators enriched the research findings by providing detailed context, real-world examples, and in-depth perspectives that complemented the quantitative analysis. By integrating both qualitative and quantitative methods, this study achieved a comprehensive understanding of the impact of mobile Telebirr on gas stations in Addis Ababa, Ethiopia. The qualitative insights offered a human-centered perspective on the adoption process, highlighting the challenges, opportunities, and operational changes experienced by gas stations in the transition to a mobile payment system.

4.3.6. Discussion

The study's conclusions offered insightful information on how Telebirr affected the operations and financial success of Addis Ababa gas stations. Combining quantitative and qualitative data sets makes it easier to comprehend how the mandatory Telebirr implementation has affected gas station operators in a more thorough manner.

By synthesizing the opportunities, challenges, and operational changes identified in the study with relevant research and theoretical perspectives, the discussion aims to offer insights into the implications of Telebirr adoption for gas station businesses and the broader digital payment landscape in Ethiopia.

The opportunities identified by gas stations after adopting Telebirr align with existing literature on the benefits of mobile payment systems in enhancing customer experience, increasing operational efficiency, and driving business growth. Studies have shown that mobile payments offer convenience, speed, and security for both customers and businesses, leading to improved transaction processes and customer satisfaction. The analysis of opportunities in this study underscores the potential for Telebirr to streamline payment operations, attract tech-savvy customers, and create competitive advantages for gas stations in a rapidly digitizing market.

The challenges faced by gas stations during and after the adoption of Telebirr resonate with prior research on the barriers to mobile payment adoption, including technical issues, customer resistance, training requirements, and security concerns¹⁶. Studies have highlighted the importance of addressing these challenges through effective training programs, system upgrades, and customer education initiatives to facilitate the successful integration of mobile payment solutions. The comprehensive examination of challenges in this study emphasizes the need for strategic solutions to overcome obstacles and maximize the benefits of digital payment adoption.

The significant operational changes implemented by gas stations to support Telebirr adoption reflect the organizational adjustments required to embrace digital transformation in the retail sector. Existing literature emphasizes the importance of staff training, process optimization, and technology upgrades in facilitating the transition to mobile payment systems and enhancing operational efficiency. The analysis of operational changes in this study highlights the proactive

measures taken by gas stations to adapt to the evolving payment landscape and leverage the benefits of Telebirr for improved service delivery and financial performance.

Several implications for gas station businesses and the broader digital payment ecosystem in Ethiopia. By addressing the identified opportunities and challenges, gas stations can enhance customer engagement, optimize operational processes, and drive revenue growth through the effective adoption of mobile payment solutions. The insights from this study can inform strategic decision-making for gas station owners, payment service providers, and policymakers seeking to promote the adoption and utilization of mobile payment systems in the market.

By exploring technological obstacles, regional variations, and consumer preferences in more detail, future studies can provide valuable insights for improving user experience, expanding digital payment accessibility, and fostering a sustainable digital economy. The practical implications of this research underscore the importance of collaborative efforts among stakeholders to drive innovation, enhance digital literacy, and promote the widespread adoption of mobile payment systems for the benefit of businesses and consumers alike.

CHAPTER FIVE

Conclusion and Recommendation

5.1 Summary

This research explored the effects of integrating mobile Telebirr payment systems on the business processes and operational efficiency of gas stations in Ethiopia.

The purpose of the study was to assess how mobile Telebirr payments affected gas station revenue, profitability, and operational effectiveness. Using a mixed-methods approach, it combined quantitative information from surveys with qualitative information from Addis Ababa gas station owners' interviews. The difficulties of adoption, the opportunities that arise, the operational adjustments that must be made, and the parallels with conventional payment systems were the main study questions. Tested hypotheses included owner attitudes, consumer feedback on mobile Telebirr payments, profitability perceptions, and efficiency gains.

The quantitative analysis's conclusions show that using mobile Telebirr payments greatly improved transaction speed and accuracy. This has a beneficial impact on profitability by raising transaction values and enhancing financial performance. On the other hand, early difficulties included low technological proficiency, unreliable network connectivity, and opposition to change. Qualitative findings highlighted benefits including improved transaction records, expedited service, and higher efficiency while also recognizing the need for staff training and technical help to get beyond adoption barriers.

5.2 Conclusion

The introduction of mobile Telebirr payments had greatly increased Ethiopian gas stations' operational effectiveness and profitability, according to the study's findings. According to the research, integrating this mobile payment system had improved overall financial performance by facilitating faster and more precise transactions. Thanks to technological advancements, gas stations may now streamline their operations and cut costs related to managing cash.

Notwithstanding these advantages, the research also notes several difficulties gas station owners had in the early stages of adoption. Staff members' insufficient technological proficiency, inadequate network access, and reluctance to abandon conventional cash-based procedures were

the main problems. Targeted interventions are needed to address these issues, such as thorough personnel training programs and upgrades to the technology infrastructure that guarantee dependable network connectivity.

The study emphasizes how consumers and petrol station operators alike generally view mobile Telebirr payments favorably. Customers have praised the quickness and simplicity of mobile transactions, and owners have seen significant increases in profitability and efficiency. These results implied that mobile Telebirr payments have the potential to establish themselves as a common and well recognized mode of payment in the fuel retail industry, provided they receive sufficient backing and further improvements.

5.3 Recommendation

Future research should focus more on the long-term impacts of mobile Telebirr payment adoption on gas station operations considering the study's findings. Although this research has emphasized short-term advantages like increased productivity and profitability, longer-term studies would be beneficial to determine how these effects change over time. A more thorough grasp of the long-term advantages and possible drawbacks of mobile payment systems can be obtained by looking at patterns in revenue growth, customer satisfaction, and operational changes over several years.

Further research ought to delve into the technological obstacles encountered by service stations in Ethiopian areas. Comparative studies can highlight regional differences in the interest and effectiveness of mobile Telebirr payments because of the wide variations in the nation's technology infrastructure and network connectivity. Understanding the challenges faced in rural versus urban environments can assist develop interventions and support systems that are more uniformly adopted and beneficial in a variety of geographic locations.

Additional studies should also investigate how mobile payment methods affect consumer behavior and preferences. Although consumer input was mentioned in this study, further investigation is required to fully comprehend the ways in which mobile payments affect consumer behavior, loyalty, and satisfaction levels.

Customers' experiences and expectations can be better understood through surveys and focus groups, which can help payment service providers and gas station operators, improve user experience and grow their customer base.

Finally, an integrated perspective of the societal consequences of mobile payment usage can be obtained through multidisciplinary study that blends knowledge from the fields of business, technology, and sociology. Examining the impact of mobile payments on the wider economic scene, encompassing employment opportunities, financial accessibility, and digital literacy, can highlight the wider socio-economic advantages and possible drawbacks. Such thorough research can help stakeholders and policymakers create programs and legislation that promote Ethiopia's transition to a sustainable and inclusive digital economy.

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APPENDIX A: QUESTIONNAIRE

ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE

MBIS PROGRAM

Part one

Dear Respondent, I am currently a student at Addis Ababa school of commerce, and I am doing my MBIS thesis. On “Assessing the opportunities, challenges and operational changes gas station owners encountered while adopting mobile telebirr payment system”. The study is for academic purposes and thus does not affect you in any case. All your responses to the questions given would be used for the research and will be kept confidential. Your honest and well-timed response is vital for the success of the study.

Therefore, I kindly request you to respond to each question wisely.

Note:

1. No need to write your name.
2. If there are multiple options provided, please indicate your selection by circling it and placing a checkmark (✓) where applicable.
3. Please return the completed questionnaire in time.

Survey Questionnaire

Purpose: This survey aims to gather quantitative data on the impact of mobile Telebirr payment on gas station owners in Addis Ababa, Ethiopia. It covers factors such as transaction efficiency,

profitability, challenges faced during adoption, technical issues, operational changes, and customer feedback.

Please indicate your level of agreement with each statement below on a scale of 1 to 5:

- 1 = Strongly Disagree

- 2 = Disagree

- 3 = Neutral

- 4 = Agree

- 5 = Strongly Agree

Transaction Efficiency					
Statements	1	2	3	4	5
1. I believe mobile Telebirr offers a more convenient payment option for my customers compared to cash.					
2. Mobile Telebirr has helped reduce queues at my gas station by expediting transactions.					
3. Since adopting mobile Telebirr, the speed of processing transactions at my gas station has significantly improved.					
4. Overall, mobile Telebirr has positively impacted the efficiency of my gas station's operations.					

Profitability					
Statements	1	2	3	4	5
1. Since adopting mobile Telebirr, my gas station's operational costs related to payment processing has decreased.					
2. Since adopting mobile Telebirr, the volume of transactions at my gas station has increased.					
3. Since adopting mobile Telebirr, I have observed an increase in the average transaction value at my gas station.					
4. I believe the adoption of mobile Telebirr has positively impacted my gas station's profitability.					

Challenges - Initial Adoption					
Statements	1	2	3	4	5
1. I encountered significant difficulties during the initial process of adopting mobile Telebirr technology at my station.					
2. The training resources provided for my staff on using mobile Telebirr were sufficient and clear.					
3. The initial cost of implementing mobile Telebirr systems created a financial burden for my gas station					
4. I experienced customer resistance to using mobile Telebirr during the initial adoption phase.					

Technical Issues					
Statements	1	2	3	4	5
1. Since adopting mobile Telebirr, I have encountered technical problems or malfunctions with the system.					
2. Technical issues with mobile Telebirr were resolved promptly and efficiently.					

Operational Changes					
Statements	1	2	3	4	5
1. I needed to modify my gas station's workflow or processes to accommodate mobile Telebirr transactions.					
2. Since adopting mobile Telebirr, there has been a need to hire additional staff to handle the new payment system.					
3. Mobile Telebirr adoption has increased the need for additional training for my existing staff members.					
4. Integrating mobile Telebirr into my gas station operations presented significant challenges.					

Effect on Customers					
Statements	1	2	3	4	5
1.The positive feedbacks I have been receiving from customers have increased from the initial obstacles we faced when we first implemented the telebirr payment system.					
2. I have had to implement specific actions to address negative customer feedback about mobile Telebirr.					

Instructions

Please fill out the survey based on your experience with mobile Telebirr payment systems at your gas station. Your responses will help us understand the impact and identify areas for improvement. Thank you for your participation.

Part Two

Interview Questionnaire

Background

1. How long have you been operating as a gas station owner?

- Less than 1 year

- 1-3 years

- More than 3 years

2. Before adopting mobile Telebirr, what were your primary payment methods? (Select all that apply)

- Cash

- Credit/Debit Card

- Bank Transfer

- Other (please specify)

Opportunities - Transaction Efficiency

1. How has mobile Telebirr impacted the queue length at your gas station?

- Increased

- No change

- Decreased

Opportunities – Profitability

1. Have you observed an increase in the average transaction value since adopting mobile Telebirr?

- Yes

- No

- Not sure

Challenges - Initial Adoption

1. What were the major difficulties you encountered during the initial adoption of mobile Telebirr? (Select all that apply)

- Technical issues
- Staff training
- Customer resistance
- Initial cost
- Other (please specify)

Challenges - Technical Issues

1. What types of technical problems have you encountered with mobile Telebirr? (Select all that apply)

- System downtime
- Transaction failures
- Connectivity issues
- Other (please specify)

2. How quickly were technical issues resolved?

- Within hours
- Within a day
- Within a week

- More than a week
- Not resolved

Operational Changes

1. What modifications to your gas station's workflow or processes were necessary to accommodate mobile Telebirr transactions?

- Implementing new hardware
- Training staff
- Customer education
- Other (please specify)

2. Have you seen an increase in operational efficiency since integrating mobile Telebirr?

- Yes
- No
- Not sure

Effect on Customers

1. What specific actions have you taken to address negative customer feedback about mobile Telebirr?

- Providing additional training to staff
- Offering customer support
- Improving transaction processes
- Other (please specify)

Summary

The revised questions aim to gather more nuanced and detailed information while maintaining the overall length and content of the original questionnaire. This approach ensures that the study captures the complexity of the impact of mobile Telebirr on gas station operations and provides actionable insights.