ADIS ABABA UNVERSITY

SCHOOL OF COMMERCE

DEPARTMENT OF MARKETING MANAGEMENT

FACTORS AFFECTING THE ADOPTION OF CUSTOMER'S MOBILE PAYMENT:

THE CAUSE OF TELE BIRR ADDIS ABABA

A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF ADDIS ABABA UNIVERSITY; IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR A DEGREE OF MASTER OF MARKETING MANAGEMENT

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ADDIS ABABA, ETHIOPIA

ADIS ABABA UNVERSITY SCHOOL OF COMMERCE

DEPARTMENT OF MARKETING MANAGEMENT

Factors Affecting The Adoption of Customer's Mobile Payment: The Cause of Tele Birr Addis Ababa

A Thesis Submitted to School of Graduate Studies of Addis Ababa University; in Partial Fulfilment of the Requirement for Degree of Masters of Marketing Management.

APPROVED BY: EXAMINING BOARD

External Examiner	Signature	Date
Internal Examiner	Signature	Date
Advisor	Signature	Date

Declaration

I declare that the thesis "Factors Affecting the Adoption of Customer's Mobile Payment: The Case of Tele Birr Adis Ababa " is my original work, that it has never been submitted for a degree at another university, and that all sources used throughout the entire study have been fully acknowledged.

Affirmed by: Solomon Tsige

Signature: _____

Statement of Certification

This is to confirm that the thesis “Factors Affecting the Adoption of Customer’s Mobile Payment: The Case of Tele Birr Adis Ababa” was undertaken by Solomon Tsige for the partial fulfillment of a degree of masters of Marketing Management at Addis Ababa University. To the best of my knowledge, this is an original work that has not been submitted for credit at this or any other university.

Thesis Advisor: Dr. Temesigen Belayneh

Signature: _____

Date: _____

Acknowledgment

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Dedication

To the memory of my beloved father, Tsige Molla, who left an indelible mark on my life. Your guidance, wisdom, and unwavering support have been a constant source of inspiration throughout my academic journey. Your legacy will continue to motivate me to pursue my goals with passion and dedication. This thesis is dedicated to your memory.

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LIST OF ACRONYMS

ICT	Information Communications Technology
DFS	Digital Financial Service
GOE	Government of Ethiopia
GSMA	Global System for Mobile Communications Association
MNOs	Mobile Money Network Operation MNOs
NBE	National Bank of Ethiopia
PEU	Perceived Ease of Use
PU	Perceived Usefulness
PC	Perceived cost
PR	Perceived risk
PT	Perceived trust
SI	Social influence
PIN	Personal identity number
TAM	Technological Acceptance Model
TRA	Theory of Reasoned Action
TBA	Theory of Planned Behavior
MNO	Mobile Network Operator
IDT	Innovation Diffusion Theory
M-Payment	Mobile Payment
SPSS	Statistical Package for Social Science

Abstract

The study adopted the Technology acceptance model (TAM) the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Technology Acceptance Model (TAM). It examined six independent variables related to mobile payment service usage: perceived usefulness, perceived ease of use, perceived trust, perceived cost, perceived risk, and social influence. A quantitative research approach was employed, gathering data from 400 participants through a survey. Factor analysis established the validity of the measurement items, and reliability was assessed using Cronbach's alpha coefficient. Data analysis was conducted using SPSS 25, with Pearson correlation and multiple regression techniques. The results indicated that perceived usefulness, ease of use, trust, and social influence significantly impacted the adoption of mobile payment services. However, perceived cost and perceived risk did not significantly affect service adoption, possibly due to high transaction fees and potential errors during transactions. To enhance adoption rates, the researcher recommended that service providers improve system performance, minimize transaction errors, protect customer privacy, and consider offering reasonable transaction costs.

Keywords: include customer adoption, technology acceptance model, and mobile payment.

CHAPTER ONE

1. INTRODUCTION

This chapter presents a concise introduction to the topic. It includes a summary of the research, detailing the problem statement and research questions, objectives, importance, scope, and structure of the study.

1.1 Background of the study

The widespread diffusion of smartphones in emerging and developing markets has inspired digital transformation, reduced the informal and undocumented volume of transactions, and increased digital inclusion in Africa and elsewhere. The diffusion of smartphones, which has played a remarkable role in reducing the digital divide, is now considered the future of the industry, although mostly in developed markets (Kabbiri et al. , 2018)

Mobile phones have opened up new opportunities for financial services, especially in developing countries where the number of mobile phone users often exceeds the number of traditional bank account holders. Mobile money services, which integrate banking and telecommunications, offer cost-effective, efficient, and convenient transactions. Mobile payments are generally used for point-of-sale transactions or direct purchases of goods and services, including digital and tangible items. Mobile banking, also known as m-banking, allows users to access standard banking services through their mobile devices, such as checking balances, making payments, and managing their accounts. There are two types of mobile payments: proximity payments, which involve contactless transactions, and remote payments, which are made from a distance. It is exchanged with a compliant and specialized payment terminal via Near Field Communication (NFC) technology. Put another way, the smartphone functions as a touch-free credit card, so creating a new factor in the payment process. Payments made from a distance are those done through a web browser on a mobile device or a resident smartphone application that verifies personal information stored online using the phone. Remote payment techniques can also be used for transactions done at vending machines and in person. (White Paper, 2011).

The entity that oversees a customer's account determines whether a customer is classified as either focused on banks or not focused on banks (Bash et al., 2015; Chaix & Torre, 2011; White Paper, 2012). The customer's account is held by a bank using a bank-centric approach. Among

the matters covered by the pertinent banking laws and regulations at local, national, and international levels are accountability, fraud detection through transaction monitoring, and compliance. When a transaction is made, the customer's bank has to approve the payments. The key differences happen at the transaction's end, and traditional payment networks like Visa and Master Card are still in use.

The extensively utilized operator-centric and collaborative mobile payment techniques have been welcomed by developing nations. The central node of the operator-centric paradigm is a telephone operator, which handles transactions and distributes intellectual property rights to partners (Chaix & Torre, 2015). In the nonbank-centric approach, the customer's account is maintained with nonfinancial businesses such as communications or third-party payment services. This type of scenario raises significant security, regulatory, and even profit-sharing difficulties. Whose agency will be in charge of regulating and guaranteeing these services, for example, the relevant national bank or the national telecoms authority? In developing countries for financial gain. Customers can make cash in and withdrawals from a group of representatives pay their bills, purchase airtime, transfer money to other customers and non-customers, and more. A large number of certified agents who convert the recipient do not need to have an M-Pesa registration. Under the other strategy, mobile carriers and banks cooperatively combine their resources. Orange Money is a mobile payment service offered by ten countries (Cote d'Ivoire, Senegal, Botswana, Madagascar, Mali, Niger, Cameroon, Kenya, Mauritius, and Jordanian) (Flood, West, & Wheadon, 2013). According to the GSM Association (GSMA), there are already 163 mobile payment products available in developing countries, and another 107 are planned. Examples of these products are M-PESA, WIZZIT, Smart Money, Digicel Mobile Money, MiCash, and others. Thirteen in the Americas, forty in the Asia-Pacific region, and about ninety in Africa are currently operational. Mobile payments are expected to get less attention, although financial institutions and well-established payment networks will probably still be important in wealthier nations. Australia has adopted Square Wallet, Google Wallet, and PayPal; the US has embraced Wallet, PayPal, and Square Wallet; Japan has embraced Osaifu-keitai, which is loosely translated as Mobile Wallet. These are cases of various countries adopting mobile payment systems. Contactless or near-field communication (NFC) capabilities are features of some of these products, while others let users link their bank, credit, or debit card accounts to their mobile payment accounts. (Flood et al., 2013).

In the current situation, BelCash, a located in the Netherlands company, is supplying an innovative solutions technology known as Hello Cash, which certain banks have begun employing, whereas MOSS ICT" mostly under the ownership of an Irish corporation, is launching M-Birr in Ethiopia (Blair, 2015). alongside these two product suppliers, Dashen Bank launched Amole and Commercial Bank of Ethiopia launched CBE-Birr to provide services for mobile payments or mobile money. There are now more domestic banks that provide m-payment choices. However, the primary emphasis of the research is on MBirr, Amole, and CBE-Birr services.

In addition to revolutionizing daily and business communication, mobile devices may have an impact on all financial activities. People are becoming increasingly acclimated to utilizing mobile phones in particular for several functions, as they are becoming more extensively used.. (Abebe,2019).

The mobile money industry experienced several changes, with the launch of new services, strategic partnerships, and the introduction of new use cases. (GSMA 2022)

In Ethiopia, mobile money is a relatively new phenomenon. The National Bank of Ethiopia oversees it and issues financial institutions licenses and directions. In December 2012, the first regulation—mobile and agent banking directive No. FIS/01/2012—was released, enabling banks and microfinance organizations to provide the service. (GSMA Association, 2021).

The first mobile money service, M-BIRR, was piloted by the Government of Ethiopia in 2013 and officially launched in 2015 (GSM Association, 2021).

The only Governmental mobile network provider in Ethiopia, Ethio-telecom, has announced Tele birr, a new mobile money service created by Huawei. Compared to other mobile money systems in Ethiopia, it is comparatively young and the only state-owned MNO-led service available. (Tsegaye,2022).

1.2 Statement of the problem

The traditional payment methods used by individuals and businesses are confronting considerable restrictions and challenges in today's fast-paced and increasingly digital environment. In addition to being ineffective and cumbersome, relying solely on cash, checks,

and credit cards leaves one open to fraud, mistakes, and security lapses. Furthermore, the lack of acceptance of digital payments in many sectors and areas is impeding entrepreneurship, restricting access to financial services, and slowing down economic growth.

According to various studies and experts, the future of payment methods is expected to heavily rely on mobile payment technology. As highlighted by Cobanoglu, Yang, Shatskikh, and Agarwal (2015), consumers are increasingly open to embracing mobile payment solutions. Recently, Ethio Telecom, the sole mobile network operator in the market until 2022 and a government-owned entity, launched the tele birr mobile money service. This service has facilitated transactions totaling +2.37 trillion ETB, serving over +46.6 million customers as of May 2024. Additionally, there are +201K agents, +186K merchants, and 27 bank integrations enabling seamless transactions between the telebirr wallet and banks. For more information, visit www.ethiotelecom.et.

Even though it is still relatively new, mobile payment technology is considered a secure and effective alternative to traditional debit/credit September 2022 saw the MNO Safaricom enter the Ethiopian market, and in May 2023 it was granted a license to use mobile money. To boost investment and add competition to the industry, the government also plans to privatize 45% of Ethiopian Telecom and allow one more MNO to enter the market. By 2025, if all goes according to plan, MNOs should offer three mobile money services in Ethiopia.

Ethiopia's current electronic payment system is insufficient, especially for young people without bank account access and those residing in rural areas. For instance, in 2017 the majority of Ethiopian consumers paid their energy bills with cash; in contrast, Kenya (12%), Tanzania (27%), and Sub-Saharan Africa as a whole (59.6%) had substantially lower numbers. Even more strikingly, only 0.2% of Ethiopian laborers received payment via mobile phone transactions, compared to 24% in Kenya, 27% in Tanzania, and 19% on average in Sub-Saharan Africa.(Demirguc-Kunt, Klapper, Singer, Ansar, & Hess, 2018)

Simultaneously, just 0.2 percent of Ethiopian wage earners received payments via mobile phones, contrasting sharply with rates of 37 percent in Kenya, 24 percent in Tanzania, and an average of 19 percent across Sub-Saharan Africa (Demirguc-Kunt, Klapper, Singer, Ansar, & Hess, 2018).

This suggests that the traditional practice of using cash for transactions between retailers and customers remains prevalent, leading to a decrease in the lifespan of cash in circulation. As a result, the National Bank of Ethiopia incurs higher costs in collecting damaged or worn-out currency, rather than saving on expenses related to producing, transporting, and distributing physical money to banks. Moreover, merchants face challenges in offering payment options that align with existing infrastructure and provide faster, easier, safer, and more reliable transactions. Relying on cash-based methods for exchanging goods and services exposes merchants to the risk of theft, while depositing cash into banks proves to be a time-consuming endeavor. (Abebe, 2019).

The study found that perceived usefulness, perceived ease of use, perceived trust, and social influence are some of the important factors influencing the adoption of mobile money services. (Tsegaye,2022).

Therefore, adopting digital payment systems is crucial to overcoming these challenges and limitations. The study's research models of choice are Unified This study makes use of research frameworks including the Technology Acceptance Model (TAM) and the Theory of Acceptance and Use of Technology (UATUT) to evaluate the factors influencing customer acceptance of the Tele Birr mobile payment service. It examines perceived trust, perceived risk, perceived ease of use, perceived cost, and social influence. Additionally, Viswanath & Davis (1996) look at the barriers to the implementation of the Tele Birr mobile payment service. Owing to several barriers that keep mobile payment systems from becoming extensively used, the study finds a substantial discrepancy between the actual and future use of these.

The significance of this topic lies in the potential implications of the study's findings for the development of marketing strategies by EthioTelecom and other mobile carriers to promote future innovations in mobile payment services. Consequently, this study aims to bridge the information gap by investigating the elements that facilitate and hinder consumers' Utilization of telebirr mobile payment decisions in Adis Ababa.

1.3. Research Question

The study's main goal is to find out what factors affect consumers' acceptance of the Tele Birr mobile payment service.

This study addresses the following sub-questions related to the main research inquiry: What factors influence customers' adoption of the Tele Birr mobile payment service?

1. How does the adoption of mobile payment services influence by their perceived usefulness?
2. How is the adoption of mobile payment services influenced by perceived ease of use?
3. How does the adoption of mobile payment services influence by perceived trust?
4. How does the adoption of mobile payment services influence by perceived risk?
5. How does the adoption of mobile payment services influence perceived cost?
6. How does the adoption of mobile payment services influence by social influence?

1.4 Objectives of the study

1.4.1 General Objective of the Study

The primary aim of the study is to identify and examine the key factors influencing the adoption of mobile payment services, with a specific focus on Telebirr payment services.

1.4.2 Specific Objective of the Study

1. To evaluate the influence of perceived usefulness on the adoption of mobile payment services.
2. To evaluate the influence of perceived ease of use on the adoption of mobile payment services
3. To evaluate the influence of perceived trust on the adoption of mobile payment service
4. To examine the influence of perceived risk on the adoption of mobile payment services
5. To evaluate the influence of perceived cost on the adoption of mobile payment services

6. To evaluate the influence of social influence on the adoption of mobile payment services

1.5 Significance of the research

The acceptance rates of the Telebirr mobile payment service vary depending on the locale. Individuals who use mobile payments have different socioeconomic and personal qualities. Data and research on the usage of mobile bill payment services are necessary for measuring and evaluating the success of financial inclusion programs. This study may be a helpful resource for academics who want to learn more about the adoption of mobile payment services in addition to expanding the body of knowledge in this area. Policymakers and decision makers will find this study to be a useful source of information because the ability of upper-level management to make better judgments depends on the collection, analysis, and recording of data using scientific methods.

1.6 Scope and limitations of the study

This research aims to examine the variables that affect the uptake of mobile payment services, with a particular emphasis on Telebirr, a newly introduced service run by a mobile network operator (MNO). Only Telebirr will be included in the research; other mobile services offered by banks or microfinance organizations will not be included. Additionally, the study will only include people who have used specific Addis Ababa service sites and have a monthly subscription to Telebirr mobile payment. This study will mostly rely on pertinent literature, research findings from other nations, first-hand stories from technology providers, and regulatory frameworks due to the paucity of previous research on mobile payment services in the field.

1.7 Organization of the Study

There is a sub-section within each of the five primary chapters that comprise the research framework. A broad overview of the research is given in the first chapter. The study's background, problem statement, objectives, inquiries, importance, and scope are all included here. The second chapter provides examples. Literary reviews that delve deeply into the topic of inquiry. The third chapter covers the study methodology and includes details on the various sample strategies, data processing strategies, and data collection tactics used. The fourth chapter presents the data analysis and discussion, while the fifth chapter concludes with suggestions.

CHAPTER TWO

LITERATURE REVIEW

2.1 Background of Mobile Payment

Over the past 20 years, mobile phones have radically transformed the telecommunications industry. As noted by Dahlberg, Mallat, and Ondrus (2014), mobile phones have consistently offered a wealth of features far beyond the basic function of making calls. These advanced capabilities have spurred the growth of mobile commerce, expanded the use of mobile devices for various applications, and led to the development of numerous value-added mobile services.

The invention of mobile devices has had a greater impact on people's lives than any other in human history. (Thakur & Srivastava, 2014).

Retailers and service providers can benefit greatly from these developments. The number of people who own mobile phones exceeds that of any other technology used in the production, sale, or delivery of goods and services. Dahlberg and Associates, 2014). With their high penetration rate, growth potential, and capacity to provide services anywhere, at any time, mobile devices represent the most promising means of reaching out to the general public and cultivating relationships with existing customers. Through mobile banking, the use of mobile devices has a big impact on financial institutions.

In the late 1990s and early 2000s, mobile payment systems gained popularity even after the Internet bubble burst (Dahlberg et al., 2014). Mobile phone technology and safe mobile transactions have the ability to dramatically change how individuals move and handle their money. Applications related to mobile commerce, like online to offline (O2O) consumption, mobile purchasing, and travel services, have become more and more popular in recent years. Yang, Liu, Li, and Yu (2015) state that the expansion of mobile commerce depends on customers

accepting mobile payments (m-payments), which are made via mobile terminals such smartphones or personal digital assistants..

Despite having a short commercial history, mobile payment systems have developed quickly, according to Dahlberg, Mallat, and Ondrus (2014). When the Finnish telecom operator launched the Sonera service in 1997, it was one of the first commercial mobile payment solutions. Consumers may pay for goods they bought from vending machines with their mobile phones and the bills they got from their cell carriers. (Dahlberg and associates ,2014).

There is conflicting and unclear wording surrounding mobile payments. The present study defines payment as a financial transaction involving the direct or indirect transfer of funds from a payer to a payee, either through direct means or through the intermediary of a financial institution. Payments, as defined by Mallat (2006), include compensation for digital or physical goods or services acquired, as well as money transfers between traders. Mallat (2006) states that payment instruments such as coins or debit cards are traded for money.

2.2 Definition of Mobile Payment

Industry players have been studying and researching the usage of PDAs (personal digital assistants) and mobile phones to pay for digital or physical goods and services from retailers for over ten years (Gaur & Ondrus, 2012). Mobile payments refer to a wide range of financial transactions that begin with a mobile device. Examples of this include sending money to a recipient who is far away by relying solely on the services of the mobile network provider or utilizing a phone's contactless chip to complete a credit card transaction at a store(Flood et al., 2013).

Mobile commerce is referred to as m-commerce. The most important application for mobile commerce is mobile payments. These services enable users to use their mobile money for financial transactions, transforming it into a business tool that can replace ATMs, bank accounts, and credit cards. When a mobile user tries to make a purchase, a company or service provider contacts a financial institution, a wireless carrier, or another reliable third party to confirm the user and the transaction amount. (Raina, 2014).

Sherferahu and Gezu (2016) list PCs, smartphones, PDAs, and cell phones among these portable devices. Bluetooth, WAP, SMS, and wireless networks are the methods used for making m-

payments (Guo & Bouwman, 2016). Japan created mobile payments, which currently contribute significantly to the GDP of the nation. In South Korea, m-payments are also extensively utilized. It is more prevalent in Europe than it is in North America. (Wondwossen & Tsegai, 2005).

The use of mobile devices, like a phone, for payment transactions is another definition of mobile payment provided by other academics. Mobile devices can be used for both local and remote payments. In addition to these, payment transactions also include other features including timeliness, magnitude, and credit aspects. The phrase payment solution refers to a collection of distilled ideas, such as the payment method, the payment instrument, one or more mobile payment application domains (use cases), the technology utilized, the parties engaged in the transaction, and additional elements of the transaction. (Öörni, Dahlberg, & Mallat, 2003).

M-payment is used by both online and point-of-sale (POS) systems. Online stores provide digital goods like ringtones and wallpaper for mobile phones. In Japan, mobile phones are used for both payment and retail purchases of books, music, DVDs, and fashionable apparel. Mobile devices are also used by ticket machines, vending machines, and POS terminals. Purchasing tickets (such as rail or airline tickets) is one of the main expected uses for mobile payment. Banks and other financial institutions are looking into how mobile phones may increase their client base by facilitating over-the-phone transactions and providing access to account information, including bank balances, from anywhere (Sherferahu & Gezu, 2016).

In general, three categories exist of mobile payments (Wondwossen & Tsegai, 2005). The first is depending on the billing method schedule of the mobile network provider. With this approach, the customer can choose to charge their purchases to their monthly carrier bill or debit it from their prepaid balance. Sonera's Mobile Pay and Vodafone's M-Pay Bill service are two examples of

This method of transaction (Dahlberg et al., 2003). The second form of mobile payment is via a making a credit card payment via a wireless network. The primary element of this payment method is the secure communication of credit card information to the credit card company. On the phone, credit card information is securely saved.

This is done using either a dual-chip or a dual-slot smartphone. The Merita Nordbanken, Visa, and Nokia Electronic Mobile Payment System (EMPS) is an illustration of a dual-chip option. The dual-chip mobile gadget securely stores credit card information. The bank maintains an

account for the third type of mobile payment. Tasks like t moving money between accounts and settling bills can be accomplished with this payment system. Paybox and MobilePay are two instances. The current financial infrastructure and technology in us to make this form of payment. Convenience, accessibility, and ubiquity are some advantages of m-payments over traditional e-payment systems (Wondwossen & Tsegai, 2005). Mobile payments are defined in this study as any transaction done.

2.3 Mobile Payment Ecosystem

All of the technology available to the user and all of the labor performed by the payment service provider or providers to execute payments are included in a mobile payment service. Multiple partners may be involved in a mobile payment service, albeit the main participants are listed here. The parties' power and interests, the legal framework, the regulatory environment, and payment norms all have an effect on how technology and tasks are integrated into a service for mobile payments

. (Dahlberg et al., 2014).

2.3.1 Mobile Network Operator (MNO)

According to Raina (2014), mobile service providers are the ones who make sure that proximity payment services are activated on their networks and that NFC-capable devices are readily available. Ethiopia's monopoly state corporation, Ethio Telecom, has been providing this service. However, steps are being taken by the government to let other investors into the market. With resources and skills at its disposal, the MNO enters the cellular market. The mobile device application, backend m-commerce server, and wireless connectivity make up the initial infrastructure. The extensive distribution networks that MNOs introduce into the system enable the sale of subscription services and pre-paid credit. Generally speaking, these outlets have a wider audience than financial institution branches. There is an agent everywhere there is mobile service. (Tobbin, 2011).

Because they can reach customers in a range of economic groups, MNOs are motivated to play a significant role in the mobile money ecosystem. The mobile network provider frequently has customers in a mobile money ecosystem. Its customer service facilities are open to the public, and agents are trained in consumer interaction techniques. Mobile network operators (MNOs)

can benefit from their infrastructure investments made over the last 20 years by reducing attrition, increasing revenue from payments, and increasing data and airtime consumption with the aid of Mobile Money 12. It not only completes service obligations but also reduces airtime distribution costs. Furthermore, mobile money can enable expansion into additional interest of the customer's needs and manner of (Tobbin, 2011).

2.3.2 Financial Organizations (Banks)

payment and worth storage systems are among the main responsibilities of financial organizations. Hence, when it comes to managing money, monetary institutions provide the mobile environment with a plethora of expertise and client confidence. They grant banking licenses and retain deposits made by users of mobile money in trust accounts. Representatives from wholesalers and retailers congregate at the bank's branch offices. The banks act as an intermediary for most implementations, facilitating the exchange of electronic value between the agents and MNOs. When a merchant joins, the banks establish a connection to the current vendor account, which facilitates the transfer of funds from the merchant's e-float account to its principal account. In order for MNOs' m-commerce In addition to making system operations simpler, they provide access to internet banking. They are typically the only companies needed to manage cross-border financial transactions and settlements (also known as foreign remittances). They advise MNOs on financial regulations in addition to making bulk payments, assisting compliance with anti-money laundering (AML) and sanction regulations screens, safeguarding recipient assets by keeping actual cash in a trust account, and reporting to authorities. Mobile money can significantly reduce the cost of offering financial services to consumers by growing its user base. It will allow the banks to grow and meet their service obligations as a result. When it comes to mobilizing deposits, mobile money is less expensive than the traditional methods that banks use. More revenue could be made from the deposits made using (Tobbin, 2011).

2.3.3 Distribution Channels (Agents)

Clients and their representatives mostly communicate through the distribution channels. These are non-bank entities, like retailers (like a village shop or the MNO's own retail center) that handle customer registration and the MNO's cash-in and cash-out services (Tsemane, 2015). Their knowledge helps to better grasp the needs of users, which advances mobile money services. Previously, MNOs were expected to serve as the main distributors of mobile money by

selling aircraft through their distribution networks. However, the agents have expanded to cover conventional stores in most recent deployments, especially in rural areas. The agents inevitably develop into MNO branches. The key to choosing an agent line is the liquidity of the store. Their other business operations often provide them with sufficient liquidity to satisfy customers' requests for cash withdrawals. The agents get a commission on the sale of their mobile money services. It is expected that the total number of transactions will add up to a substantial amount, even if the amounts involved in each transaction are usually rather little. Agents who are already well-established retailers usually reap the additional benefit of not having to take huge sums of cash to the bank (Tobbin, 2011). There are normal agents and super agents, and the regular agents buy value from the super agents. Through a physical deposit at a local bank, the super agents buy value from.(Tsemane, 2015).

2.3.4 Merchants and Utilities

Whether a payment is made by a contactless or touched mobile device, it is processed by merchants (Raina 2014). Utility providers and shops provide another reason for embracing and using mobile money services. Businesses that accept payments from customers via the mobile money platform include physical businesses, online retailers, gaming companies, lottery operators, and other providers of general products and services. Customers pay the merchant by purchasing e-value from an agent and depositing it into the merchant's account. Customers can also pay utility providers with mobile money by utilizing the e-value on their phone, which eliminates the need for them to stand in line for hours. This provides speed, convenience, and security for the retailer as well as its customers. Retailer's and utility firms' presence increases the consumer base inside the mobile money ecosystem and promotes service offerings. As a result, processing and collecting payments will be less expensive when using mobile money. It will also speed up payment timeliness and improve user convenience. The retailers can see an increase in their customer base as a result. Most implementations of mobile money employ Near Field Communication (NFC) technology. This is meant to enhance the user experience for both consumers and merchants and promote the adoption of mobile money by more people.(Tobbin, 2011).

2.3.5 Regulators

In order to ensure the long-term viability of the mobile money ecosystem, regulations are essential. Their extensive knowledge and understanding of the various industries that make up this ecosystem are extremely significant. the endeavor to balance innovation, value development, efficiency, financial inclusion, and caution through the application of regulations. They ensure that individuals follow the various regulations. Regulators protect the stability of the financial system, enforce the law, and foster an environment that is conducive to mobile money. They mediate conflicts between competing groups as well. They take part in activities that involve every other participant in the ecosystem for mobile money. (Tobbin, 2011).

2.3.6 Customers (Consumers)

The diverse needs of the customer benefit the mobile money ecosystem. Customers are the ones who get the most from a mobile money service in the end. The way that customers behave and view mobile money services determines whether the ecosystem is successful or not. As a result, mobile money services must meet user needs and provide a satisfying experience. Using mobile money reduces the danger associated with carrying cash and increases the accessibility and affordability of payment, remittance, and other financial services (Tobbin, 2011). Customers "cash-in" at agent or merchant locations to swap cash for mobile money after registering for services, which they subsequently use to complete transactions (Muya, 2016). Consumer transaction parties are the stakeholders who use mobile payment devices to make mobile payments. (Raina, 2014).

2.4. Advantage of Mobile Payment

Mobile payment technology is thought to be a safe and practical substitute for conventional debit/credit card payments, despite the fact that it is still relatively new. Numerous studies and academics predict that mobile payment technologies will play a major role in future payment systems. According to Cobanoglu, Yang, Shatskikh, and Agarwal (2015), the main factors influencing consumers' inclination to utilize mobile payment technology are security, perceived value, social impact, and compatibility with their lives.. Based on important payment characteristics, clients can assess the potential benefits of mobile payments by contrasting them

with traditional payment methods. a few characteristics, such as affordability, simplicity of use, safety, and merchant acceptability. apply to both conventional payment methods and mobile payments. Some are particularly pertinent to mobile payments, like the capability to view account balances from anywhere and get targeted advertisements (Hayashi, 2012).

Mobile payment solutions have numerous advantages for both consumers and businesses. In a sense, mobile payment systems can function as a digital wallet by storing coupons and loyalty data. Mobile phones' increasing processing and storage power could lead to them becoming a storehouse for goods and services purchases. Customers may be able to keep track of their purchases and get help with issues like misplaced receipts and refused returns by using mobile payment systems. Better payment security is another solution. Most credit card transactions don't require Personal Identification Numbers (PINs), as customers can process charges by just using the same number repeatedly. Both consumers and businesses cannot be certain that the several parties who handle credit card information maintain security. Solutions for mobile payments could be leveraged To improve buyer identity verification effectiveness and establish a more secure transaction, utilizing customer data, location data, device security features, and one-time account IDs. When used appropriately, these developments may lessen the damage caused by credit card theft and increase the difficulty of committing credit card fraud overall.. (Dennehy & Sammon, 2015; Hoofnagle, Urban, & Li, 2012).

Dennehy and Sammon (2015) listed the following benefits of mobile payments to various parties involved.

A) Financial Institutions

Through m-payments, financial institutions can prevent further consumer disintermediation by third parties in the online payment sector, as well as safeguard the current account and related loan products. In addition, m-payments give financial institutions a cost-effective means of providing services to underbanked and unbanked areas while lowering the usage of cash and the expenses linked with it Mobile Network Operators.

B) Through higher customer data and airtime usage, M-payments give MNOs the chance to recover the cost and return on their infrastructure investment. By branching out into new markets in response to changing customer demands and habits, MNOs can also generate new revenue streams with the use of m-payments).

C) Merchants

For the merchant, m-payments offer increased throughput at the point-of-sale (POS), real-time messaging capabilities, and service cost savings from remote or unmanned POS sites. By providing value-added services like digital loyalty cards and coupons, m-payments with NFC technology can also help retailers build stronger consumer relationships and more customized shopping experiences.

D) Consumers

By enabling "anytime, anywhere" payments, m-payments may help customers become less reliant on carrying cash, which may lower the possibility of theft.

E) Regulators

Regulation can offer safe and effective payment methods to bring goods and services to the markets. Consequently, governments may be able to improve financial services, especially for those who are underbanked or unbanked.

2.5. Mobile Payment Categories

M-payments can be classified from a variety of perspectives, including technology utilized, payment location, service provider, originator of settlement, fund, and so forth.

2.5.1. Proximity Mobile Payment

Mobile proximity payment is the process of sharing information via proximity technologies, such as Near Field Communication (NFC), Quick Response (QR) codes, Bluetooth, etc., between the payer and the payee while they are in the same location. Zidda, Demoulin, and De Kerviler (2016). Mobile contactless payments are part of the family of mobile proximity payments. The principal mode of payment may be credit transfers or credit cards. Mobile proximity payments encompass both customer-to-business (paid, for example, at a merchant store, parking lot, or on public transportation) and person-to-person (P. M. Lai, 2010) payments.

The payment and settlement procedures are the same whether the customer uses a magnetic or traditional contactless payment method when the phone is brought within a few inches of a point-of-sale system that supports contactless payments.

2.5.2. Remote Mobile Payment

Remote mobile payments, or m-payments, are made using your phone to buy goods or services. There are multiple ways to carry out mobile payments from a distance. Using their phone or SMS, mobile users can pay for applications, ringtones, or videos; the money is then charged to their mobile account. According to P. M. Lai (2010), mobile users also have the option of making direct payments via a mobile website using credit or debit cards, PayPal, or other methods. According to Raina (2014), remote mobile payments are ideal for use by underbanked consumers, merchants who do not follow the regular POS acquirer payment process, such as flea market sellers and seasonal outdoor vendors, and markets where in-person payments are required .Raina (2014). A remote mobile payment procedure is carried out when a merchant and consumer open an account with a reliable third party, or MPSP. When a transaction is started, an SMS message is sent to the MPSP. Authentication techniques include the use of secret passwords, the confirmation of additional sender personal information, and the validation of handset hardware details. After obtaining and validating the transaction request, the MPSP transfers money from the customer's account to the merchant's account and notifies the merchant that the funds have been moved. In a closed loop system, the merchant can then deposit the funds into a standard bank account..

2.5.3. Business Model Based Mobile Payment Service

2.5.3.1. Operator- Centric Model

Independent mobile carriers collaborate to offer NFC-capable smartphones with m-payment apps to retailers (Raina, 2014). The mobile operator can load the NFC mobile and prepay, or charge the customer's current wireless account, according to Chaix and Torre (2011). This strategy cannot be used since Ethiopian financial standards and rules only allow financial transactions through banks. Model centered around operators (Chaix & Torre, 2011)

2.5.3.2. Bank- Centric Model

This strategy involves banks installing point-of-sale (POS) systems at merchant sites or enabling consumers to use their mobile devices to make payments via an existing mobile network. It is also thought of as an advancement of the credit card idea (Chaix & Torre, 2011). This encompassed the entire financial intermediation system environment, according to Chaix &

Torre (2011). The bank, which serves as the model's central node, assigns property rights and manages transactions.

Chaix & Torre (2011). The bank, which serves as the model's central node, assigns property rights and manages transactions.

When a customer wants to initiate a transaction, they will do it through the phone application that their bank has given. Every transaction will have an effect on the customer's bank account because it is bank-centric (Nurhussen, 2016). Nevertheless, it can be put into practice in Ethiopia in compliance with the financial system guidelines established by the Bank-Centered National Bank of Ethiopia Mode (Chaix & Torre, 2011)

2.5.3.3. Peer-to-Peer Architecture

Using this technique, banks enable retailers to set up point-of-sale (POS) systems or permit users to pay using their mobile devices via an established mobile network. According to Chaix and Torre (2011), it is also viewed as an advancement of the concept of credit cards. Chaix & Torre (2011) state that this encompassed the surroundings of the entire financial intermediation system. The bank is the main node in the scheme, regulating transactions and distributing property rights. (Chaix & Torre, 2011)

2.5.3.4. Cooperation Framework

Under the cooperative approach, intermediaries in finance and telecom carriers share intellectual property rights and cooperate in task management. Mobile carriers, banks, and other players in the value chain of payments via mobile collaborate under this structure. comprises a possible l trustworthy external organization that oversees the distribution of applications for smartphones.

According to this idea, payments are processed through the existing financial networks, and the appropriate accounts are credited and debited. In this scenario, there are two possible outcomes. First, a cell operator works with one bank to provide a mobile payment solution tailored to that bank. The second is industry alliances that bargain and establish guidelines for mobile device applications that run on secure components and allow users to use different types of cards from different banks. Mobile operators and financial organizations are represented by these associations. Under this structure, it is expected that the banks, cell carriers, and maybe other parties will divide merchant fees. (Chaix & Torre, 2011; Raina, 2014).

2.5.4. Role-Based Payments

2.5.4.1. Bank-Focused

Under the Bank-Focused model, m-payments can only be implemented by approved deposit-taking financial institutions that use mobile phones as a delivery channel to offer banking services to their clients. Participants include initiating banks and their clients and ICT partners. By using this strategy, the Lead Initiator will make use of its mobile payment solution and put in place enough safety measures to prevent any possible risks related to the implementation.

2.5.4.2. Bank-Led

The second strategy, called Bank-Led, allows a bank or banks to work together with other organizations to deliver financial services by utilizing the mobile banking system. With the bank acting as the primary initiator, participating organizations are constrained to their core competencies under this model.

2.5.4.3. Non-Bank Led

Non-Bank-Led model: Consumers who are not authorized to receive deposits from financial institutions or mobile network operators (MNOs) instead obtain mobile payment services from other payment service providers (Nurhussen, 2016). This method works similarly to a peer-to-peer mobile payment mechanism in the given business component.

2.6. Technology Adoption Models

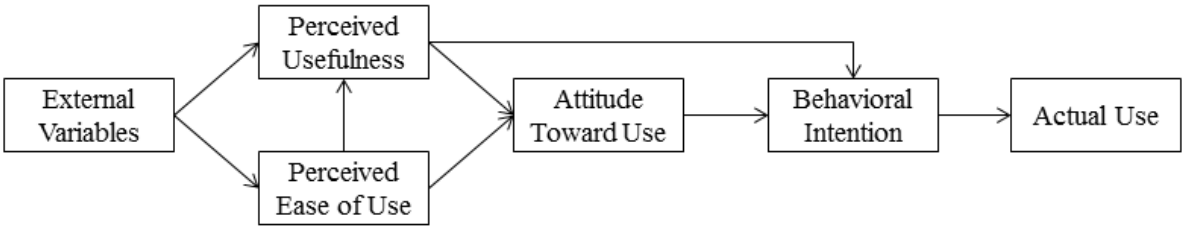
To explain the adoption of new technologies, numerous frameworks and models that consider the elements influencing customer acceptance have been established (Taherdoost, 2017). Expansions of these theories and models have been used to analyze the use of mobile financial services and the adoption of mobile banking. Notable examples include the Diffusion of Innovation Theory (Rogers, 1983), the Technology Acceptance Model (Davis, 1986), the Unified Theory of Acceptance and Use of Technology (Venkatesh, 2003), the Theory of Reasoned Action (Ajzen, 1985), and the Theory of Planned Behavior (Ajzen, 1985). Scientists often employ these well-established frameworks, mixing older models with new ones, to conduct research.

A theory in information systems called the Technology Acceptance Model models how newly developed technology is used and adopted (Davis, 1986). According to TAM, there should be a range of considerations when it comes to determining when and how customers use new

technologies. Davis (1986). Perceived utility and perceived ease of use are two elements that impact potential users' acceptance of newly adopted technology. Perceived Usefulness (PU) is one of the primary and independent components of the Technology Acceptance Model (TAM), according to Davis (1986). It's defined as "the extent to which a person feels that employing a certain system would improve his or her job performance." Davis (1986). This shows that if the person thinks using the system will increase their productivity at work, they may be open to using it. An important factor is the user's attitude toward adopting technology to make his tasks easier.

Perceived ease of use (PEOU), a key concept in the Technology Acceptance Model (TAM) (Davis, 1986), is the degree to which a person believes that a specific technology will be simple or easy to use.

Stated differently, PEOU refers to the user's understanding of the system to the degree that they can use it to accomplish their goal with little to no additional effort unless there is a circumstance in which it becomes non-functional.



Source: (Davis, 1986)

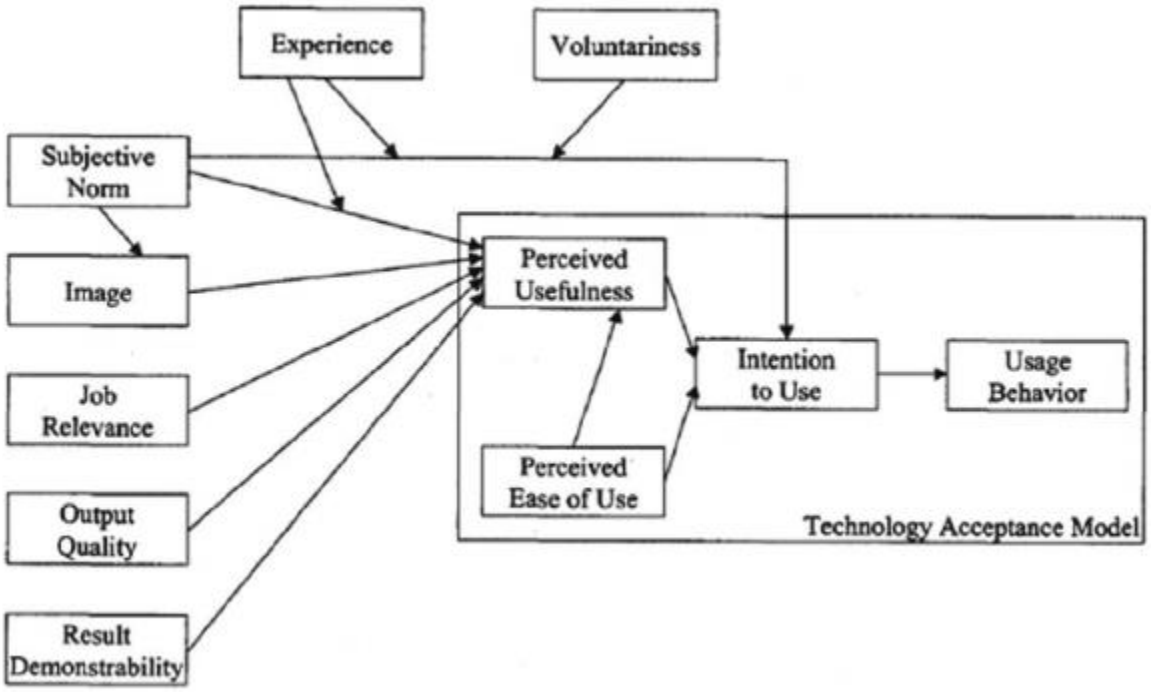
Figure 1: Technology Acceptance Model

2.6.1: Extended Technology Acceptance Model

With the addition of additional factors that influence consumer behavior, TAM can now be used in other areas, such as technology adoption and the use of new services.

Venkatesh (2000) developed the Technology Acceptance Model (TAM) further. The TAM defines perceived value and usage intentions in terms of cognitive instrumental processes and social impact. TAM2, which starts with TAM, incorporates more theoretical ideas. These consist of cognitive instrumental processes (perceived significance of the work, output quality,

demonstrability of the outcome, and work relevance). ease of use) and social influence processes (subjective norm, voluntariness, and image).



Source:(Venkatesh, 2000).

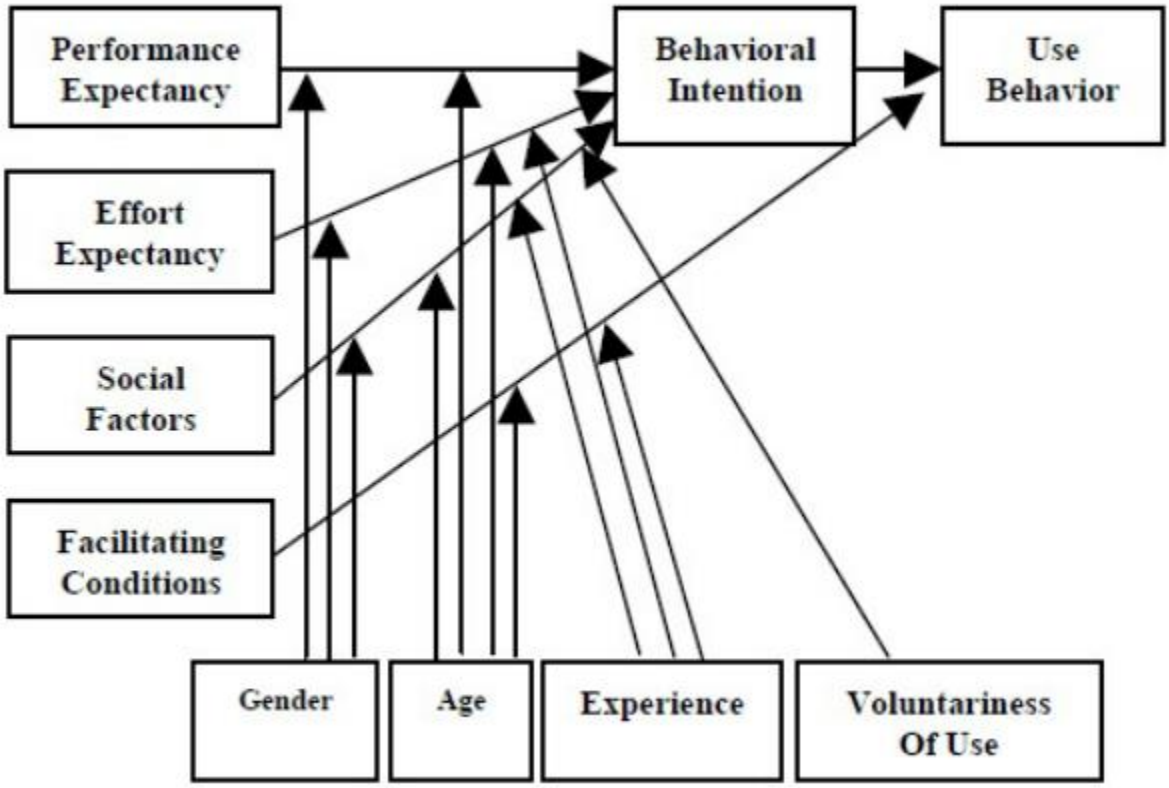
Figure 2: Extended Technology Acceptance Model

2.6.2 Unified Theory of Use and Acceptance Technology (UTAUT)

The UTAUT is a technology acceptance model developed by Venkatesh (2003) to forecast customers' adoption of new technologies. The UTAUT model uses four main determinants: performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC) to ascertain users' behavioral intention (BI) to embrace a technology (Venkatesh, 2003). It is believed that moderator characteristics such as age, gender, experience, and voluntariness of usage an impact on the four main aspects of usage intention and behavior. Eight previous theories that described how users of information systems interacted with the systems were evaluated and their components were integrated to develop the current theory (Venkatesh, 2003).

The theory was created by assessing and integrating the elements of eight earlier theories that explained how users of information systems interacted with the systems (Venkatesh, 2003).

Performance expectancy, effort expectancy, social influence, and facilitating factors are the four primary constructs that the theory identifies as impacting usage intention and behavior. The concept, which is based on several categories and components, considered people's behavior in addition to their ability to accept and assimilate new technologies. These concepts have emphasized the psychological and behavioral components of technology users.



Source: (Venkatesh, 2003)

Figure 3: Innovation diffusion Theory

This theory was one of E.M. Rogers's original theories, developed in 1962. It mainly explains the way and rate at which new ideas, practices, or products spread among a population. novelty. Diffusion theory offers a unique approach to the analysis of changes in comparison with previous theories. This theory sees change as being primarily driven by the manufacture or "reinvention"

of products and behaviors to better serve the requirements of individuals and groups, rather than by trying to persuade individuals to change. The diffusion of innovations is influenced by the innovations themselves rather than by the persons (Robinson, 2009).

Diffusion, on the other hand, is the process by which a discovery or invention spreads over time through specific paths among members of a social system. Innovations, social systems, communication networks, and time are the four main parts of the IDT.Rogers (2003).

A novel idea, activity, or object that an individual or group believes to be imaginative is included in Rogers' (2003) definition of innovation. As a "channel through which users share information," a communication system facilitates the movement of data between users, according to Rogers (2003). The diffusion of inventions is aided by more efficient and quick communication methods. The diffusion of innovation involves a temporal component that tracks adopter classification and adoption rate, estimating the amount of time that passes between the introduction of innovation and its slowdown. This method evaluates how quickly a new idea gains traction in society and is embraced by a range of consumers.

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Rogers (2003) discovered that five factors influence how quickly ideas are embraced. Compatibility, trial ability, observability, complexity, and relative advantage are these. Innovations with higher relative advantages, compatibility, simplicity, trialability, and observability will be adopted far more quickly than those with lower attributes, claims Rogers

(2003).

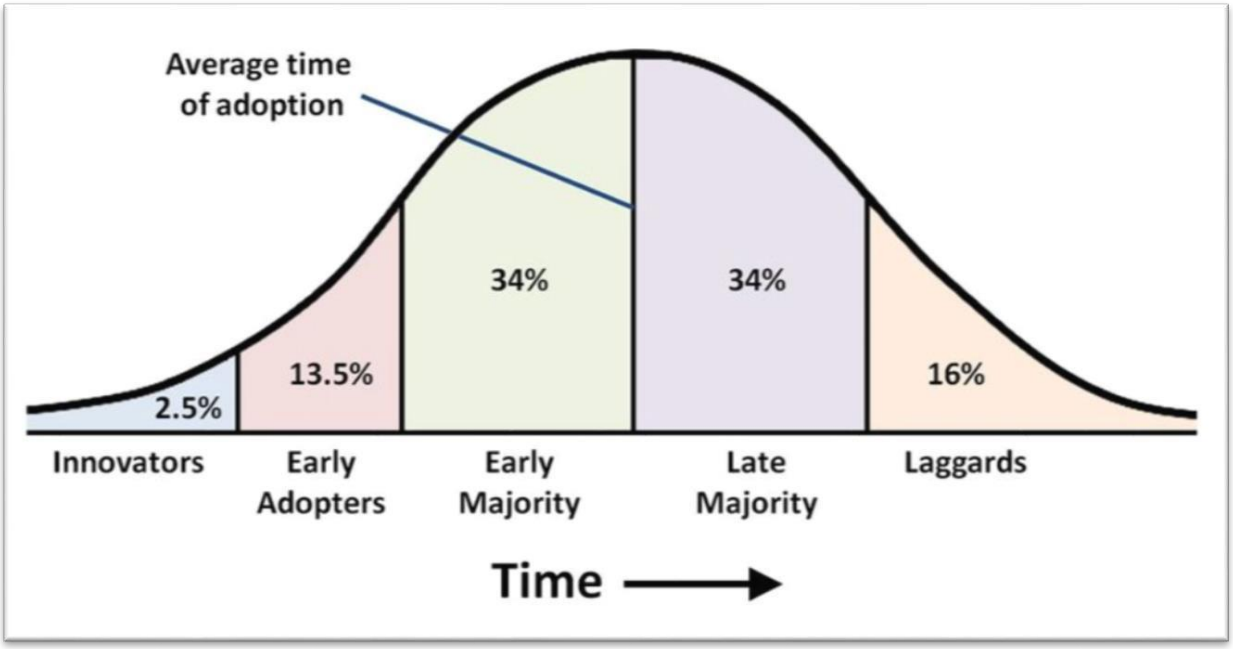

Figure 4:Source: (Rogers, 2003)

2.6.3 Theory of Planned Behavior

According to the Theory of Planned Behavior (TPB), an individual's attitude toward an activity, the subjective norms associated with its performance, and their belief in their ability to control the behavior are the primary factors that shape their behavioral intentions, which in turn determine their planned behaviors (Ajzen, 1985). According to the idea, behavioral control perception and behavioral intention can both be used to predict behavioral performance (Ajzen, 1991). This method brought to light three essentially distinct aspects of intention. First, a person's attitude toward the conduct is related to their evaluation or conclusion of the behavior in issue, taking into account both its advantages and disadvantages. The second predictor is a social component called the subjective norm, which characterizes the pressure from society to participate in behavior or abstain from it..

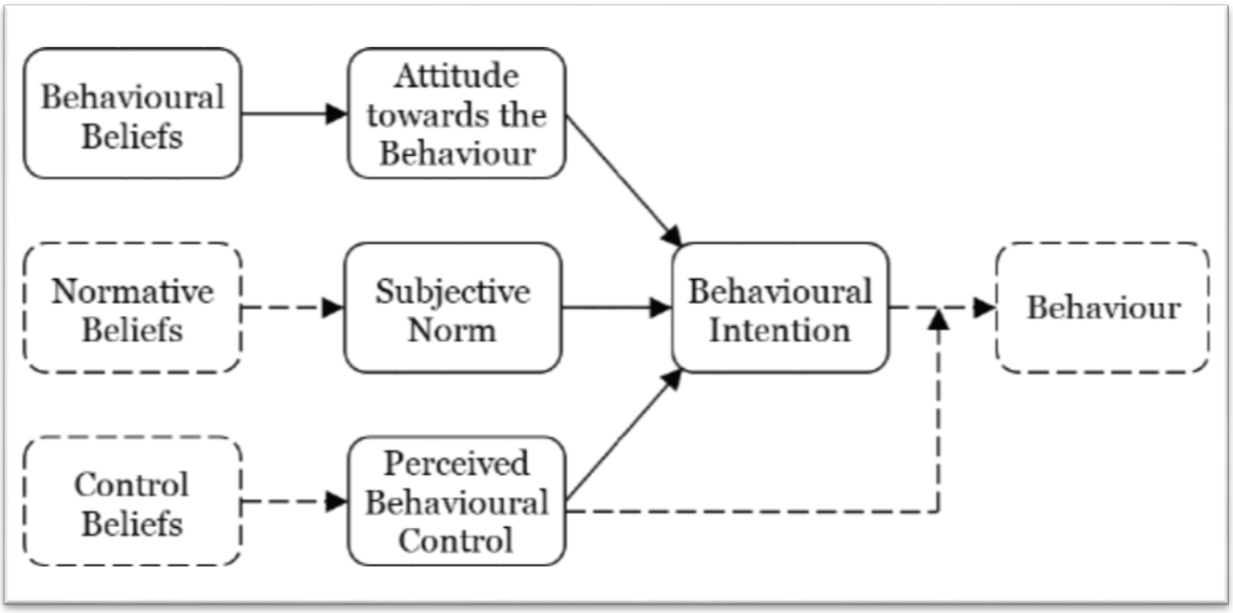

Figure 5: Source: (Ajzen, 1985)

The technology acceptance models (TAM) have been used in several studies to examine how mobile financial services are adopted. These research studies used the initial TAM characteristics together with additional factors such as perceived risk, trust, and perceived costs associated with mobile financial services.

A highly helpful instrument in The cornerstone of information technology research is the Technology Acceptance Model (TAM). Scholars from several fields have employed the conventional TAM (Yuanquan, et al., 2008). Perceived usefulness (PU) and perceived ease of use (PEOU) serve as independent variables. in nearly all extended TAM designs.

The use of external factors, which differ depending on the kind of research, demonstrates the adaptability of the TAM model. Despite the lack of obvious control variable design options, external influences significantly affect TAM. (Yuanquan et al., 2008).

The Technology Acceptance Model (TAM) is a commonly widely recognized and accepted model that has undergone thorough testing and validation. It can be made better or longer by adding new concepts or ideas (Venkatesh, 2000). (Masinge, 2010).

(Lema, 2014) looked into the factors influencing the uptake of mobile financial services. The population without bank accounts was the primary focus of the investigation. (Lema, 2014) found in his research.

The two independent variables that indicated the strongest association between the variables were perceived risks (PR) and perceived costs (PC). The results show that perceived utility, perceived trust, and social influence are all strongly positively correlated. Perceived ease of use is highly connected with perceived cost, perceived trust, and perceived risk. There is also a strong correlation between perceived danger, perceived trust, and perceived cost. Furthermore, the results showed a strong positive association between the use of mobile financial services and perceived trust. (Lema, 2014).

Lema (2014) looked into the variables that affect those who aren't banked when adopting mobile financial services. Among the independent variables, the study found that perceived risks (PR) and perceived costs (PC) were notably related, suggesting a substantial association between them. The results showed that perceived trust and social influence, as well as perceived utility, were strongly positively correlated. Considerable correlations were found between perceived cost, perceived trust, and reported ease of use. Perceived cost was also strongly correlated with perceived danger and perceived trust. All things considered, the study demonstrated a strong correlation between the use of mobile financial services and perceived trust.

Age, level of education, gender, and job status all have a significant influence on the number of people using mobile money services (Maradung, 2013). According to the study, having a bank account or having a gross salary did not significantly affect either.

Perceived usfulness and perceived ease of use have a substantial positive link, according to a study by Masinge (2010), suggesting that the more user-friendly mobile financial services are, the more beneficial they will be. There is a clear inverse relationship between perceived risk and trust, with trust having the capacity to reduce risk. The findings imply that the adoption of mobile financial services was not significantly impacted by perceived risk.

Kumsa (2017) did a study on the adoption of the "hello cash" system in Ethiopia and used user trust beliefs, perceived ease of use, and perceived usefulness as constructs to identify factors that drive the adoption of mobile banking systems. The findings showed that the adoption of mobile The perceived ease of use of mobile banking has a beneficial impact on banking. Perceived

usefulness is one of the elements driving the uptake of mobile banking. The adoption of mobile banking is highly connected with perceived usfulness. Additional aspects that have a beneficial influence on consumers' adoption of mobile banking are dependability and credibility. In Ethiopia, perceived risks—risks pertaining to money, time, and security—have a detrimental effect on mobile banking and are viewed as roadblocks to the system. (Kumsa, 2017).

Individual awareness, perceived usefulness, and perceived benefit are positively correlated with the adoption of mobile financial services, but adoption of these services is negatively correlated with cost effects, according to a different study titled "Factors influencing consumers' adoption of mobile financial services in Tanzania" (Abdinoor, 2017). According to the survey, respondents' age, gender, and income level are among the demographic traits that influence their likelihood of using mobile financial services. One of the obstacles Tanzanians encounter while using mobile banking services, though, is the expense element. (2017, Abdinoor).(NOREEN & GHAZALIZ, 2021) investigated the ways in which perceived trust and other facets of perceived risk impact Pakistani users' adoption of mobile money services. According to the study's findings, perceived risk—especially that of security, privacy, and finances—has a significant impact on the adoption of mobile money services in the country.

With the help of the above stated literatures, it is evident that TAM approaches were widely used to study technological adoption in a range of settings with additional elements, and that TAM methodology was effective in most of these studies. However, these theories need to be adjusted to fit the learning contexts and the services provided.

Therefore, to meet the study's goal, the adoption of mobile money services was examined through the variables found in TAM and other relevant theories, as well as other relevant theories.

2.5.4 Research Hypothesis

Perceived usfulness and perceived ease of use are the two variables that affect whether potential customers will embrace a newly developed technology, according to Davis (1986). The researcher created these hypotheses in light of the primary research question and aim of the study. Perceived utility and perceived ease of use have a positive correlation and have a substantial impact on mobile money service adoption. Perceived usefulness and perceived ease of use were proven to have a significant impact on consumers' attitudes, which in turn influences

the adoption of mobile banking (Lule, 2008).In view of the aforementioned information, it consequently proposed the following theory:

Hypothesis 1: The uptake of mobile money services is positively impacted by perceived simplicity of use and usefulness.

According to a study by Yan et al. (2021), social influence had a favorable effect on the uptake of mobile banking services. Lema (2017) found that social influence played a significant role in the adoption of mobile banking services. As a result, the following theory is proposed:

H2: A significant factor influencing the adoption of mobile money services is social influence. A study by Lema (2014) indicated that the penetration of mobile financial services was significantly positively correlated with perceived trust. The behavioral desire to use the CBE-BIRR mobile money service is positively correlated with perceived trust (Eshetu, 2020). As a result, it proposed that:

H3: Perceived trust has a positive impact on the adoption of mobile money services.

Perceived risk, particularly that associated with security, privacy, and financial risk, has a substantial influence on the uptake of mobile money services (NOREEN & GHAZALIZ, 2021). According to reports, concerns over financial loss, password security, network issues, hacking, and the loss of personal information have increased as mobile banking services have grown. Therefore, it is thought that risk perception has a detrimental effect on the adoption of mobile banking. (Lema, 2014).

H4: The perception of risk poses a substantial obstacle to the adoption of mobile money services. According to (Matiwos, 2018), his study's correlation results indicated a negative relationship between perceived cost and the uptake of mobile banking. The results of a different NJELE (2021) study show that the perceived cost has a significant influence on the number of users of mobile money services. Therefore, the following theory is proposed.

H5: The perceived cost of mobile money services has a major detrimental impact on the uptake of the service.

2.5.5 Conceptual Framework

As the study's road map, the conceptual framework aids in the researcher's definition of the independent and dependent variables as well as the clear and understandable processing, analysis, measurement, and interpretation of data.\

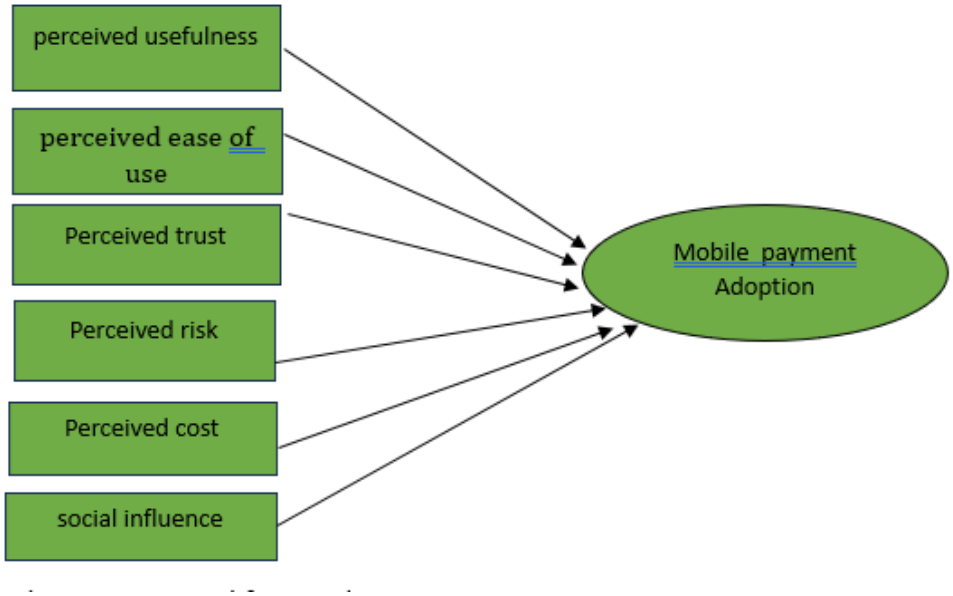

Figure 6: Source: The research model adopted and derived from" (Masinge, 2010) (Lema, 2014)and (Lee, 2009)

According to (Maradung, 2013) mobile money service adoption is significantly influenced by the age of individuals, educational .

Mobile banking: Conducting banking and financial transactions using a mobile phone.

Banking: is defined as the business activity of accepting and safeguarding money owned by other individuals and entities.

Birr: the basic unit of money in Ethiopia.

Mobile payment: is described as any payment transaction conducted using a mobile phone"

Tele: at distance.

Internet: Computers all over the world are connected by a massive global network called the Internet.

Customer: Customer - is the recipient of a service or idea obtained from a seller, vendor, or supplier for a monetary or other valuable consideration.

2.5.6 Delimitation/scope of the study

This study sought to identify the obstacles preventing customers in Addis Ababa service centers from adopting Ethio Telecom's Telebirr mobile payment service. It was based on the problem statement, research questions, and objectives. Lack of prior research by other scholars and restricted access to data makes the topic difficult to study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter aims to outline the methodologies and methods employed to investigate the research questions. It includes descriptions of the research methodology and study area, method and creation, hypotheses, study populace, specimen selection procedures, data sources and types, data collection process, analytical techniques as well as moral issues.

3.2. Description of the Study Area

According to Demirgüç-Kunt et al. (2018), one of the innovative innovations that is revolutionizing the economies of developing nations is mobile financial services. Approximately half of the more than 100 mobile money system deployments worldwide, according to Donovan (2012), have occurred in poor nations. The selected mobile payment service, telebirr, will be evaluated to determine specific elements influencing the customer's adoption of mobile payments and the root cause of telebirr. This study includes users of the Addis Ababa Telebirr subscription service.

3.3. Research Approach, Method and Design

As per Chetty (2016), a research approach is a tactic, and process that addresses ranging from broad presumptions to exact procedures for obtaining, evaluating, and interpreting data. According to Kivunja (2017), a research paradigm is a conceptual lens that a researcher uses to look into The technique parts of their research endeavor to decide on the research methodology to be used and the methodology for analyzing the data.

This research is founded on the positivist study methodology, which emphasizes using a quantitative technique to find connections or causal relationships between variables.

Research design, according to Bhattacherjee (2012), is a blueprint for empirical research with certain objectives in mind, including testing particular hypotheses or responding to particular research questions. It is also a thorough plan for acquiring information for an empirical research project. To gather data and accomplish the study's objective, this research used a descriptive research design in conjunction with a quantitative data-gathering strategy. In quantitative

research, Creswell (2009) looks at the relationship or association between variables to assess objective concepts.

Instruments can then be used to measure these variables, resulting in numerical data that can then be subjected to statistical analysis. The adoption of mobile payment variables was statistically measured and analyzed in this study using quantitative research methods. With the help of the chosen design, the researcher was able to gather data with ease and subsequently evaluate, identify, and characterize pertinent facets of the phenomenon of interest from the viewpoints of the study region.

According to Kothari (2004), a methodology for research is a set of procedures used by researchers to carry out their studies. Put another way, research methods include every method a researcher employs to look into their study problem. Research methods encompass the diverse approaches, procedures, or methods utilized in the collection and examination of data or information to reveal novel insights or improve understanding of the topic. Using a quantitative approach to collect data, the adoption factors were quantified and examined numerically in this study. To facilitate data aggregation and standardize the outcomes, survey questions were used. A survey is a kind of research approach that methodically collects data on people's preferences, beliefs, and actions through interviews or standardized questionnaires. (Bhattacherjee, 2012).

whether the variables or constructs are driving forces behind the uptake of mobile money services. Emphasizes that Surveys are a fantastic method to get both observable and unobservable information on People's inclinations, characteristics, mindsets, views, and behaviors. Furthermore, he claims that survey data is an appropriate technique for gathering data on a population that is too big to investigate in person. The findings of this investigation goal is to Decide.

3.4. Population and Sampling Procedure

Use surveys as an excellent tool to get both observable and unseen information on the inclinations of individuals, characteristics, attitudes, convictions, and deeds (Bhattacherjee, 2012). Furthermore, he believes that survey research is a good way to get information about a group That is excessively large. To observe in person. The purpose of this research is to ascertain if factors or constructs are influencing the acceptance of mobile payment services.

Convenience sampling, a non-probability sampling technique, was employed in this study to choose a target demographic among the population. According to Kothari (2004), non-probability sampling is a sampling approach that does not indicate the likelihood that any particular item in the population will be incorporated into the example. Stated differently, scientists select certain universe units to sample in non-probability sampling knowing that a tiny mass that is chosen from a huge mass will be typical or universal (Kothari, 2004). There is no assurance that When nonprobability sampling is used, a specific population member will be selected. (Zikmund & Babin, 2010).The convenience sample strategy was used by the researcher due to the varied and informal distribution of mobile payment service users, and it is an effective and cost-effective method for gathering a large number of completed questionnaires.

Similar to how Sample units could be chosen at the researcher's ease of use or discretion, sample size determination can also be dependent on the opinions of experts. By adopting a sample size comparable to earlier research, the investigator can compare their findings with those of other researchers (Zikmund, 2010). Zikmund and Babin (2003) state that the three parameters required to calculate sample size are the population's degree of tolerable error, the variation, or heterogeneity; and the confidence level.

To calculate the sample size, we employed the subsequent technique, which was recommended by Yamane (1973) and referenced by Israel (1992): N/(1+N*e) = n Whereas n is the sample size. The population as a whole is N. e represents the probability of an error.

The sample size for this investigation is established using the formula below: The value of n is 762,352/ (1+762,352x0.05^2) = 399.8 − 400 customers. Consequently, 400 is the sample size (at least 95% confidence level) with N = 762,352 and e = 5%.

Customers residing in Addis Ababa and those who signed up for the Tele Birr mobile payment service contributed data for this study. As a result, 345 participants who finished the questionnaire in full constituted 90% of the sample size intended for this study.

3.5. Source and Types of Data

The data used in the study was compiled from elementary and secondary sources by the researcher. Primary data are distinct since they are acquired initially (Kothari, 2004). The main sources of data are primarily Addis Ababa-based telebirr mobile payment consumers. Respondents to a survey who were dispersed across several areas provided the core data for this investigation.

The secondary data was gathered from a variety of sources, including books authored by different authors, bulletins, updated manuals, documents, telebirr client profiles, and records. To explain and elucidate the conceptual features of adoption and mobile money services, NBE directives and initiatives were cited.

3.6. Data Collection Procedures

Paper questionnaires that respondents in different places were asked to self-administer were given out by the researcher for this study, and once they were finished, the questionnaires were collected.

The study's data came from both primary and secondary sources. Primary data was collected by the researcher through the distribution of a questionnaire. The purpose of the questionnaire is to elicit information from telebirr clients. Participants in the poll were asked to rate their agreement levels. 1 represents strongly disagree and 2 represents disagree on a Likert scale. 3_Neither in concurrence nor conflict 4_Agree to 5_Agree with Strongly.

Survey research regularly uses Likert questions.

In a Likert scale, participants indicate how much they agree with statements using five ordered response levels. The distinct characteristics of Likert item data include its narrow range, discrete nature, and tying of numbers instead of continuous values. (de Winter, 2010).

3.7. Questionnaire

The survey questionnaire utilized in this study consisted of three parts. Respondents gave demographic details in the first section, including their gender, age, education level, and occupation.

In the second section, which focused on the factors influencing consumers' adoption of mobile payment services, the study's constructs were further investigated. This section included operational definitions or measurement instruments based on sources such as Lee (2009), Luarn (2005), Lema (2014), Wu (2005), Davis (1986), Maradung (2013), and Masinge (2010) for constructs such as perceived ease of use (PEOU), perceived usefulness (PU), perceived cost (PC), social influence (SI), perceived trust (PT), perceived risk (PR), behavioral intention (BI) to adopt mobile payment services. Examining the relationships between these variables and how they impact the adoption of mobile payments was the goal of the survey.

3.8. Method of Data Analysis

Before being used for analysis, the gathered data went through a rigorous review, filtering, sorting, and error-checking procedure. Systematically arranging the data made analysis easier. Following the collection of the required data and its mistake and omission checking, statistical analysis was carried out utilizing SPSS software.

Zikmund & Babin (2010) Detailed examination can be defined as the fundamental alteration of information in a manner that highlights its fundamental features, like variability, central tendency, and distribution. The demographic data from this survey were analyzed descriptively. Correlation is the most often used method for determining the connection between two variables. A statistical indicator of covariation, or the degree of relationship between two variables, is a correlation coefficient. As per Zikmund and Babin (2010), covariance refers to the extent to which a modification in one variable consistently correlates with a modification in another.

To look at connections between the study's constructs and find any possible multicollinearity in the dataset, Pearson correlation analysis was used. A range of variable combinations were evaluated to identify the best predictors. Furthermore, multiple regression analysis was used to evaluate the hypotheses and determine their significance levels. According to Moore et al. (2006), multiple regression analysis is a statistical method for examining the relationship between several independent variables and one dependent variable. Its goal is to forecast the value of the dependent variable by using the independent variables' known values. Multiple regression analysis was used in this work to evaluate the proposed hypotheses.

3.8.1 Reliability of the study

Reliability in research refers to the consistency and stability of research findings. It is the extent to which a study or measurement produces consistent and dependable results over time and across different conditions. In other words, reliability is the degree to which a research study or measurement tool yields the same results when repeated under the same conditions.

Reliability is important in research because it ensures that the results of a study are trustworthy and can be replicated by other researchers. It helps to establish the credibility and validity of research findings. There are different types of reliability, such as test-retest reliability (consistency of results over time), inter-rater reliability (consistency of results between different raters), and internal consistency reliability (consistency of results across different items within a measurement tool).

Researchers use various methods and statistical tests to assess the reliability of their research findings, such as Cronbach's alpha, intraclass correlation coefficient, and Cohen's kappa. By ensuring reliability in research, researchers can have confidence in the accuracy and consistency of their findings, which strengthens the overall quality of the research study.

Reliability concerns the extent to which a measurement of a phenomenon provides stable and consistent results (Heale & Twycross, 2015). Reliability is also concerned with repeatability under constant conditions. Testing for reliability is important as it refers to the consistency across the parts of a measuring instrument (Taherdoost, 2016). Cronbach’s alpha is a measure of internal consistency, that is, how closely related a set of items are as a group.

Reliability scales can be classified according to their coefficient values, according to Zikmund and Babin (2010) as stated in Lema (2014): below 0.6 is bad reliability, 0.60 to 0.70 suggests acceptable reliability, 0.70 to 0.80 indicates high reliability, and 0.80 to 0.95 indicates extremely good dependability. Using SPSS 25 software, the study evaluated the reliability of the items within each construct, producing coefficients that ranged from 0.675 to 0.914. Strong internal consistency is shown by these findings for every item within each construct. The table below illustrates that the Cronbach's alpha analysis result for each of the 28 questionnaire items is 0.844, indicating very strong reliability for all of the items used in the study. Stated differently, individuals who possess selected high ratings for one item also chose high scores for the others,

and vice versa. Respondents who chose low scores on one item were likewise selected for the other items. The table below displays the results of each construct's reliability test.

Table 1: Assessment of the Reliability of Dimensions of Mobile Payment Services and the Intention to Use Tele Birr Mobile in Behavior Payment Service

The dimensions of behavioral intention	Number Of Items	Cronbach's Alpha (α)	Remark
Perceived usefulness(PU)	5	0.847	Reliable
Perceived ease of use below(PEOU)	5	0.847	Reliable
Perceived Risk(PR)	5	0.784	Reliable
Perceived Cost (PC)	3	0.675	Fair
Perceived Trust(PT)	5	0.860	Reliable
Social influence(SI)	2	0.852	Reliable
Adoption BI	5	0.914	Reliable
Overall Items	28	0;844	Reliable

Source: user's survey,2024

Dimensions of Mobile Payment and Behavioral Intention: Number of Items and Cronbach's Alpha (α) Assessment

3.8.2 Validity of the study

Validity explains how well the collected data covers the actual area of investigation with subtypes face validity, criterion validity, content and construct validity (Ghauri & Gronhaug, 2005). Validity is determined to assess if items in an instrument reflect or measure the content it is designed to which the instrument will be generalized (Taherdoost, 2016).

Construct validity refers to the extent to which a test measures the concept or construct it is intended to measure. It is important to establish construct validity in order to ensure that the test is accurately assessing the intended construct.

Content validity refers to the extent to which a test is representative of the content domain it is intended to measure. In other words, content validity assesses whether the test items adequately cover the full range of the construct being measured.

Face validity refers to the extent to which a test appears, on the surface, to measure what it is intended to measure. It is a subjective assessment of whether the content of the test seems to be appropriate and relevant to its aims.

Criterion validity: Do the results accurately measure the concrete outcome they are designed to measure.

Construct validity is an issue of operationalization or measurement between constructs. Construct validity refers to how well you translated or transformed a concept, idea, or behavior that is a construct into a functioning and operating reality (Ghauri & Gronhaug, 2005; Taherdoost, 2016). The concern is that instrument items selected for a given construct are, considered together and compared to other latent constructs. The two elements of construct validity used here are convergent validity and discriminant validity as they are widely recommended (Straub, Gefen, & Boudreau, 2004).

Overall, construct validity is essential for ensuring the accuracy and effectiveness of a test in measuring the intended construct. It provides evidence that the test is valid and reliable in assessing the concept or construct it is designed to measure, which is crucial for making informed decisions based on the test results.

a) Convergent Validity

Convergent validity in behavioral science referred as constructs that are expected to be related are, in fact, related (Ghauri & Gronhaug, 2005; Taherdoost, 2016).

b) Discriminant Validity

Discriminant validity is the extent that measures of different constructs diverge or minimally correlate with one another. In PLS examination of cross-loading and the Fornell-Larcker criterion are dominant approaches to evaluate discriminant validity. At a minimum, no indicator variable should have a higher correlation with another latent variable than with its own latent variable. If it does, the model is inappropriately specified (David, 2016).

In the examination of cross-loading, correlation of the latent variables score with the measurement item needs to show an appropriate pattern of loading (Henseler, Ringle, & Sarstedt, 2014).

Construct legitimacy, commonly referred to as validity, is the degree to which a measurement is applied to accurately capture the fundamental idea that it is designed To measure (Bhattacherjee, 2012). Validity is the degree to which An apparatus quantifies what it is designed to evaluate and the amount to which a scale accurately reflects the constructs of the study. The selection of the study's model came after careful analysis of pertinent literature in light of the investigation's objective, which is to identify the variables influencing the uptake of payments via mobile.

The extent to which an assessment effectively captures the the fundamental idea that it seeks to quantify is called construct validity, or validity (Bhattacherjee, 2012). Validity is the extent to which a scale faithfully conveys the concepts of the study and the degree to which an instrument assesses what it is meant to assess. The model employed in this study was selected following a careful examination of relevant literature, taking into account the evaluation of the factors influencing the adoption of mobile payments. According to Masinge (2010), citing Zikmund and Babin (2010), before beginning data collecting, researchers can evaluate respondents' knowledge of the questionnaire through pre-testing, often known as pilot research. During a pilot phase, 45 respondents who were convenience sampled were given questionnaires to validate the items utilized in this study. The scale wording, format, length, and clarity of the questionnaire's language were the main topics of concern for respondents. Any required changes were made in light of the feedback and suggestions received before distributing the intended respondents with the survey questionnaire.

The study employed a range of items to measure the constructs under investigation. To ensure that each item measured the same underlying construct or component used in the research, principal factor analysis was employed. According to Bernard (2006), the foundation of Factor analysis is the simple yet effective idea that the underlying variable in two items must be shared for them to be connected. It is a collection of methods for identifying and evaluating these underlying elements. The goal of the analysis determines the kind of factor analysis that should be carried out. If the inquiry is pushed by theoretical or empirical forecasts principal component analysis is the best approach, according to Tabachnick (2007).

The fundamental idea behind the theories developed for this study was that there needed to be theoretical support and expectations for the link between the latent and observable variables. (Bernard, 2006) states that the association between the variables must be established by previous

study and theory, and the investigator needs to determine The connection between the observable both the latent and the variables. As stated by Bordens (2008), factor loadings are calculated to determine which dependent variables contribute to a common factor. Every loading factor is the relationship between an underlying factor and a measure. The loadings of factors that are initially calculated are frequently imprecise, so they could be The range of factor loadings is -1 to 1. Ratings of 0.70 and higher are considered to be rather good, while scores as low as +0.3 can be accepted (Lawrence Manion, 2007). Numerous investigators employ a factor loading of 0.50 as the threshold and view loadings between 0.30 and 0.49 as meaningful. Certain research states that a variable can't be regarded as a distinct component of a factor unless it loads at least 0.60. However, variables loading between 0.30 and 0.59 are still important to take into account. (Bordens, 2008).

According to Table 2's primary factor analysis results, factor loadings for the study's items typica lly exceed 0.5, which is considered a widely accepted cutoff point among academics.
Furthermore, Bordens (2008) states that five elements show loadings between 0.331 and 0.460, which are significant enough to warrant attention.
Therefore, it may be said that the study's items maintain strong construct validity.

Table 2: Factor loading for each item used to measure the constructs and a summary of the principal factor analysis

Behavioral Intention Dimensions	Number Of Items	Factor Loadings
Perceived-Usefulness (PU)	PU1	0.513
	PU2	0.331
	PU3	0.343
	PU4	0.558
	PU5	0.514
Perceived ease of use (PEOU)	PEU1	0.728
	PEU2	0.699

	PEU3	0.563
	PEU4	0.645
	PEU5	0.641
==Perceived -risk (PR)	PR1	0.711
	PR2	0.786
	PR3	0.719
	PR4	0.703
	PR5	0.413
Perceived -cost (PC)	PC1	0.568
	PC2	0.910
	PC3	0.343
Perceived -trust (PT)	PT1	0.700
	PT2	0.836
	PT3	0.731
	PT4	0.555
	PT5	0.689
Social -influence (SI)	SI1	0.697
	S2	0.707
Adoption (BI	BI1	0.753
	BI2	0.752
	BI3	0.912
	BI4	0.795
	BI5	0.854
Overall Items	30	

Source: User's Survay,2024

3.9 Ethical considerations

Research participants should not be forced to take part in the study. This means that before giving their permission to participate, The volunteers have to be thoroughly knowledgeable about the procedures and associated hazards. Researchers also must refrain from placing individuals in circumstances where their participation could endanger their bodily or mental health. Participants were guaranteed anonymity and confidentiality about their answers during the data-gathering phase. The investigator effectively conveyed the rationale for data collection, underscoring its exclusive use in scholarly pursuits. Research ethics are reflected in these procedures.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS, AND INTERPRETATION

4.1. Introduction

The information gathered from Tele Birr mobile payment service subscribers is analyzed, presented, and interpreted in this chapter. It includes demographic information to describe the respondents' characteristics. Data on mobile money service usage and demographics were both subjected to descriptive analysis. To investigate correlations between variables and test hypotheses, inferential analysis was performed using techniques including multiple regression

and correlation analysis. The program used for these analyses was SPSS 25. A total of 345 respondents that were convenience sampled received questionnaires. 345 of these surveys were returned, amounting to an 86.25% response rate. Fifty-five of the returned surveys were not included in the analysis because the data entry was either incorrect or incomplete.

4.2. Demographic Profile of the Respondents

The study's demographic characteristics, which provide information about the respondent profiles, include gender, age group, educational background, and occupation status.

Table 3: Demographic characteristics

Variable	**Classifications**	**Frequency**	**Percentage**
Gender	Male	199	57.7
	Female	146	42.3
	Total	345	100
Age Category	18-25	34	9.85
	26-35	143	41.45

	36-45	112	32.46
	46 and above	56	16.24
	Total	345	100%
Educational status	Elementary completed	9	2.60
	High school graduate	33	9.56
	Diploma	24	6.95
	First degree	39	11.30
	Masters and above	240	69.59
Marital status	Single	139	40.28
	Married	161	46.66
	Divorce	45	13.06
Employment status	Self-employed	139	40.28
Employment status	Employed	180	52.17
	Unemployed	26	7.55
Monthly income	Birr 1000-2000	16	4.64
	Birr 2001-4000	24	6.95
	Birr 4001-7000	40	11.59
	Birr 7001-10000	25	7.25
	Birr 10001- and above	240	62.02

Source: User's Survey,2024

4.2.1 Gender

The above data shows that of the 345 persons who answered the questionnaire, 199 (57.7%) were men and 146 (42.3%) were women. This suggests that the responders were primarily guys.

4.2.2 Age Category of the Respondents

In a similar vein, the previous table shows that the majority of the sample, or 143 (32.46%), of the respondents were above 35. Eleven2 (32.46%) of the respondents, or the second-largest group, were in the 36–45 age range. The remainder 56 (or %) of the respondents were between the ages of 48 and 57, constituting the third and fourth largest age groups of respondents,

respectively. 43 (14%) of the respondents were between the ages of 18 and 27. The percentage of respondents above 34 was just 9.85%.

Based on the statistics presented above, 139 (40.28%) and 93 (30.2%) of the respondents work for themselves, while 180 (52.17%) are employed. Lastly, 26 (7.55%) of the participants reported being unemployed.

4.3 Analysis of Mobile Payment Service Adoption

Zikmund & Babin (2003) state that a statistical indicator of covariation is the correlation coefficient or the link between two different variables. One makes advantage of a correlation analysis.

In research to ascertain whether two variables show covariance or a relationship. (Howell,2010). To ascertain whether there is a noteworthy association between the different constructs, The aim was to identify the elements that impact the uptake of mobile payment services and carry out an analysis using statistics. To determine whether a noteworthy correlation between the different constructs, the objective was to identify the factors that influence the uptake of mobile payment services and conduct a statistical analysis.

Wells (2010) states that A number between is the correlation coefficient -1 and 1 and that the closer the two variables are more closely aligned one of these two extreme values is the link between them. Bhattacherjee (2012) states that There isn't correlation if the correlation coefficient is between the variables ±00 and ±0.20. When the coefficients are between ±0.21 and ±0.40, the variables have a moderately strong relationship; when they are between ±0.41 and ±0.60the partnership is solid. If the correlation coefficient falls between ±0.61 and ±0.80, The factors have a strong association with one another; if it falls between ± 0.81 and ± 1.00, there is an extremely strong correlation.

Relationship. The table below displays the study's correlation coefficient results.

The correlation coefficients for the independent variables varied from r -0.014 to r 0.597, as can be observed in the table above. The two variables with the strongest association—perceived usefulness (PU) and perceived ease of use (PEOU), with respective correlation values of r 0.597 and a significance level of p 0.000—are thought to be substantially related. Perceived utility

(PU), perceived trust (PT), and social impact (SI) are also significantly correlated, with correlation values of r 0.517 and r 0.436 and significance levels of p 0.000, respectively.

Perceived trust (PT) and social influence (SI), the two independent variables that have the second-strongest association, are significantly correlated, with a correlation coefficient of r = 0.557 and a significance value of p = 0.000. Additionally, the correlation coefficient of r = 0.443 and the significance value of p = 0.000 show a strong relationship between perceived risk (PR) and perceived cost (PC).

Additionally, a relationship between the independent and dependent variables was noted. The correlation values observed fell between r -0.180 to r 0.589. Mobile payment service usage is highly and significantly positively correlated with perceived usefulness (PU) and perceived trust (PT), which at significance level p 0.000 displayed correlation values of r 0.589 and r 0.582, respectively. The association is covered in the following level or significance value, between The dependent variable as well as each independent variable.

Table 4: Pearson Correlation

Correlations

		BI	PU	PEOU	PR	PC	PT	SI
BI	Pearson Correlation	1						
	Sig. (2-tailed)							
	N	345						
PU	Pearson Correlation	.589**	1					
	Sig. (2-tailed)	.000						
	N	345	345					
PEOU	Pearson Correlation	.510*	.597**	1				
	Sig. (2-tailed)	.000	.000					
	N	345	345.	345				
PR	Pearson Correlation	-.190*	-.228**	-.170**	1			
	Sig. (2-tailed)	.001	.000	.003				
	N	345	345	345				
PC	Pearson Correlation	-.180*	-.243**	-.092	.443**	1		
	Sig. (2-tailed)	.002	.000	.109	.000			
	N	345	345	345	345	345		
PT	Pearson Correlation	.582**	.517**	.510**	-.169**	-.162**	1	
	Sig. (2-tailed)	.000	.000	.000	.003	.004		
	N	345	345	345	345	345	345	
SI	Pearson Correlation	.507**	.436*	.443**	-.139	-.014	.557**	1
	Sig. (2-tailed)	.000	.000	.000	.014	.801	.000	
	N	345	345	345	345	345	345	

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

*. Correlation is significant at the 0.05 level (2-tailed).

Source: User's Survey,2024

4.3.1 Perceived-Usefulness (PU)

With a correlation coefficient of r = 0.589 and a significance value of p = 0.000, the table above shows a substantial relationship between the usage of the mobile payment service and perceived usefulness (PU). The premise that Perceived Usefulness positively promotes the usage of the mobile payment service is supported by the substantial positive association that is shown between these variables. According to the findings, elements of Perceived Usefulness, like the

capacity to perform tasks more quickly, the Tele Birr mobile payment service's accessibility and convenience, and its overall advantages, influence users' perceptions of the service and encourage their adoption.

4.3.2 Perceived-Ease of Use (PEOU)

The Pearson correlation values in the table demonstrate a substantial relationship between perceived ease of use (PEOU) and the adoption of the mobile payment service, with a correlation coefficient of r = 0.510 and a significance value of p = 0.000. This coefficient indicates a significant positive association between these variables. It suggests that the ease of use and simplicity of the mobile payment system, particularly its simple navigation and payment process, have a beneficial effect on the uptake of the mobile payment service. Procedures.

4.3.3 Perceived-Risk (PR)

Perceived Risk (PR) and the usage of the mobile payment service have a substantial negative association, as the following table illustrates, with a correlation coefficient of r = -0.190 and a significance value of p = 0.001. This result validates the premise that the perceived danger is detrimental and significant impact on the uptake of the mobile payment service.

4.4.4 Perceived-Cost (PC)

The coefficient of correlation in the above table shows that Additionally, there is a strong negative correlation between perceived cost (PC) and the uptake of mobile payment services. Services support the hypothesis that the perceived cost of mobile payment services has a detrimental impact on the uptake of mobile payment services. 0.002 is the significance value, while the correlation coefficient is -0.180. The results indicate that transaction fees, equipment and subscription costs, and other relevant factors are what hinder the uptake of mobile money services.

4.4.5 Perceived-Trust (PT)

A correlation coefficient of r = 0.582 and a significance value of p = 0.000 in Table 4 demonstrate a strong and statistically significant relationship between the use of mobile payment services and perceived trust (PT). The adoption of the Tele Birr mobile payment service is positively influenced by perceived trust, according to these results, which show a high positive link between the two factors. This beneficial effect on adoption is attributed to several factors, including the service's compatibility with other institutions, the dependability of wireless infrastructure, and the dependability of both the service provider and the service itself.

4.4.6 Perceived-Cost(PC)

The coefficient of correlation in the above table shows that additionally, there is a strong negative correlation between perceived cost (PC) and the uptake of mobile payment services. Services support the hypothesis that the perceived cost of mobile payment services has a detrimental impact on the uptake of mobile payment services. 0.002 is the significance value, while the correlation coefficient is -0.180. The results indicate that transaction fees, equipment and subscription costs, and other relevant factors are what hinder the uptake of mobile money services.

4.4.7 Perceived-Trust (PT)

A correlation coefficient of r = 0.582 and a significance value of p = 0.000 in Table 4 demonstrate a strong and statistically significant relationship between the use of mobile payment services and perceived trust (PT). The adoption of the Tele Birr mobile payment service is positively influenced by perceived trust, according to these results, which show a high positive link between the two factors. This beneficial effect on adoption is attributed to several factors, including the service's compatibility with other institutions, the dependability of wireless infrastructure, and the dependability of both the service provider and the service itself.

4.4.8 Social- Influence (SI)

With a correlation value of r = 0.507 and a significance level of p = 0.000, Social Influence (SI) and the adoption of the mobile payment service have a strong and significant positive association, as can be seen in the above table. This finding suggests that the adoption of the mobile payment service is considerably and favorably impacted by social influence.

4.5. Summary of Pearson Correlation Analysis

The results of the correlation study show that most variables have an impact on the uptake of mobile financial services. The findings showed that the adoption of mobile payment services is significantly positively correlated with usefulness, ease of use, p trust, and social impact. These attributes also have a positive impact on the uptake of telebirr mobile payment systems. However, there is a substantial negative correlation between the perceived risk and perceived cost factors and the adoption of mobile money services, which has a detrimental impact on the uptake of services.

4.6. Regression Analysis

The interpretation of the regression model findings and the discussion of the constructs' unstandardized and standardized regression weights will take place in this section. Harrison (2018) states that several presumptions need to be confirmed before doing the research to guarantee the validity and dependability of a multiple regression study. To learn more about how independent factors, or predictors, affect the dependent variable, or outcome, these assumptions are being tested. The results of testing six multiple regression assumptions are discussed below.

First assumption: There is a linear relationship between the independent and dependent variables. Scatterplots were used to evaluate this, and the results demonstrated that this assumption was met because all independent variables (predictors) exhibited a linear connection with the dependent variable. Second Assumption: Multicollinearity is not present in the data. Multicollinearity is indicated, according to Tabachnick (2007), when the VIF is larger than 10 and the tolerance value is less than 0.1. The table, which shows tolerance values between 0.544 and 0.631 (above 0.1) and VIF values between 1.248 and 1.837 (below 10), supported this hypothesis.

Third Assumption: There is independence among the residual values. The Durbin-Watson statistic was used to assess this; values near 2 are ideal, while values over 1 or below 2 should be taken into account (Harrison, 2018). The obtained value, Durbin-Watson = 1.889, indicates that the independence criterion of the residuals was satisfied.

Assumption 4: Because of homoscedasticity, the residuals' variance is constant. According to Harrison (2018), homoscedasticity is characterized by a residual distribution that is largely

constant throughout the model. The homoscedasticity assumption was met by our plot of the standardized residuals against the standardized expected values, which showed no obvious signs of funneling.

Fifth assumption: The residuals are regularly distributed. Data points that are close to the diagonal line are suggestive of a normal distribution, and this was assessed using a P-P plot (Harrison, 2018). The P-P plot of our model showed the data points were somewhat near to the diagonal line, demonstrating that the hypothesis of normalcy was satisfied.

Sixth Assumption There aren't any notable cases that are biasing the model. This was evaluated using Cook's Distance values, where values larger than 1 denote significant outliers (Harrison, 2018). The sixth premise was satisfied since there were no significant outliers in our case, and all of the values of Cook's Distance were not equal to one.

Table 5: Model

Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.697[a]	.486	.476	2.436	.626	47.445	6	338	.000

a. Predictors: (Constant), PS, PU, PC, PT, PR, PEU

b. Dependent Variable: BI

Source: User's Survey,2024

Table 6: Anova Test

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1688.793	6	281.465	47.445	.000[b]
	Residual	1785.659	301	.208		
	Total	3474.451	307			

a. Dependent Variable: BI

b. Predictors: (Constant), PS, PU, PC, PT, PR, PEU
Source: User's Survey,2024

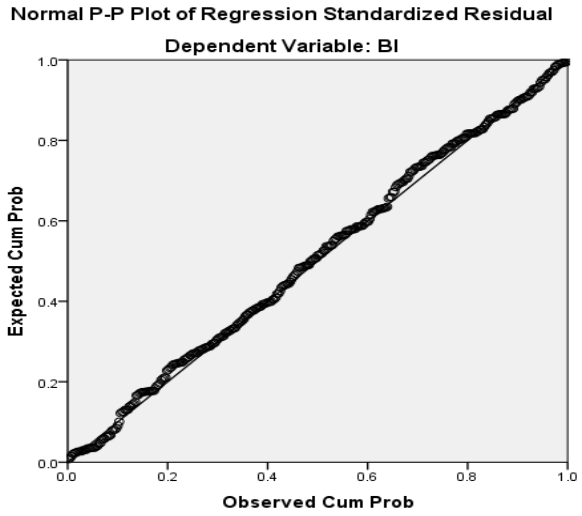

Figure 7: Regression standardized residual plotted in P-P.

Source: Users survey,2024

Table 7: Predictors of Mobile Payment Service Adoption

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	5.262	1.400		3.758	.000		
	PC	-.058	.057	-.048	-1.003	.317	.757	1.321
	PEU	.094	.044	.117	2.134	.034	.571	1.751
	PU	.363	.070	.291	5.199	.000	.544	1.837
	PT	.306	.064	.262	4.759	.000	.564	1.773
	PR	-.009	.030	-.013	-.287	.774	.838	1.284
	PS	.200	.058	.180	3.462	.001	.631	1.584

a. Dependent Variable: BI

Source: User's survey,2024

Bordens (2008) states that the R-square, or the square of the correlation, indicates how much of the variability in the dependent variable can be accounted for by the predictor variables. Multiple R, on the other hand, illustrates the correlation between anticipated and observed values. According to Tabachnick (2007), a probability threshold of less than 0.05 should be used to evaluate if the R-square is significant. The significance of the F-test of ANOVA should be examined. The ANOVA F test resulted in F = 47.445 in Table 5 at the significance level of p = 0.000.

Additionally, Tabachnick (2007) suggests the use modified R-square rather than an unadjusted R-square as a measure of variance explained. With an adjusted R-square value of 0.476, or 47.6%, as displayed in Table 5's model summary, the six factors this study looked at explain 47.6% of the variation in the uptake of mobile money services.

According to the regression analysis's findings, perceived usefulness (β = 0.291, p = 0.000), perceived ease of use (β = 0.117, p = 0.034), perceived trust (β = 0.262, p = 0.000), and social influence (β = 0.180, p = 0.001) all predicted the uptake of mobile payment services. Nonetheless, since their significance values were higher, perceived risk (β = -0.013, p = 0.774) and perceived cost (β = -0.048, p = 0.317) had no discernible impact on the uptake of mobile payment services. Than 0.05.

4.7. Hypothesis Testing based on Regression Analysis

To ascertain the relative significance of the independent and dependent variables, correlation analysis is insufficient. The independent and dependent variables' hypotheses were tested, and the significant levels of each variable were ascertained, using analysis of multiple regression. Each independent variable's importance in influencing the uptake of mobile payment services is covered in this part, along with an analysis of the results for each independent variable. The regression model for the above table illustrates The extent to which the variables under consideration explain the variance in the adoption of mobile payment services.

4.7.1 Hypothesis: Perceived -Usefulness and Perceived -Ease of use

The first hypothesis was to ascertain whether usefulness and ease of use could have an impact on the uptake of mobile payment services. Perceived usefulness has a coefficient of β = 0.291 and a p-value of 0.000, as can be seen in the above table. This suggests that Perceived Usefulness has a substantial and favorable impact on the uptake of mobile payment systems, holding all other factors constant. As a result, the research lends credence to the theory that says Perceived Usefulness influences mobile payment service adoption favorably. This outcome is consistent with earlier studies by Davis (1986) and Lule (2008).

4.7.2 Hypothesis Social Influence

In light of hypothesis, two, cial influence's impact on mobile payment adoption services was examined. The regression analysis's findings demonstrated that social influence has a positive and statistically significant effect on the adoption of mobile payment services when other factors are held constant (β=0.180 and p-value of 0.001). Thus, the researcher agrees that the usage of mobile payment services is advantageous impacted by social influence.

4.7.3 Hypothesis 3: Perceived-trust

The third hypothesis sought to ascertain whether the uptake of mobile payment systems is influenced by perceived trust. Perceived Trust has a coefficient of $\beta = 0.262$ with a p-value of 0.000, according to the regression analysis table. According to this investigation, there is a positive and statistically significant association between the uptake of mobile payment services and perceived trust, even after adjusting for other variables. As a result, the study did not rule out the theory that suggests the adoption of mobile payment services is positively impacted by perceived trust.

4.7.4 Hypothesis 4: Perceived-risk

Hypothesis four was looked into to see how perceived risk affects the use of mobile payment services. The data in the above table indicate that perceived risk has a p-value of 0.774 and a coefficient of $\beta = -0.013$. Because the p-value is higher than 0.05 at the significance level, this indicates that there is a negative but statistically insignificant association between perceived risk and the use of mobile payment services. The researcher rejected the hypothesis since the regression result showed a minimal connection between the two models.

4.7.5 Hypothesis 5:Perceived-cost

The fifth hypothesis sought to determine whether the uptake of mobile payment systems is influenced by perceived cost. According to the perceived cost regression analysis, the perceived cost has a p-value of 0.317 and a coefficient of $\beta = -0.048$. The fact that the p-value is more than 0.05 indicates that there is no statistically significant correlation between perceived cost and the uptake of mobile payment services. As a result, the study disproves the theory that suggests perceived cost influences the uptake of mobile payment services.

Table 8: Results summary for the Hypothesis Test

Hypothesis	**Beta (β)**	**Sig.**	**Remark**
H1: The adoption of mobile payment services is positively impacted by perceived usefulness.	0.291	0.000	Accepted
H2: The use of mobile payment methods was positively impacted by users' perceptions of ease of use.	0.017	0.034	Accepted
H3 Social influence has positively impacted the use of mobile payment services.	0.180	0.001	Accepted
H4;The adoption of mobile payment systems is positively impacted by the perception of trust.	0.262	0.000	Accepted
H5: The adoption of mobile payment systems is positively impacted by the perception of risk	-0.013	0.774	Rejected
H6: The adoption of mobile payment systems is positively impacted by the perception cost	-0.048	0.317	Rejected

Source :User's survey,2024

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1. Introduction

This section includes a summary of the conclusions and suggestions for more study, and a discussion of the study's shortcomings. The research conclusions can guide further research, influence legislation, and make it easier to modify mobile money systems.

5.2. Conclusion

The primary aim of this study was to investigate the key factors influencing the adoption of mobile payment services. Based on a thorough review of relevant literature, a research model was developed and applied to explore these adoption factors. The model integrated concepts from the Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB) and Unified Theory of Acceptance and Use of Technology (UTAUT). There was just one dependent variable and six independent variables. Information was gathered from 345 participants.

In Addis Ababa, Ethiopia, who were subscribers of the Telebirr mobile payment service. The statistical analysis was performed with SPSS version 25.

The adoption of mobile payment systems was found to be significantly influenced by perceived utility, perceived ease of use, perceived trust, and social influence. The use of mobile payment money services was negatively correlated with perceived risk, as indicated by $\beta = -0.013$ and $p = 0.774$. cost also hurt the uptake of mobile payment services ($\beta=-0.048$, $p=0.317$). Perceived risk and perceived cost have a negative influence on the adoption of mobile payment services; so, To accelerate the rate of adoption, the service provider needs to address these problems.

The uptake of mobile payment services was strongly and favorably influenced by perceived utility. This implies that consumers who believe mobile payment services would make it easier and faster for them to do activities will be more likely to accept and use these services. Likewise, it was found out that the uptake of mobile payment services was significantly and favorably impacted by perceived simplicity of use. This suggests that elements like low mental effort needed to use the service, simplicity while recalling the login credentials and PINs, ease of use of service menus and navigation, simplicity in making payments and monitoring balances, and

general user-friendliness all have a positive impact on consumers' adoption of mobile payment services.

Perceived usefulness and perceived ease of use also demonstrated a substantial link ($r = 0.598$ and $r = 0.510$) with the use of mobile financial services, both with significance levels of $p = 0.000$ in the correlation coefficients. According to the correlation square (r) for both findings, the components changed the variation in mobile payment service adoption by roughly 35.76% and 26.01%, respectively. That is to say, differences in perceived usefulness and perceived ease of use by 35.76% and 26.01%, respectively, directly predict variations in the uptake of mobile payment services.

With a p-value of 0.001 and a coefficient of $\beta = 0.180$, social impact was found to be significantly and positively influencing the uptake of services for mobile payments. This suggests that the acceptance of mobile payment methods can be predicted in large part by social influence. Additionally, there was a substantial association between social impact and the adoption of mobile payment services, as indicated by the correlation coefficient for social influence, $r = 0.507$, with a p-value of 0.000. According to this correlation coefficient, social influence accounts for about 25.7% of the variation in mobile payment service uptake

Perceived trust had a favorable impact on the uptake of mobile payment services, as evidenced by a significant coefficient of $\beta = 0.261$ and a p-value of 0.000. The significance of trust in service providers, the service itself, the dependability of cellular infrastructure, and compatibility with other institutions in motivating users to embrace mobile money services is highlighted by this research. There is a high positive association between the adoption of mobile payment services and perceived trust, as indicated by the correlation coefficient of $r = 0.582$ at a significance level of $p = 0.000$. According to the coefficient of determination (r2), 33.87% of the variation in the uptake of mobile money services could be accounted for by perceived trust.

On the other hand, with a coefficient of $\beta = -0.013$ and a p-value of 0.774, which is not less than 0.05, perceived risk did not substantially affect the uptake of mobile payment services. Perceived risk only significantly explained only 3.61% of the variability in mobile payment service uptake, despite a significant correlation coefficient of $r = -0.190$ and a p-value of 0.001 showing a negative link. Mobile money services were not widely adopted by consumers due to factors like poor service performance, transaction mistakes, and privacy concerns.

Similarly, with a coefficient of β = -0.048 and a p-value of 0.317, perceived cost was also found to be an insignificant predictor of uptake of mobile payment services. Perceived cost only explained around 3.24% of the variability in mobile payment service adoption, despite a significant correlation coefficient of r = -0.180 and a p-value of 0.002 indicating a negative link. Increased transaction fees as well as extra charges for equipment, subscriptions, and access were found to be deterrents for users of mobile payment systems. Consequently, it was determined that perceived cost did not affect the uptake of mobile payment services.

5.3. Recommendations

Even though mobile money service subscriptions and usage are rising in Ethiopia, the industry is still relatively new to consumers and is still in its infancy when compared to other nations.

The researcher makes the following recommendations to improve the adoption of mobile payment systems. To predict the traits that affect the use of mobile payment services, this study used six variables. Out of these six traits, perceived usefulness turned out to be the most important predictor of mobile payment service usage.

- Hence, it is advisable for the service provider to utilize various communication channels, including contact centers, social media, short messaging, and other promotional strategies, to educate customers about the advantages and benefits of mobile payment services. Additionally, enhancing the ease of use can be achieved through the modernization of m-payment technology.
- Perceived usefulness could be enhanced by expanding the coverage of the service and interfacing with different stakeholders Thus, in collaboration with banks, agents, and merchants, Ethio-telecom should make the system more convenient, with affordable cost and reasonable time.
- The study's findings show that perceived trust is the factor most influencing the adoption of mobile payment services. To encourage higher adoption rates, it is suggested that service providers maintain and enhance their credibility in terms of infrastructure, and services offered, Thus, m-payment service providers must work on enhancing the security, reliability, and privacy of m-payment services. and compatibility with other businesses.

- Adoption was also found to be significantly impacted by social influence and perceived simplicity of usage. Therefore, making the system easier to use and navigate will make it easier for customers to interact with you and complete tasks. To create a feeling of community, service providers should also build their products with the needs of their customers in mind and create marketing plans that reflect their beliefs.
- On the other hand, it was discovered that adoption was significantly and negatively impacted by perceived risk and perceived cost. High transaction costs and possible transaction faults may be to blame for this. The study recommends adopting appropriate transaction charges, guaranteeing strong security measures Therefore, users need to be trained on using a strong password and the types of information that would share client privacy, minimizing transaction mistakes, and improving system efficiency to address this. These actions are essential to raising the rate at which mobile payment services are adopted.

5.4. Limitations and Recommendations for Future Study

The main drawback of the study is that it is limited to Addis Ababa, Ethiopia, which may limit the applicability of the research findings to a larger demographic segment in the nation. Diverse geographic places that account for a larger proportion of the population should be included in future studies, according to regional variations in demographics. Second, convenience sampling was used for the study's sampling strategy since it was a realistic and effective way to acquire data. However this approach introduces bias from self-selection, and it might not fully reflect the population. To address this constraint, the researcher gathered information from several parts of Addis Ababa.

Furthermore, other possible factors were not taken into account because the study only looked at six variables linked to the adoption of mobile payment services. It is advised that future research broaden their focus by incorporating more

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Appendices

Dear participants,

We appreciate your invaluable assistance in providing truthful and precise answers for this research. To complete the prerequisites as a requirement for partial fulfillment for the award of my Master's degree in Marketing Management at Addis Ababa University's School of Commerce, I am conducting this research. With a focus on Tele Birr by Ethio Telecom, this questionnaire has been created to meet specific study goals about the variables impacting mobile payment.

Answering this inquiry is completely optional. Your answers will only be analyzed for scholarly purposes, and all of the data you submit will be kept completely private. To guarantee anonymity, personal data will be combined and made anonymous.

Thank you

A: Demographic Profile

I want to fill in some of your details in this section. Please tick your answer with(√)and your answers will be kept confidential.

1: Gender1. Male [ ] 2.Female [ ]

2: Age

1. 18-25[ ] 2. 26-35 [ ] 3.36-45 [ ] 4.46 and above [ ]

3: Educational Background

A: Elementary school [ ] B: High School [ ] C: Diploma [ ] D:First Degree E:[ ] Masters and above[ ].

4) Occupation

A: Student [ ] B: Government Employee1 [ ] C: Non-Government Employee [ ] D: Unemployed [ ] G: Retired

6) Monthly Income

A.1000 to 2000 Birr [ ] B. 2001 to 4000 Birr [ ] C.4001-7000Birr [ ]

D .Birr 7001-10,000Birr [ ] F.10,001 Birr and above [ ]

PART TWO: Please respond to the following questions by selecting the option that best represents your level of agreement, using a five-point Likert scale:

1. **Strongly disagree 2. Disagree 3—neutral 4. Agree 5. Strongly agree**

5 4 3 2

1

Item	**Perceived Usefulness**	**strongly agree**	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
PU1	Compared to conventional payment methods, using the mobile payment service (Telebirr) would take less time and effort.					
PU2	Mobile payment (Telebirr) simplifies the process of purchasing products for me.					
PU3	Mobile payment (Telebirr helps me save time and money during transactions.					
PU4	I make more informed decisions when using mobile payment (Telebirr) systems for purchases.					
PU5	Mobile payment is beneficial for purchasing products or services.					

5 4 3 2

1

Item	**Perceived ease of use**	**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
PEU1	Learning to use mobile payment (Tele Birr) is easy for me.					
PEU2	I find using mobile payment (Tele Birr) straightforward and easy.					
PEU3	"I find it easy to use mobile payment (Tele Birr) competently, including utilizing shortcuts or advanced options.					
PEU4	My experience using Telebirr for mobile payments is simple and easy to understand					

PEU5	My experience using for mobile payments (Telebirr) is simple and easy to understand.					
1		**5**		**4**	**3**	**2**
Item	**Perceived Risk**	**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
PU1	The possibility of unauthorized individuals interfering with the Tele Birr mobile payment procedure is minimal.					
PU2	I feel confident using mobile payment (Telebirr)services.					
PU3	I am not worried about the reliability of devices and networks when using mobile payment (Tele Birr).					
PU4	I do not have any privacy concerns when it comes to mobile payment (Tele Birr).					
PU5	I never get transaction errors when I use Telebirr for mobile payments, and I never get transaction records or paperwork like receipt advice.					
1		**5**		**4**	**3**	**2**
Item	**Perceived-cost**	**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
PC1	Paying via a mobile device is cost-effective.					
PC2	Payment methods on mobile devices don't cost extra to use.					
PC3	In light of present expenses, mobile payment offers fair value.					
1		**5**		**4**	**3**	**2**

Item	**Perceived trust**	**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
PR1	I have confidence in the reliability of Ethio Telecom's Tele Birr mobile payment service.					
PR2	I trust the Tele Birr mobile payment service.					
PR3	I have confidence in the reliability of wireless infrastructure.					
PR4	Even the mobile payment(Telebirr) service provider collaborating with other banks and institutions, I feel confident using the service.					
PR5	Using mobile payment (Tele Birr) ensures I avoid transaction errors and guarantees proper documentation such as receipts.					
		5	**4**	**3**	**2**	**1**
Item	**Social-influence**					
SI1	People who matter to me believe that I should use the Tele birr Mobile payment service.					
SI2	Influential individuals in my life think I should use Tele birr mobile payment.					
1		**5**	**4**	**3**		**2**
Item	**Adoption (Behavioral Intention)**	**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**Strongly disag**
BI1	I intend to use mobile payment (Tele Birr) going forward.					
BI2	I plan to start using mobile payment (Tele Birr) in the coming month.					
BI3	I aim to incorporate mobile payment (Tele Birr) into my daily routine.					
BI4	I would advise others to consider using the Tele Birr mobile payment service.					

BI5	I would not hesitate to provide personal information to the mobile payment (Tele Birr) service.					

==========THANK YOU==========