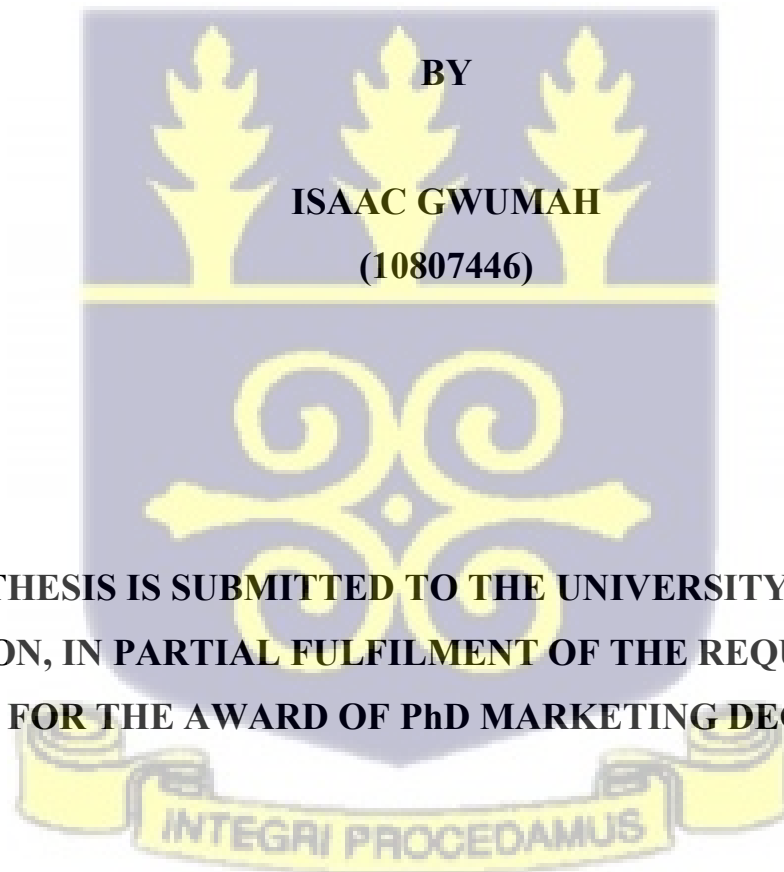


UNIVERSITY OF GHANA


**EXAMINING CONSUMERS' ADOPTION OF
DIGITAL PAYMENT BRAND EXTENSIONS –
EVIDENCE FROM GHANA**



DECLARATION

I certify that this thesis, which I now submit for examination for the award of Doctor of Philosophy, is entirely my own work and has not been presented by anyone for any academic award in this or any other university. All references used in the work have been fully acknowledged.

The thesis has been prepared according to the regulations for postgraduate study by the University.



Isaac Gwumah
(10807446)

17th December 2025

Date



CERTIFICATION

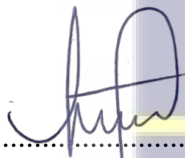
I hereby certify that this thesis was supervised in accordance with procedures laid down by the University of Ghana, Legon.



Professor Mahmoud Mahmoud
(Principal Supervisor)

December 18, 2025

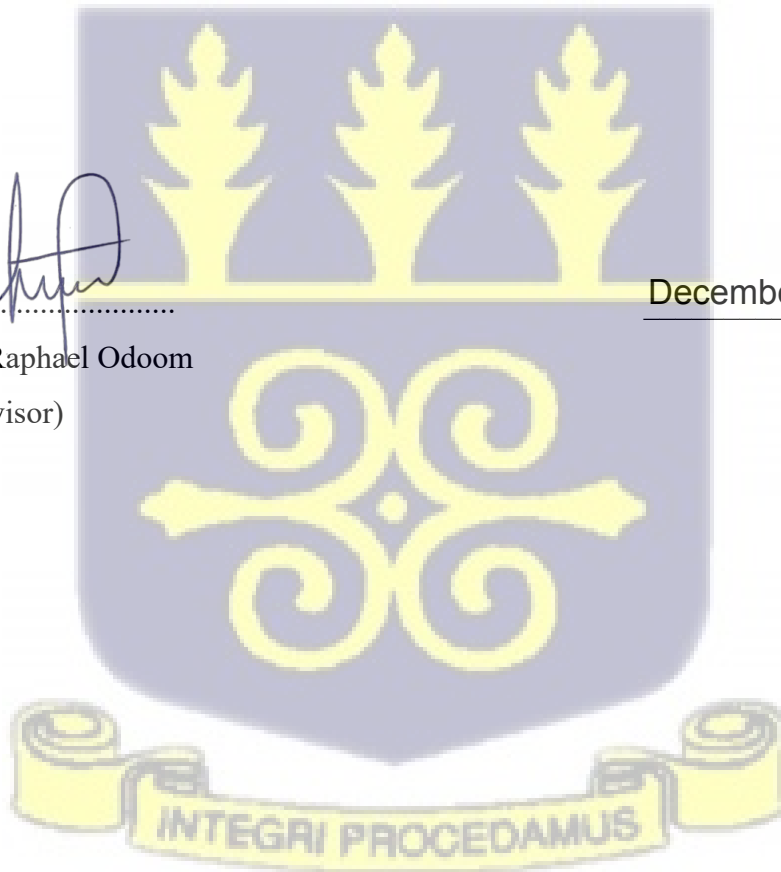
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Date

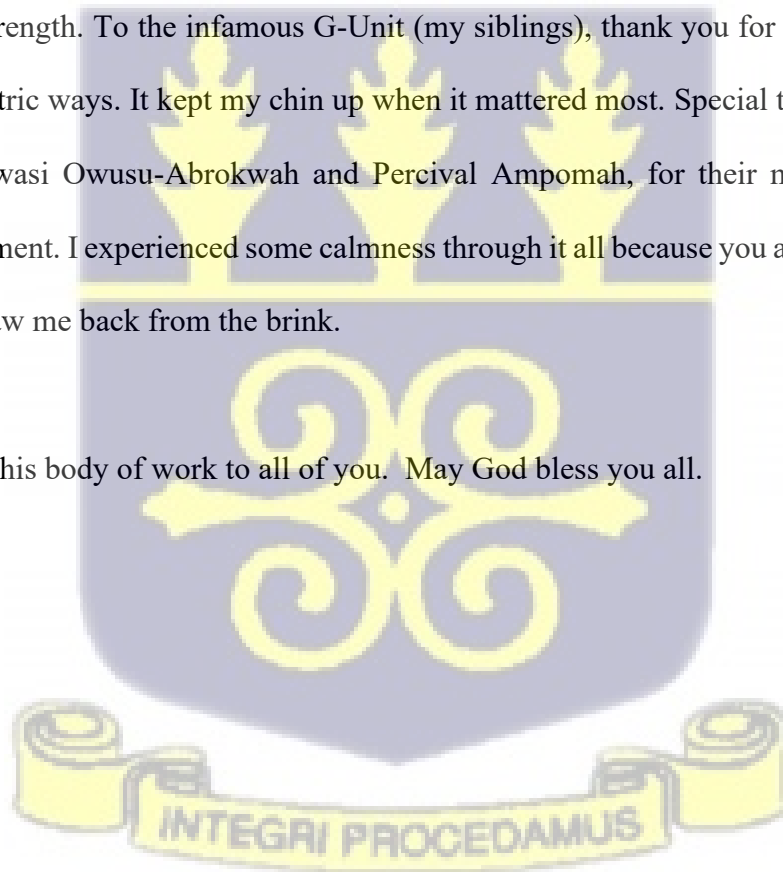


DEDICATION

The PhD journey is tortuous but rewarding. I embarked on the journey at a difficult time, with many commitments pressing in. Completing it is God's design and grace, not because I willed it. It is also why I am indebted to my wife, Thelma, for her unwavering support throughout the period. She has been more than a backbone, and I am deeply thankful to her and Team Gwumah – Davina, Duke, Dineese and Jedidah – for cheering me on from the sidelines. That Daddy took one for the team alone warms my heart immensely.

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I dedicate this body of work to all of you. May God bless you all.



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ABSTRACT

The proliferation of digital payment brands in emerging markets like Ghana creates competitive pressures on consumers' disposition towards and adoption of digital payment innovations. The different digital payment brands - most of which entered the market through brand extensions - have experienced varied and inexplicable penetration levels in Ghana. Despite providing evidence for the unique but complementary predictors of consumers' adoption of digital payment brands, the empirical applications of technology acceptance and brand extension fit models have been divergent. The dissertation resolves the emergent research problem by integrating the Unified Theory of Acceptance and Use of Technology 2 (UTAUT 2) with the brand extension fit model and parent brand trust in a conceptual framework. A survey of 384 customers of MTN Mobile Money – a brand extension of the MTN telecommunications network in Ghana - was used to examine the antecedents of digital payment brands. The study reveals that only three out of the seven dimensions of the UTAUT2 model: performance expectancy, facilitating conditions, and hedonic motivation, are the most critical factors driving the use intention of digital payment brands in an emerging market like Ghana. The study also determined that brand extension fit and parent brand trust moderate the relationship between use intention and use behaviour. Significantly too, parent brand trust mediates the relationship between use behaviour and use continuance, validating its critical role in ensuring loyalty to digital payment brand extension.

The post-study results form the basis for a significant research agenda relating to the intersection of technology acceptance and brand extension strategy knowledge domains. Importantly, it provides private and public sector actors in the digital payments market with explicit insights on how brand extension strategy, comprising brand extension fit and parent brand trust elements specifically, impacts adoption rates within competitive market contexts.

CHAPTER ONE

INTRODUCTION

1.1 Chapter Overview

Chapter 1 sets the stage for the thesis by providing an initial context and motivation for the study. It identifies the state of play within the digital payment ecosystem, including scholarly work and real-world applications, and explains why the proposed study is timely and significant. It highlights the research purpose and how it is relayed through the work regarding the research objectives and primary research questions. Through an initial review of the literature, the chapter identifies the research problem and gaps that inform all other aspects of the thesis.

1.2 Background to the Study

Digital payment innovations represent one of the most transformative developments in contemporary financial landscapes, fundamentally altering how consumers interact with financial services (Lin et al., 2023). Digital payments, defined as transactions conducted through digital or electronic platforms without physical cash (Putrevu & Mertzanis, 2024), have become increasingly essential in both theoretical discourse and practical applications. These innovations have gained significant traction in emerging markets, with mobile money services, digital wallets, and electronic fund transfers becoming integral to daily financial transactions (Boateng & Sarpong, 2019; Maleh et al., 2024; Aysan et al., 2025).

The investigations into digital payments build on an area of research interest better described as consumers' acceptance of innovations from technology brands. This area of research interest is driven by evidence from the past decade showing that the environment and nature of technology have changed concomitantly and significantly with the rise of

many sustaining and disruptive technologies (Lowe et al., 2019). Specifically, technologies emerging from automation, user connectedness and augmented reality have grown remarkably and in tandem with rapid evolution of other drivers within the socio-economic environment, such as digital democratisation. Additionally, some scholars suggest that the events following the year 2020, precipitated by Covid 19, have further spiked this development (John & Thakur, 2021). Both the environment for technological use and the nature of technological innovations are reported to have been impacted more significantly in the post-pandemic period.

Consumer behaviour is context-specific and pivots around time and location (Sheth, 2020), and consumers' acceptance and use of technology are no exception. Although the technology acceptance literature has significant breadth and depth, there is widespread fragmentation and confusion within the field (Venkatesh et al., 2012). Following a comprehensive review of the major dominant technology adoption models, Venkatesh et al. (2003) developed the unified theory of acceptance and use of technology (UTAUT) in the organisational context. Later, Venkatesh et al. (2012) developed a UTAUT2 extension for the individual consumer context that explained about 52 per cent of the variance in consumers' technology usage of focal technology.

According to Florea (2015), despite being significant components of the body of knowledge in marketing, the relationship between branding and the diffusion of innovation presents a blurred picture, with no clear view that synthesises different perspectives on this relationship. The initial literature review indicates that although a body of scholarly work forms the foundation of the research area, there are evident theoretical, conceptual, and knowledge gaps, especially in the emerging market context.

Additionally, a preliminary review of the various knowledge domains relating to digital payments, innovations, and brand extensions suggests the intersection of many contextual elements. Some include the regulatory environment, cultural or social disposition towards technology and a ready infrastructural base. This is why although emerging markets are often treated as a homogenous group in research on digital payments (Chauhan et al., 2022; Ozili, 2022), there are significant variations that shape consumer adoption patterns. This study focuses on Ghana, an emerging economy in Sub-Saharan Africa, to explore how contextual influences impact digital payment adoption in a competitive marketplace.

'Emerging markets' may loosely refer to Africa and Asia, which have rapidly evolved but distinct regulatory frameworks, digital infrastructure and socio-culturally mediated attitudes to digital financial services (Evans & Pirchio, 2015). Studies on digital payment adoption often generalise findings across emerging markets, failing to account for regional differences that shape consumer behaviour (Ozili, 2023). For instance, while mobile money adoption has surged in Africa due to limited banking penetration and strong telecom-led financial services (GSMA, 2022), countries in Latin America rely more on bank-led digital payment solutions due to stronger banking penetration (Demirgüç-Kunt et al., 2021). Similarly, regulatory support for digital financial services varies: India has encouraged digital payments through policy interventions like the Unified Payments Interface (UPI), whereas African countries rely more on private sector-led innovations (Bansal, 2021).

The Ghanaian context exhibits many features of emerging markets. It shows distinct characteristics within its current regulatory sector life cycle, as well as significant mobile money penetration within the portfolio of digital payment solutions available in the country. According to the Bank of Ghana (2022), Ghana's mobile money transaction value exceeded GHS 1.07 trillion in 2021, reflecting the deep penetration of digital financial services.

Unlike in some other African markets, where telecom-led mobile money dominates (e.g., Kenya's Mpesa), Ghana presents a hybrid model in which banks, fintech firms, and telecom operators compete to provide digital payment solutions (Boateng et al., 2023).

The regulatory framework in Ghana plays a vital role in shaping the adoption of digital payment innovations in the country. Recent regulation (i.e. the Payment Systems and Services Act, 2019) proposes clear licensing categories for fintech firms, fostering a more structured and competitive environment (Bank of Ghana, 2022). Furthermore, Ghana's digital infrastructure, including mobile penetration and internet access, supports the rapid expansion of digital payment solutions, although infrastructural gaps such as inconsistent internet access in rural areas still pose adoption challenges (World Bank, 2021).

Research suggests that trust in financial institutions significantly influences digital payment adoption in Africa, where informal financial practices remain prevalent (Amankwah-Amoah et al., 2021). Challenges such as digital fraud and consumer scepticism towards new financial technologies continue to shape adoption patterns (Boateng et al., 2024).

1.3 Statement of the Problem

The existing academic literature (Deng & Messinger, 2022; Guo et al., 2018; Dahlberg et al., 2015; Florea, 2015) does not answer the question: in a competitive market driven by digital payment brand extensions, what role do brand extension antecedents play in driving consumers' adoption of digital payment innovations?

The existing academic literature fails to answer the question: in a competitive market that includes digital payment brand extensions, what roles do brand extension fit and parent brand trust play in driving consumers' adoption of digital payment innovations? Resolving

this problem may lead to a holistic conceptualisation of consumers' adoption of digital payment innovations within competitive contexts.

Addressing this problem will also offer practical insights for fintech firms, telecom providers, financial institutions and financial sector regulators. It will also help these institutions and public sector agents better understand the drivers and inhibitors to digital financial inclusion.

1.4 Research Gaps

In the contemporary digital payments landscape, consumers' acceptance and use of digital payment innovations have become increasingly complex, particularly in competitive, emerging-market contexts (Pisoni, Molnár & Tarcsi, 2021). The academic literature notably lacks an integrated model that bridges the gap between the information systems/technology and marketing domains, specifically regarding the role of brand differentiation elements, such as the credibility of agent networks, in digital payment adoption (Florea, 2015; Odoom & Kosiba, 2020). While extensive research exists on technology adoption and brand extension separately (Guo et al., 2018), there remains a significant void in understanding how these domains interact to explain consumer behaviour regarding digital payment innovations and brand extensions.

1.4.1 Theoretical Gaps

A recurring theoretical gap in the study of digital innovation adoption is the ontological divergence between Information Systems (IS) and Marketing scholarship. Within the IS domain, digital innovations are traditionally framed as integrated artefacts or technological solutions offering functional utility to users. The view is reflected in dominant models such as the Unified Theory of Acceptance and Use of Technology (UTAUT2), which

conceptualise adoption in terms of rational evaluations of performance expectancy, effort expectancy, and facilitating conditions (Venkatesh et al., 2022). These models assume a universal, context-independent value structure and tend to isolate the innovation from the non-technology propositions with which they are often presented to the market.

Marketing scholarship tends to diverge from this position. It recognises that consumers encounter digital innovations not as neutral technologies but as layered propositions embedded within brand narratives and market signals (Herhausen et al., 2019). Building on the legacy of product-level thinking (core, actual, augmented), contemporary marketing theory integrates brand positioning and consumer meaning-making as central to adoption decisions (Lemon & Verhoef, 2016; Homburg et al., 2017). For example, a mobile payment app introduced by a telecom provider is judged not only on its ease of use or transaction speed (IS logic) but also on the broader symbolic value it represents (Herhausen et al., 2019; Hsu & Lin, 2018). Marketing literature, therefore, addresses heterogeneity in perception, driven by prior brand knowledge, affect, and market context. These elements are often underrepresented in IS models.

This ontological dissension highlights a blind spot in the IS tradition: the neglect of branding dynamics and symbolic value creation in understanding adoption behaviour. As Yoo et al. (2022) argue that the value of digital innovations cannot be fully captured through deterministic, decontextualised models. Meanwhile, the service-dominant logic in marketing (Vargo & Lusch, 2020) asserts that value is co-created between firms and consumers through contextual experiences, further distancing itself from the instrumentalist logic of IS models.

Another critical gap in the literature on digital innovation adoption is the limited attention given to consumer resistance. Most dominant models, such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2), assume that technology adoption is a rational process where consumers adopt innovations as long as they are perceived to be valuable and easy to use (Venkatesh et al., 2012). This creates what the literature calls a “pro-innovation bias”, where the focus is mainly on understanding drivers of adoption rather than the reasons why consumers may reject or resist innovations.

Recent studies, however, show that consumer resistance is a common and important part of the adoption process (Huang et al., 2021; Baklouti & Boukamcha, 2024). Resistance can be based on concerns about value misfit, lack of trust, uncertainty, or simply because the innovation does not align with the consumer's expectations or preferences. In markets with several competing innovations, resistance may also emerge from the consumer's perception of the brand offering the innovation.

This observation endorses the earlier theoretical gap regarding the lack of brand perspective in dominant adoption models. Many models treat the innovation as a neutral or generic object, separate from the brand behind it. As a result, they fail to explain why some innovations face resistance, not because of what they do, but because of how they are branded and who is offering them.

The objectives outlined in Chapter 1 are developed in direct response to these theoretical gaps, particularly the limited integration of brand extension mechanisms and trust-based explanations within dominant models of digital payment adoption.

1.4.2 Issues and Evidence Gaps

A major conundrum is evident in the existing literature that addresses the explanatory power of ‘trust’, given the regulatory context of markets like Ghana. Despite the evidence that the digital payments market is replete with brand extension propositions, these studies do not properly operationalise the source of ‘trust’ properly in questionnaire administration. In other words, does ‘trust’ originate from the brand extension or the endorser brand during consumer evaluations? The answer to this question is unavailable, even in the recent digital payments’ adoption literature. The research argues that, in line with the trust transfer theory, trust needs to be appropriately operationalised as parent brand trust when the digital payment brand is a brand extension.

Current applications of technology acceptance theories like UTAUT2 inadequately address the intention-behaviour gap, with recent reviews suggesting substantial variances in effect sizes between intentions and actual behaviours (Morwitz & Munz, 2021; Sheeran & Webb, 2016). It is important to go beyond use behaviour in regulated markets to assess the continued use of digital payment brands as well.

Previous research has also predominantly focused on developed market contexts, where established financial institutions and technology companies drive digital payment innovations (Putrevu & Mertzanis, 2023). However, emerging markets such as Ghana present unique scenarios in which telecommunications companies, fintech startups, and traditional banks compete and collaborate fluidly in the digital payment space (Mejia & Lemarroy, 2022). This diversity of providers adds complexity to understanding how brand extension fit influences adoption decisions, particularly when consumers evaluate extensions from different types of parent brands (Zhang et al., 2025).

One of the unique aspects of digital payment regulation is that it can act as a stimulus or inhibitor depending on timing and market context. Unlike static product categories, where consumer adoption largely follows a predictable diffusion curve, digital payment innovations are subject to regulatory shifts that can accelerate or stall adoption at any time. For instance, in 2017, the introduction of mobile money interoperability in Ghana allowed consumers to transact seamlessly across different service providers. This policy removed a major barrier to mobile money adoption, leading to increased transaction volumes and a rise in the number of active mobile money users. However, in 2022, the Ghanaian government introduced an Electronic Transactions Levy (E-Levy) on mobile money transfers, which led to a short-term decline in transaction volumes as consumers sought alternative means of transferring money. This demonstrates how regulatory changes can cause fluctuations in adoption and behavioural shifts that existing technology adoption models may not adequately capture. These examples suggest that, for instance, more attention needs to be paid to the intention-action gap in consumers' adoption of digital payments, which has been addressed in the academic literature.

In summary, the existing literature reveals significant conceptual gaps in understanding the complex interrelationships across technology acceptance antecedents, brand extension fit dimensions, and brand trust in competitive digital payment contexts. Resolving these gaps diminishes the splinters in existing research and provides a grounded, efficient conceptual framework from a marketing lens.

1.5 Objectives and Research Question

Many of the studies reviewed suggest the need to integrate branding constructs into technology adoption models, particularly in the context of digital payments. Yet little empirical evidence exists about how brand extension fit and trust influence adoption

outcomes in emerging market contexts. The application of integrated theoretical frameworks that examine technology adoption and brand extension across various emerging market contexts can fill significant gaps in the digital payment literature.

The current research seeks to contribute to existing literature through the following objectives and research questions.

- a. To identify the antecedents of use intention of digital payment brand extensions in a competitive market context.
- b. To examine whether brand extension fit moderates use intention and use behaviour of a specified digital payment brand extension.
- c. To examine whether brand extension fit mediates use behaviour and use continuance of a specified digital payment brand extension.
- d. To assess whether parent brand trust moderates the relationship between use intention and use behaviour of a specified digital payment brand extension.
- e. To assess whether parent brand trust mediates the relationship between use behaviour and use continuance of a specified digital payment brand extension.

To achieve the objectives above, the study seeks to address the following questions:

- a. Which technology adoption antecedents of digital payment innovations impact adoption and use continuance of MTN MoMo within the Ghana context?
- b. Does brand extension fit moderate the relationship between consumers' use intention and use behaviour of MTN MoMo within the Ghana context?
- c. Does brand extension fit mediate the relationship between consumers' use behaviour and use continuance of MTN MoMo within the Ghana context?
- d. Does parent brand trust moderate consumers' use intention and use behaviour of MTN MoMo within the Ghana context?

- e. Does parent brand trust impact consumers' use behaviour and use continuance of MTN MoMo within the Ghana context?

1.6 Relevance of the Study

The study provides new perspectives by integrating brand-related predictors such as consumer trust and brand extension fit into established models of consumers' technology adoption, particularly the Unified Theory of Acceptance and Use of Technology (UTAUT2). While UTAUT2 has been widely used to explain adoption behaviour, its omission of branding constructs limits its applicability in competitive digital payment markets.

Prevailing technology adoption models emphasise functional and technical aspects such as ease of use, perceived usefulness, and facilitating conditions (e.g., Davis, 1989; Venkatesh et al., 2012). However, these frameworks rarely account for branding effects, even though brands influence trust and consumer preference in digital transactions. Prior works (e.g., Hamzah et al., 2023; Florea, 2015) suggest that branding shapes consumer attitudes toward digital payment platforms. However, there is no integrated model that comprehensively incorporates these factors. By doing so, this study provides a more complete understanding of the determinants of adoption in a competitive digital marketplace.

More importantly, research on brand extensions has mainly been confined to physical and consumer-packaged goods (Aaker & Keller, 1990; Völckner & Sattler, 2006), with little focus on digital and financial services. However, the nature of digital financial services introduces additional complexity due to security concerns, regulatory oversight, and network externalities. Many telecom and banking firms expand into digital payments through brand extensions, but existing theories do not explain how consumers evaluate

these extensions in the digital economy. This study extends brand extension research into a service and technology-driven context, refining theories on how established brands influence consumer acceptance of new financial innovations.

Beyond theoretical contributions, the findings of this research have direct relevance for businesses, financial institutions, and regulatory authorities looking to expand digital payment adoption. For example, understanding how brand extension fit affects digital payment adoption enables businesses to refine their branding strategies. If consumers respond positively to brand extensions from established financial or telecom companies, firms can leverage their existing brand equity more effectively. Conversely, if weak brand extension fit hinders adoption, companies may need to reposition products, adopt distinct branding strategies, or create sub-brands tailored to digital payment offerings. This study offers guidance on how firms can use branding to enhance consumer trust and encourage adoption.

The findings of this study will help financial institutions and fintech companies develop digital payment solutions that align with consumer expectations of brand credibility. If established brands have a competitive advantage in launching digital payment solutions, new entrants may need to focus on differentiation strategies or co-branding partnerships. Additionally, insights on the brand equity impact from either the endorser brand or the extended brand can help to predict better the continuance use of digital payments after regulatory interventions such as digital taxation.

1.7 Scope of the Study

The study focuses on the influence of brand extension fit and parent brand trust. The research is contextualised within Ghana, specifically emphasising MTN Mobile Money (MoMo) as the case brand.

The following assumptions were made that informed the delimitations of the study:

- i. The study population is diverse, with multiple languages being spoken. Although English is the lingua franca of Ghana, proficiency levels in the language vary widely in the target group.
- ii. There are multiple digital payment brands in Ghana, and an indeterminable number of people in the target group use multiple brands simultaneously.
- iii. Within the period of data collection, there was no major macro- or micro-environmental development that may have drastically affected consumer behaviour, which may have impacted the use of a cross-sectional data collection approach.
- iv. The Ghana market's regulatory and other macro-environmental dynamics make it homogeneous enough for the proposed study.
- v. There are different types of digital payment platforms in Ghana. The study is restricted to digital payment innovations introduced to the market as brand extensions, such as is the case with MTN telecom network, birthing the MTN Mobile Money brand. The case of MTN MoMo is an example of category brand extensions. The study acknowledges that although there are other types of brand extensions, e.g., line brand extensions, which may apply to a traditional brick-and-mortar bank that extends into digital payments, the current work provides an opportunity to build a body of evidence for brand extensions in general.

Several delimitations were applied to the study to ensure feasibility, effectiveness and efficiency. These are:

- i. Language Proficiency:** The research instruments and interviews were conducted exclusively in English, and research participants were required to be proficient in English. This criterion was set to assure data collection consistency, validity and reliability. The value of the work is not impacted by this decision because a review of the literature suggests significant remittances from urban, highly literate groups to rural, low-literacy groups generating a demand pull in their digital payment subscriptions.
- ii. Geographical Focus:** The research was confined to Ghana's two cosmopolitan cities (Accra and Kumasi). The two cities also have significant adoption rates of digital payment systems and provide a representative sample of the target demographic.
- iii. Specific Brand:** The study concentrated solely on MTN MoMo, Ghana's leading mobile money service. This focus allowed for an in-depth examination of brand extension dynamics within a single, well-established brand framework. The approach also ensured that there were no validity or reliability issues arising from respondents using multiple digital payment brands simultaneously. This ensured effectiveness and efficiency.
- iv. National Context:** For feasibility, the research was limited to the Ghanaian market. While the findings may offer insights applicable to other emerging markets, the study does not account for cross-country variations or international market dynamics. The regulatory environment shape the boundaries of digital payment and consumer behaviour may be distinct within specific markets.
- v. Temporal Scope:** The study was cross-sectional, and there was no attempt to undertake the research across two or more points in a timeline. This cross-

sectional timeframe provides a snapshot of consumer behaviour and perceptions during this specific period, without accounting for longitudinal changes. The approach does not reduce the value of the work because longitudinal studies do not invalidate the usefulness of the cross-sectional baseline evidence. They improve the discussion of findings from the different waves of data collection.

The suggested delimitations do not detract from the study's purpose. Delimitations are intentionally imposed boundaries that help maintain focus and feasibility without undermining the validity of the research (Creswell & Creswell, 2018). By clearly defining the scope, the study ensures manageability and depth of inquiry rather than compromising its core objectives. As Simon (2011) notes, delimitations refine the research framework to enhance coherence and allow for a more rigorous analysis within set parameters.

1.8 Synopsis of Chapters and Structure of Thesis

The study comprises eight chapters. Chapter 1 provides the introduction and background to the study. Chapter 2 establishes a research context and addresses all contextual issues, ranging from the brand of interest (MTN MoMo), the nuances of emerging markets and all the micro- and macro-environmental nuances therein. Chapter 3 examines the theories underpinning this research, specifically UTAUT-2, trust transfer theory, and brand extension theory. Chapter 4 synthesises key theories and concepts to formulate a conceptual model and a set of testable hypotheses.

Chapter 5 discusses methodological considerations for this research, examining the research design and the empirical data collection approach. Chapter 6 describes the data presentation and analysis procedures that set the tone for the discussion of the empirical findings. In Chapter 7, a comprehensive discussion of the findings is presented, based on

the various propositions outlined within the conceptual framework. These are rigorously evaluated in line with the study's objectives. The final chapter (Chapter 8) provides concluding insights. It reflects on the ramifications of the study for various stakeholders and suggests a research agenda for subsequent work in the area.



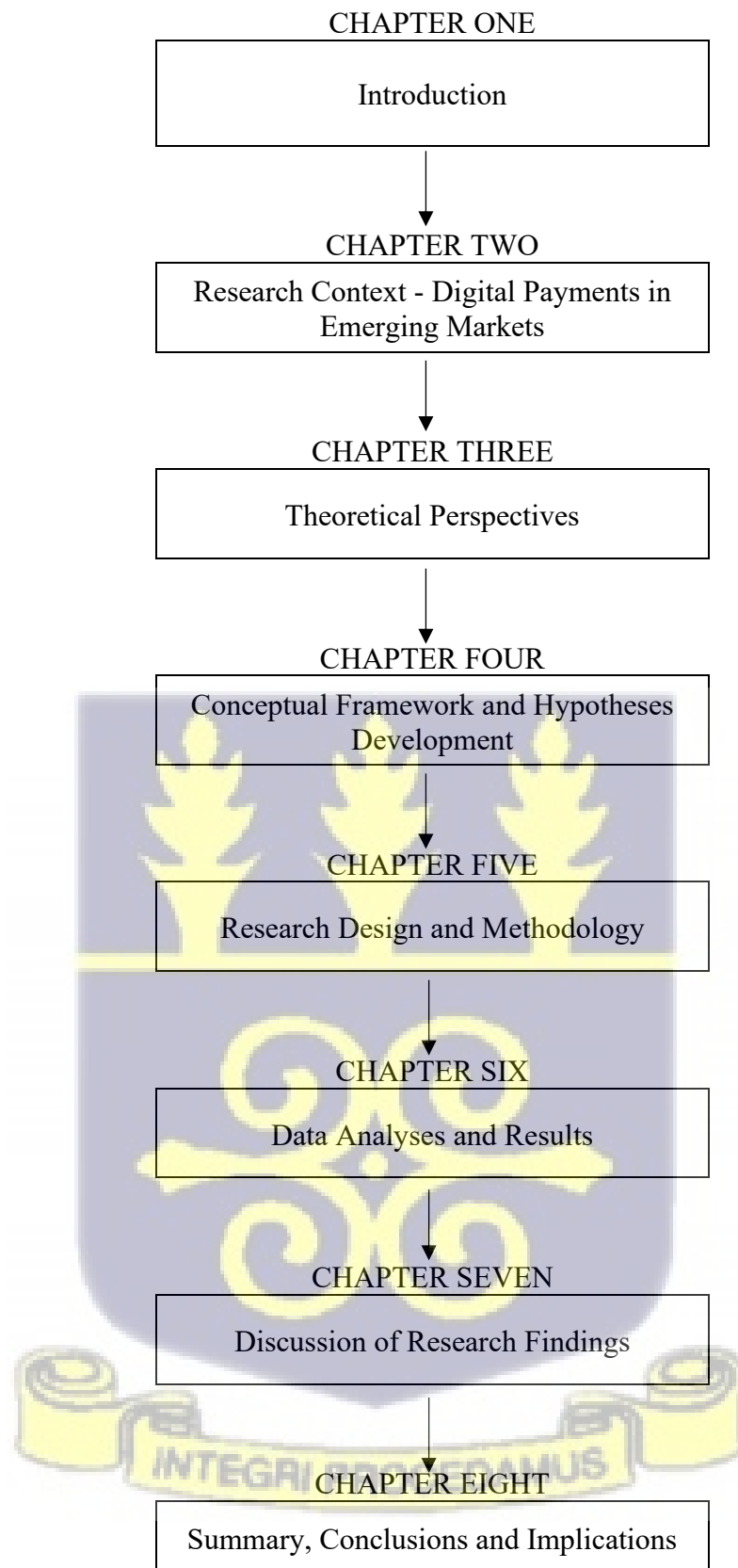


Figure 1.1: Structure of the thesis

CHAPTER TWO

RESEARCH CONTEXT - DIGITAL PAYMENT IN EMERGING MARKETS

2.1 Chapter Overview

This chapter broadly examines the digital payments landscape and then focuses on the unique market dynamics of digital payments in Ghana. The discussion spans the global context and shows how digital payment adoption has evolved before and after the COVID-19 pandemic as a tipping point in the consumers' adoption life cycle. The chapter provides information about Ghana's competitive landscape of digital payments, highlighting its unique market dynamics. National statistics on digital payments are analysed to provide preliminary evidence towards the research questions outlined in Chapter 1.

The chapter evaluates definitions of digital payments and expounds on some antecedents of digital payment adoption. It spans contextual factors such as the pandemic's impact. Other sections examine the Bank of Ghana's financial intermediation efforts, the role of mobile money agents, and brands' influence within the ecosystem. Specific issues, such as digital taxation and their impact on consumer adoption of digital payments, are also examined. The chapter then dovetails into discussions on category brand extensions into digital payments, using MTN Ghana as a case study. The review concludes with a summary that synthesises the key points and sets the stage for the subsequent empirical investigation.

2.2 Digital Payment Innovations – Establishing an Epistemological Frame

It is essential to establish in the section that follows why the area of digital payments makes for significant and provocative contemporary research. While research in digital technologies has gained widespread attention as a knowledge domain on its own, the

available research shows that its sub-domains, such as digital payment, have veritable breadth and depth, making it imperative to treat it as a unique area of investigation.

Digital payment innovations have transformed the financial landscape in emerging markets and now compensate for instances and locations where traditional banking infrastructure is often limited or inaccessible (Demirgüç-Kunt et al., 2020; Mbiti & Weil, 2011). The phenomenon drives change in many markets, such as enhanced financial inclusion, reduced transaction costs, and economic growth (Ozili, 2023; Aron & Muellbauer, 2019). With some surge in the use of smartphones and the penetration of Internet connectivity to underserved areas, digital payment solutions have scaled, putting pressure on established financial models and providing many opportunities for consumers and businesses (Dzokoto & Appiah, 2014). Notwithstanding these upsides, a synthesis of digital payment penetration data and the chronology of sector policy initiatives and regulations suggest that although the rate of growth is relatively high, actual penetration numbers are less remarkable. However, the potential of digital payments to foster economic growth is a reason for optimism about the future.

The complex context highlighted in the preceding paragraph suggests that the academic literature can address many research questions related to consumer adoption. However, existing systematic literature reviews do not clearly indicate whether the empirical work on digital payments in emerging markets has increased in line with growth in digital payments. Literature on digital payments in emerging markets lags behind research on broader financial technology and digital banking themes (Alaeddin et al., 2018; Klapper & Singer, 2017). The lack of density in the knowledge domain runs through the digital payments adoption chain, although some scholars suggest that studies about the consequences of digital payment adoption are more under-represented (Demirguc-Kunt et al., 2018; Sha'ban

et al., 2019). Other scholars (Gupta et al., 2017; Senyo & Osabutey, 2020) have suggested that deepening the attention on digital payments is crucial because emerging and developing economies account for over 85 per cent of the world's population (Demirguc-Kunt & Klapper, 2021). This underscores the urgent need for more research in this field.

2.3 Definitions of Digital Payment

The definition of digital payments has evolved, reflecting different perspectives across various disciplines. In a recent systematic literature review on digital payments, Khando et al., (2023) propose a synthesis of various definitions of digital payments as a way of payment as following:

Transactions that occur through digital or online means without physically exchanging cash. The payer and payee both use a digital medium for the transaction, for example, making payments for your purchase using a mobile device (smartphone) via wireless connection or other communication technology means. (p.1)

The definition aligns with existing ones (see Table 2.1), such as Gomber et al.'s, (2017) definition of digital payment as transferring monetary value via electronic means, encompassing a broad range of financial technologies and platforms to facilitate cashless transactions.

The definitions in Table 2.1 focus on the technological aspect of digital payments and their function in value transfer. The authors further explain that digital payments can take multiple forms, including mobile payments. They also suggest that they can be done via online banking transfers, electronic checks, and digital currencies. While this classification captures the diversity of digital payment mechanisms, it does not fully address the role of regulatory frameworks and economic structures.

Lee et al. (2019) also provide another, albeit more technical, interpretation. They describe digital payments as a networked system of mobile devices, secure networks, and cryptographic protocols that enable instant and secure money transfers. This perspective highlights the complexity of modern digital payment systems, where front-end interfaces, such as mobile banking apps, depend on intricate back-end infrastructures, including payment gateways and interbank communication networks. According to Lee et al. (2019), digital payments cannot be examined in isolation, as both hardware (e.g., point-of-sale terminals, smartphones) and software (e.g., banking platforms, payment applications) are integral to ensuring security, efficiency, and reliability. Notwithstanding, the definition suggested by Lee et al., (2019) is technologically focused and does not sufficiently explore the behavioural and economic dimensions of digital payment adoption.

Shifting the focus from a technological standpoint, Dahlberg et al. (2015) view digital payments as socio-technical systems that go beyond financial transactions by reshaping consumer behaviour. Their perspective suggests that adopting digital payments impacts consumer spending patterns and can affect monetary policy. The approach helps assess digital payments through the prism of consumer decision-making. It also underscores the broader societal transformations brought about by digital financial systems.

From a regulatory viewpoint, the European Central Bank (ECB) defines digital payments as the transfer of funds through electronic means, distinguishing between remote payments (initiated digitally between payer and payee) and proximity payments (conducted in person at a point of sale) (Passacantando, 2021). Notwithstanding its simplicity, the definition has significant regulatory implications because different payment contexts carry their risks. The ECB lays the foundation for policies that address the specific challenges associated with various digital payment methods by differentiating these categories.

The economic perspective, particularly that of the Organisation for Economic Co-operation and Development (OECD), positions digital payments as a cog of the broader digital economy. According to the OECD (2020), digital payments are integral to digital financial services, alongside online banking, digital lending, and insurance technology (insurtech). Digital payments are not independent financial services as framed in earlier arguments but pivot within a larger ecosystem that drives economic activity. However, the OECD's definition aligns digital payments with financial innovation, although it does not sufficiently account for disparities in access, especially in developing economies.

As presented by the World Bank, the development economics perspective views digital payments as a mechanism for financial inclusion and economic growth. The World Bank Group (2019) defines digital payments as transfers of value carried out using digital financial instruments, such as electronic money, in both remote and face-to-face transactions. This definition works well for developing economies, where digital payment systems expand financial access and facilitate economic participation. Unlike the technological or regulatory perspectives, the World Bank's approach highlights digital payments as an enabler of financial empowerment.

From these varied perspectives, it is important to conceptualise digital payments to include technological and other considerations. While digital payments fundamentally involve the electronic transfer of monetary value, they also exist within complex ecosystems that influence consumer behaviour and financial governance. The review in this section also shows that the operationalisation of digital payments is missing a marketing lens. Marketers perceive propositions, including digital payments, as comprising layers of value: a core proposition through actual to augmented product-service propositions. For example, when mobile payment providers ensure the availability of a vast network of credible agents across

the country ready to help consumers load onto or withdraw from their wallets, this becomes a service proposition that adds to the core technology proposition. The research attempts to resolve this missing plank in conceptualisation.

Table 2.1: Definitions of digital payments

Perspective	Author/Source	Year	Definition/Conceptualization
Technology	Khando et al.	2023	Transactions that occur through digital or online means without physically exchanging cash. The payer and payee both use a digital medium for the transaction, for example, making payments for your purchase using a mobile device (smartphone) via wireless connection or other communication technology means.
Technology	Lee et al.	2019	An ecosystem of interconnected technologies, including mobile devices, secure networks, and cryptographic protocols, that enable the seamless and secure transfer of funds in real time.
Finance	Gomber et al.	2017	The transfer of monetary value through electronic means encompasses a wide range of financial technologies and platforms designed to facilitate transactions without using physical cash.
Consumer Behavior	Dahlberg et al.	2015	A socio-technical phenomenon that transforms traditional notions of money and financial transactions, influencing consumer habits, business models, and economic structures.
Fintech	Gai et al.	2018	A subset of financial technology that focuses on digitising value transfer, encompassing mobile payments, digital wallets, cryptocurrencies, and other forms of electronic money transfer.

2.4 Antecedents and Consequences of Digital Payments – An Initial Review

2.4.1 The Product Innovations Driving Adoption

We have established from the preceding section that digital payment solutions take many forms, including mobile money, e-wallets, credit and debit cards, and online banking (Sahi et al., 2021). Mobile money services have had the most profound impact on emerging economies. These services circumvent traditional banking structures by allowing users to

store, send, and receive money via mobile phones, bringing financial access to underserved populations. A notable example is M-Pesa in Kenya, which has revolutionised payments for individuals in the informal sector (Mbiti & Weil, 2011).

E-wallets have emerged as another key innovation, allowing users to securely store payment information on smartphones or other digital devices. Services such as Apple Pay, Google Pay, and Alipay have gained widespread adoption due to their convenience and the integration of biometric authentication (Ramli et al., 2023). While mobile money and e-wallets represent relatively recent advancements, credit and debit cards remain fundamental to digital payment systems. Security improvements, such as the shift from magnetic stripe to EMV chip technology, have strengthened transaction security (Lai, 2017). Furthermore, contactless payments have simplified transactions, reducing friction in retail and service industries.

Online banking services have also played a significant role in digital payment evolution. Through these platforms, users can manage accounts, make transfers, pay bills, and even invest without visiting physical branches. The integration of banking services with third-party applications via APIs has further accelerated fintech innovation (Zachariadis & Ozcan, 2017). Meanwhile, blockchain technology and cryptocurrencies represent the latest frontier in digital payments. Although still in their early stages, digital currencies such as Bitcoin and Ethereum have the potential to enable decentralised, borderless transactions, challenging traditional financial institutions (Böhme et al., 2015).

It is easy to deduce that digital payment systems are at the forefront of financial modernisation, driving efficiency, security, and financial inclusion (Patil et al., 2020). Their adoption has had transformative effects, particularly in developing economies with

inadequate traditional banking infrastructure (Demirguc-Kunt et al., 2018). By offering low-cost and accessible transaction methods, digital payments have provided financial services to previously unbanked populations, enabling greater participation in formal financial systems. However, the adoption of digital payment systems varies significantly across regions, influenced by technological readiness, regulatory environments, and consumer behaviour.

Beyond financial inclusion, digital payments contribute to economic growth by facilitating e-commerce, improving business efficiencies, and fostering new business models (Sahi et al., 2021). Their traceability enhances transparency in financial transactions, reducing informal economic activities and strengthening tax compliance, which in turn benefits government revenue and economic policymaking (Ozili, 2023). In this way, digital payments serve not just as a financial tool but as an enabler of broader economic transformation.

2.4.2 Regulatory Developments Driving and Inhibiting Adoption

While digital payments have gained traction globally, their adoption patterns vary significantly across developed and emerging markets. In developed economies, digital payment adoption builds on well-established financial infrastructures and high levels of financial inclusion. For example, Sweden is progressing towards a cashless society, with cash accounting for less than 10% of all transactions (Arvidsson, 2019). In contrast, emerging markets have leapfrogged traditional banking infrastructure, adopting mobile and digital payments as primary financial tools (Gomber et al., 2017a).

The distinction between these markets also extends to the types of digital payment solutions in use. Developed economies rely heavily on credit and debit cards, as well as bank-

integrated digital transfers. Recent trends in these markets point to the growth of contactless payments and mobile wallets like Apple Pay and Google Pay, which integrate seamlessly with existing financial infrastructure (Dahlberg et al., 2015). In contrast, emerging economies have seen explosive growth in mobile money services, which serve as an alternative to conventional banking. The success of M-Pesa in Kenya exemplifies how mobile money services can bridge financial access gaps in regions with limited banking penetration (Suri & Jack, 2016).

Regulatory environments significantly influence the adoption of digital payments. Developed economies have well-defined financial regulations that accommodate digital payment innovations while ensuring data protection, cybersecurity, and anti-money laundering compliance (Mansfield-Devine, 2016). In contrast, emerging markets face a more delicate balance between fostering innovation and protecting consumers in rapidly evolving financial landscapes. Many regulators in these markets have adopted a 'test-and-learn' approach, as seen in the case of regulatory sandboxes that facilitate fintech experimentation (Jenik & Lauer, 2017). India's Unified Payments Interface (UPI) illustrates how government-supported digital payment ecosystems can accelerate adoption at a national scale (Dwivedi et al., 2019).

Moreover, the impact of digital payment adoption differs across market types. In emerging economies, digital payments are central to financial inclusion, drawing millions of previously unbanked individuals into the formal financial system. According to the McKinsey Global Institute, digital finance could add \$3.7 trillion to the GDP of emerging economies by 2025 (Manyika et al., 2016). In contrast, in developed economies, digital payments have primarily enhanced efficiency and reduced transaction costs rather than significantly expanding financial access. These markets have also benefited from improved

tax compliance and the rise of novel business models within the digital economy (Ozil, 2022). However, regulatory hurdles and concerns over volatility remain challenges to widespread adoption.

2.4.3 Digital Payment Adoption in the Pre- and Post-Pandemic Era

The adoption of digital payments has been a growing trend for several years (Auer et al., 2020) ahead of the observed surge in the post-COVID-19 era. Even before the pandemic, digital payments were expanding due to technological advancements, high smartphone penetration, and the increasing preference for cashless transactions (Gupta & Agarwal, 2022). In developed markets, contactless payments gained traction due to their speed and convenience (Bezovski, 2016), while in emerging economies, digital payments were increasingly recognised as tools for financial inclusion. Despite this growth, cash remained dominant in many regions due to cultural preferences, security concerns, and the lack of widespread digital infrastructure (Alkhowaiter, 2020; Moghavvemi et al., 2021).

The onset of the COVID-19 pandemic, however, transformed this landscape. Concerns over virus transmission through physical currency prompted recommendations from institutions like the World Health Organization (WHO, 2020) to minimise cash usage and encourage contactless payments. Lockdowns and social distancing measures further necessitated alternative payment solutions, leading to a surge in digital transactions. Global e-commerce sales rose by 38% in the first quarter of 2021, reaching \$876 billion (Adobe, 2021).

While digital payment adoption has expanded rapidly, key challenges remain, presenting opportunities for further empirical investigation. Issues such as cybersecurity threats (Kshetri, 2017; Lai, 2017) financial exclusion among digitally marginalised populations,

and concerns over financial surveillance (Gangadharan, 2017) warrant deeper examination. Additionally, the competitive landscape in Africa's digital payments sector, shaped by mobile network operators, fintech startups, and traditional banks, raises questions about market dynamics and innovation strategies (Amankwah-Amoah et al., 2021).

2.5 The Competitive Context of Emerging Markets

In emerging markets, especially in Africa, the digital payments landscape is competitive and multi-dimensional (Lepoutre & Oguntoye, 2018). Market entry is driven by market extensions from mobile network operators (MNOs) such as MTN, Vodacom, and Orange. They utilise their combined customer base and network infrastructure to provide mobile money services (Maurer, 2012). These MNOs are now directly competing against traditional banks, which are developing their digital payment solutions or joining hands with tech companies to be 'relevant' in the ever-changing financial landscape. Fintech startups like Flutterwave, Paystack and Wave have added to the competitive foray (Olalekan et al., 2024). Some of the market entrants are agile and innovative and have been able to address local needs such as user-friendliness or affordability head-on. Often, more established player - like the banks - find it challenging to catch up.

2.5.1 The Competitive Landscape is Fluid

As established earlier, the unbanked population in emerging markets create growth opportunities that will continue to fuel greater competition (Demirguc-Kunt et al., 2018). The nature of the competition is also nuanced, with observed competitiveness even within digital payment segments such as mobile money. For example, multiple MNOs in the same country compete to supply mobile money services (Munyegera & Matsumoto, 2016). Kenya illustrates this, with Safaricom's M-Pesa competing with Airtel Money and Telkom's T-Kash, for example. It is the same in Nigeria, where GTBank's GTPay and

FirstBank's FirstMonie combat UBA's Leo. Additionally, local startups must compete with more established pan-African players (David-West et al., 2019).

2.5.2 Competing Forces Across Geographical Territories

Competition is also disparate across geographical territories. Urban areas have more developed digital infrastructure and face more intense competition than peri-urban or rural areas. However, rural areas lack the same degree of competition because of infrastructure problems (Ndung'u, 2018). Countries also differ in the level of competition. Some countries like Kenya or Nigeria have more mature digital payment ecosystems, hence higher levels of competition (Evans & Pirchio, 2014), while other countries like Ethiopia lag and present new opportunities for competition.

Internationalisation is also bound to introduce interesting dynamics into the field. For example, M-Pesa, a Kenyan company, has started operating in other East African markets, further increasing the layer of complexity in the competitive environment. Innovation propels this geographical expansion while companies try to adapt their strategies to country-specific market conditions (Mbiti & Weil, 2011).

2.5.3 Product-level Competition

There is competition at the product level too, with service augmentation acknowledged as important for market share gain. Person-to-person (P2P) transfers represent the area of highest competition for most mobile money services and were the focus of many of them (Murendo et al., 2018). With the emergence of digital payments, merchant payments have become more competitive as companies have sought to outdo one another in offering the most attractive terms to merchants and consumers. There is also hyperspace, bill payments, government disbursements, and international remittance providers trying to sign up to

collaborate with utility providers and government agencies and promote convenient or more affordable services (Aron & Muellbauer, 2019). However, due to intense competition, market players have adopted various strategies. Pricing competition is typical, particularly for aggressive entrants (Mothobi & Grzybowski, 2017). For instance, Wave's entry into Senegal with significantly lower fees than the incumbent Orange Money sparked a price war. Feature competition is another strategy, with companies racing to add new platform services. M-Pesa, for example, has expanded from basic money transfers to offering savings, loans, and even investment products (Muthiora, 2015).

2.5.4 Competitive Landscape in Ghana

Competition has become intense in Ghana's digital payment landscape, which is attributed to Ghana being one of West Africa's most dynamic economies (Osei-Assibey, 2015). Several players are operating in this competitive context, including mobile network operators (MNOs), banks, fintech startups, and global tech companies, who are trying to capitalise on Ghana's growing digital payment market. MTN Mobile Money has a runaway market share leadership in the mobile money segment of the digital payment category in Ghana, followed by Vodafone Cash and AirtelTigo Money (Mensah et al., 2020). These MNOs utilise their huge customer base and network infrastructure to provide mobile money services that are now deeply rooted in Ghana's financial services sector.

In addition, the banking sector in Ghana has also come into the fray of digital payments, with the various players developing their digital payment solutions to take on MNOs and fintechs (Acquah-Sam, 2021). By leveraging their long-standing credibility and existing customer relationships, these banks can integrate their digital solutions into their legacy services (Senyo & Osabutey, 2020).

In addition, companies like Express Pay, Zeepay and Hubtel are innovative thus challenging already existing players with a solution that caters for the local markets (Sakyi-Nyarko et al., 2022). There are global tech giants with an additional layer of complexity added to the competitive environment. Locally, PayPal has grown its inroads through partnerships with local banks, and Google Pay and Apple Pay have ramped up their presence (Dzokoto & Appiah, 2014). These global players serve as a source of great technological expertise and financial resources, which may upset traditional market dynamics (Amankwah-Amoah et al., 2021).

There are other forms of competition in the digital payment space in emerging markets like Ghana. Today, mobile money services have increasingly focused on person-to-person transfers (P2P transactions), which are still seen as key battlegrounds (Lashitew et al., 2019). However, the competitive space has expanded to merchant payments, bill payments, and international remittances. Competition is fierce for companies to provide the most desirable terms to consumers and businesses, and this has been driving innovation in QR code payments and contactless transactions (Glavee-Geo et al., 2017). The competition in payment acceptance is further accelerated by the COVID-19 pandemic with the increase in contactless payments further incentivising players to develop more digital offerings and broaden their merchant networks (Amankwah-Amoah et al., 2021).

2.5.5 Competition Will Drive the Importance of Branding Elements

In conclusion, the digital payment market in emerging markets, including Ghana, will demonstrate intense, multi-faceted competition that drives innovation and expands financial inclusion (Barnett & Salomon, 2006). The ultimate winners in this highly competitive landscape are those who can best balance innovation along with navigating the complex regulatory environments of these emerging markets (Ansong & Boateng, 2019).

Additionally, as consumers experience improved service quality and benefit from lower costs adoption and use continuance is expected to rise (Humbani & Wiese, 2019). This is where brand differentiation comes in and the role of branding becomes an important driver of market penetration for digital payments.

2.6 Digital Payments in Ghana – The State of Play

2.6.1 Digital Payments and its Impact on Financial Inclusions in Ghana

Recent literature has examined the nexus between digital financial services and financial inclusion for marginalised groups in emerging economies. There is evidence (World Bank, 2022; Demirgüç-Kunt et al., 2020) to suggest that digital payments are often framed as tools for closing access gaps to formal financial services for low-income groups, women, and rural communities in Ghana. The persistence of usage disparities across income, gender, and geography suggests that access alone may be insufficient for equitable financial inclusion and it raises questions about what specific factors sustain or constrain meaningful uptake among excluded segments.

The perceived trustworthiness of service providers, the simplicity of user interfaces, and alignment with users' financial habits often matter more than mere functional access in low-income settings. While much of this literature addresses service features in general, fewer studies examine how these attributes are communicated or differentiated through branding. This gap becomes pertinent in contexts such as Ghana where multiple digital payment providers operate in the same business environment. The presence of brand differentiation in such a competitive landscape introduces an opportunity to investigate how specific branding strategies might influence uptake among underserved populations. For instance, could the strength of the parent brand of a digital payment brand extension or the design of its value proposition enhance perceived security among rural women who are

often cautious adopters? Studies by Norbu et al. (2024) and Putrevu & Mertzanis (2024) highlight the importance of social trust in digital adoption, yet they offer limited insight into how branding itself facilitates these dynamics.

While co-branded initiatives and community-based marketing have been highlighted as potential enablers of trust and adoption (GSMA, 2022; African Development Bank, 2020) it is not clear how sustainable or scalable these approaches are. There is also limited empirical evidence on how branding strategies may differently affect different demographic groups.

Considering these gaps, several questions remain: To what extent do branding and competitive positioning impact adoption among consumer groups, including those who are excluded from traditional financial systems? How do different consumers perceive and respond to competing digital payment brands and are there instances of market pull or push from served and underserved consumer segments? How might trust and other emotive elements embedded in brand communications interact with broader financial inclusion outcomes? These questions point to the need for more focused inquiry into the intersection of brand strategy and financial inclusion, especially in competitive digital payment markets like Ghana.

2.6.2 Digital Payment Adoption Trends in Ghana

The available statistics for the Ghana market point to rapid growth of the digital payment market, even if the overall penetration is yet to hit its full potential (Mensah et al., 2020). In 2020 for instance, there was a significant leap in mobile money transactions from the previous year (Appiah-Otoo & Song, 2021). The Ghana data further shows growth in active mobile money accounts, now a sizeable proportion of the country's population (Sakyi et al.,

2019). Research suggests large increases in interbank payments and settlements fuelled by electronic payment channels such as mobile money interoperability (Antwi & Kong, 2023).

New payment technology, such as QR code payment solutions, is gaining ground in the market (Hinson et al., 2019). Several digital international remittance solutions are also available now (Acquah-Sam et al., 2020). As indicated by customer behaviour studies, the banking sector has also been going through a digital transformation. Studies show that over 90 per cent of banking customers experiment with digital channels, with banking mobile apps being customers' top digital channels (Senyo & Osabutey, 2020). Recent studies reveal substantial growth in mobile money account ownership across different population segments (Agyekum et al., 2020). Young adults have the highest adoption rates, and rural locations also show significant growth in digital payment adoption (Dzokoto & Appiah, 2014). These statistics underscore the role of digital payments in promoting financial inclusion across different segments of Ghana's population (Ansong & Boateng, 2019).

2.6.3 Impact of Regulation on the Ghanaian Market

In line with advancing digital payment adoption in Ghana, the Bank of Ghana (BOG) has been pivotal in driving financial intermediation by introducing digital payment. The development of such initiatives has catalysed the competitive expansion of digital financial services within the country (Amofah et al., 2023). The BOG's most important contribution was setting up a solid regulatory framework, which, among other things, introduced the Payment Systems and Services Act of 2019. The Act supplied a sweeping legal platform for digital payment services (Bank of Ghana, 2022), cementing certification of numerous forms of digital money services and standards for consumer protection and operational rectitude. This legislation created a channel of regulatory clarity that fostered innovation

and investment in digital payment solutions by established financial institutions and FinTech startups.

On the other hand, the BOG also promoted interoperability in the digital payment ecosystem. In 2018, it decreed mobile money interoperability to allow users to transfer any mobile money without notifying their operators (Osafu-Kwaako et al., 2018). This initiative lowered transaction friction, increased the service's capability to be used and drove up adoption rates. The interoperability mandate has contributed to a more inclusive financial system and reduced digital transaction costs (Buku & Mazer, 2017). Furthermore, the BOG has put in place the Ghana Interbank Payment and Settlement Systems (GhIPSS), a wholly-owned subsidiary of the BOG, to support the development of digital payment infrastructure. In 2020, GhIPSS led the introduction of a series of payment systems, including the Ghana Quick Response (GhQR) Code system, which standardised QR code payments nationwide. The initiative makes digital payments easy for merchants, especially small informal, thereby expanding the ecosystem (Bank of Ghana, 2020).

The BOG has also been focused on driving financial literacy and consumer education, and made it a critical plank of its financial inclusion campaign. The Bank recognises that informed use and trust in digital financial services impact digital payment adoption and has implemented some education programs around digital financial services (Agyekum et al., 2020). The BOG has adopted a 'sandbox' approach to managing risk while concomitantly fostering innovation in digital payments (Bank of Ghana, 2024). Besides security, the regulator is responsible for increasing financial inclusion through digital means. Financial inclusion targets have been set by the central bank, and meanwhile, it has encouraged financial institutions to develop financial products and services for underserved groups.

The result of these efforts is innovative digital payment solutions, which address the specific needs of different segments of Ghanaian society.

The rollout of the Electronic Transfer Levy (E-Levy) has had some negative ramifications in Ghana (Cobla & Osei-Assibey, 2018) although available e-money statistics from the Bank of Ghana (Bank of Ghana, 2022) suggest that the market had mitigated the impact somewhat. E-Levy imposes a 1.5% tax on electronic transfers, which includes mobile money transfers as well as bank transfers and other digital payment transactions (Amoah et al., 2023).

Previous research indicated that the levy has been more likely to harm low-income users who are more sensitive to transaction costs (David-West et al., 2019). The additional charge, for many in this demographic, is a substantial increase in the cost of financial transactions, pushing the bulk back to cash-dominated alternatives. The introduction of the e-levy reverses some of the gains from digital payment platforms in financial inclusion over the last several years (Amoah et al., 2023).

Moreover, the e-levy has given a perception problem about digital payments. One of the effects is that many users now see electronic transactions as being more expensive than cash transactions, which changes consumer behaviour (Lashitew et al., 2019). The implementation has also raised concerns about financial privacy as well as data security. The need to monitor and tax electronic transactions is linked to monitoring users' financial flows, and this is perceived as an invasion of privacy (Ahmad et al., 2020).

The authors also show that e-levy is a further operational cost to small businesses and entrepreneurs that already rely on digital payment platforms. Some have been unable to

absorb or pass on this cost to customers, thereby suffering loss of profitability and even a return to cash transactions (David-West et al., 2019). In addition, the e-levy has complicated the regulatory environment for fintech companies and digital payment providers, thereby potentially stifling innovation in the sector (Cobla & Osei-Assibey, 2018).

There is, however, a gap in the scholarly research on how brand differentiation and branding effects mitigate the impact of regulatory developments such as the e-levy. Digital payment brands have deployed different marketing communications on the e-levy and its impact on pricing or price adjustments to reduce the shock of the levy on consumers. Some brands have utilized many other tactical activities in response to the e-levy but there is no evidence showing how this influenced churn from digital payments or sustained gains on the individual brands.

2.6.4 Barriers to Digital Payment Adoption in Ghana

The thesis argues that much of the available research on digital payment adoption is subject to pro-innovation bias and underrates the intention-action gap that pervades regulated financial technology markets. This section reviews some of the Ghana digital payment market barriers hinted at by various studies. These barriers range from technological and financial literacy constraints to infrastructure limitations and regulatory uncertainties, contrary to some pro-innovation literature.

2.6.4.1 High Cost of Internet Access

One of the key barriers to digital payment adoption in Ghana is the relatively low penetration of smartphones and the high cost of internet access (Akanferi et al., 2022). A significant portion of the population still relies on feature phones, which lack the full

functionality required for digital payment applications. Furthermore, internet connectivity remains unstable and expensive, particularly in rural areas, leading to frequent transaction failures and limiting the effectiveness of digital payment services (Asongu & Odhiambo, 2021). These infrastructure challenges create a "digital divide" that restricts access to digital financial services for low-income and unwaged segments of society.

2.6.4.2 Lack of Reliable Electricity

Additionally, the lack of reliable electricity in some parts of the country poses another constraint. Digital payment systems require stable power supplies for mobile networks, payment terminals, and banking infrastructure. Frequent power outages in certain regions further discourage businesses and consumers from relying on digital transactions (Adaba & Ayoung, 2017). Similarly, the limited availability of digital payment merchants, particularly in rural areas, makes electronic payments less practical, as users have fewer opportunities to transact digitally.

2.6.4.3 Lower Levels of Financial Literacy

Another significant challenge is the inadequate level of financial literacy, particularly regarding digital financial services. Many Ghanaians, especially those in rural areas and those with lower levels of education, struggle to understand and trust digital payments. The lack of awareness about how digital transactions work and concerns over security make many hesitant to switch from cash-based transactions (Dzokoto & Appiah, 2014). The complexity of some digital payment platforms, which often include technical jargon and interfaces designed for more digitally literate users, further exacerbates this issue.

2.6.4.4 Trust of Digital Payment Systems

Mistrust of digital payment systems remains a significant barrier to adoption. Many potential users worry about fraud, cybercrime, and the risk of unauthorized access to their financial information. High-profile mobile money fraud and scams have contributed to this scepticism, making it difficult for service providers to convince users that digital transactions are safe (Akomea-Frimpong et al., 2019; Buku & Mazer, 2017). Without strong consumer protection measures and widespread awareness campaigns about digital security, many individuals remain hesitant to use these services.

Furthermore, concerns about regulatory inconsistencies further erode trust. While the Bank of Ghana has introduced policies to regulate digital payments, some industry players find aspects of the framework unclear or overly restrictive (Kodom, 2019). A lack of clarity on compliance requirements can discourage sector investment and slow innovation. A balanced regulatory approach that protects consumers while encouraging innovation is necessary for fostering digital payment growth.

2.6.4.5 Cost of Digital Transactions

The cost of digital transactions also plays a critical role in adoption. Transaction fees and the high cost of mobile data required to access digital payment services make electronic payments less attractive, particularly for low-income users (Agyekum et al., 2022). In cases where the cost of digital transactions exceeds the perceived benefits, many individuals and businesses continue to prefer cash. The development is especially true for small-value transactions in the informal economy, where cash remains the dominant medium of exchange.

2.6.4.6 Digital Identify Verification

Ghana also faces challenges related to digital identity verification. Many individuals lack the formal identification documents required to register for digital financial services. Efforts to implement a comprehensive national ID system are ongoing, but this gap limits access to mobile money and other digital financial products (Buku & Mazer, 2017). Ensuring that digital identification systems are accessible and well-integrated with financial services will be essential for increasing digital payment adoption.

2.6.4.7 Cultural Attitudes

Cultural attitudes towards cash continue to influence digital payment adoption. Many Ghanaians, particularly in rural areas, perceive cash as more immediate, tangible, and reliable than digital alternatives (Osei-Assibey, 2015). The ease of physically handling money and the familiarity of cash transactions make it difficult for digital payments to gain traction, especially in sectors where informal financial practices dominate.

2.6.4.8 Structure of the Ghanaian Economy

Additionally, the structure of Ghana's economy presents unique challenges for digital payment adoption. Many economic activity occurs in the informal sector, where businesses and individuals operate outside formal financial systems (Dzokoto & Appiah, 2014). Digital payment networks do not always integrate well with informal businesses, making it difficult for small traders and daily wage earners to transition from cash to digital transactions.

Gender disparities in digital access also present a challenge. Studies indicate that women, particularly in rural areas, have lower levels of digital literacy and less access to mobile

technology than men. This digital gender gap affects financial inclusion efforts and may widen economic inequalities if not addressed (Lee et al., 2019).

The preceding paragraphs have shown that, despite progress, barriers to the adoption of digital payments in Ghana remain significant. Consumers tend to trust well-established brands, and strong branding can reduce scepticism, enhance perceptions of security, and simplify user experiences. Therefore, future research must explore how branding elements and differentiation strategies influence digital payment adoption, particularly in overcoming trust issues and usability barriers. Understanding this relationship could provide valuable insights to expand financial inclusion and increase adoption.

2.7 Chapter Summary

This chapter has examined digital payment adoption within the broader structural, regulatory and competitive context of emerging markets, with a specific focus on Ghana. The review demonstrates that digital payment systems in Ghana have evolved beyond mere technological utilities and now operate in a highly competitive marketplace characterised by multiple providers, overlapping service propositions, and a strong parent-brand presence. Adoption decisions, therefore, occur in an environment where consumers must choose not only whether to adopt digital payments, but also which branded digital payment service to trust and use.

The analysis of market conditions, regulatory interventions and adoption barriers highlights that consumer decision-making in this context is shaped by uncertainty, perceived risk, and varying levels of infrastructural support. While technology-focused explanations remain relevant, they are insufficient on their own to explain adoption behaviour in a market where competing services often offer similar functional capabilities. Under such conditions,

branding-related evaluations become central to how consumers differentiate among alternatives.

This chapter thus provides the contextual justification for extending technology adoption theories to incorporate branding constructs. It motivates the introduction of brand extension fit and parent brand trust as explanatory mechanisms capable of capturing adoption behaviour in competitive, brand-driven digital payment environments. These insights inform the theoretical perspectives reviewed in Chapter 3 and underpin the conceptual framework and hypotheses presented in Chapter 4.



CHAPTER THREE

THEORETICAL PERSPECTIVES

3.1 Chapter Overview

The chapter presents the theoretical background of the study. The literature review identifies three primary theories relevant for this work: the Unified Theory of Acceptance and the Use of Technology 2 (UTAUT2), the Trust Transfer Theory and the Brand Extension Model. Two of the models that were later incorporated into the UTAUT2 – the Diffusion of Innovations (DOI) and the Technology Acceptance Model (TAM) - are selected for special review because of their critical role in operationalising the UTAUT2 theory. The approach used in the section is to review literature within the two epistemological frames identified in Chapter Two that straddle digital innovations broadly and digital payments specifically. The two knowledge domains are the technology acceptance literature and the scholarly work on branding and brand extensions. In the section that follows, the approach is to review the literature critically, establish a contemporary direction and focus, and examine the research gaps and problems identified in Chapter One through critique.

3.2 Theoretical Foundations

3.2.1 The Diffusion of Innovation Theory

The Diffusion of Innovation (DOI) theory, introduced by Everett Rogers (Rogers, 2003) has been enriched by contributions from various scholars like Geoffrey Moore across disciplines such as sociology, communication, and marketing (Greenghalgh et al., 2004; Moore, 2007). At its core, the DOI theory proposes that the adoption and diffusion of innovations occur through several stages, influenced by factors such as the innovation's characteristics, communication channels, social systems, and individual adopter traits. The

DOI theory categorises individuals into distinct adopter categories based on their willingness to adopt new technologies, degree of innovativeness, and influence on others' adoption decisions (Rogers, 2003; Valente, 1995). These adopter categories play a crucial role in shaping the diffusion process of innovations, including the adoption and continued use of digital payments. Early adopters are characterised by their high degree of innovativeness, willingness to take risks, and enthusiasm for embracing new technologies (Greenhalgh et al., 2004). They are often influential opinion leaders within their social networks and are quick to adopt innovations at the onset of their availability. The early majority represents individuals who adopt innovations after a substantial portion of early adopters have already embraced them (Mallinson, 2021). They are characterised by their cautious approach to adoption, seeking evidence of an innovation's effectiveness and reliability before committing to adoption. In relation to digital payment adoption, the early majority may prioritise factors such as effort expectancy and facilitating conditions, considering the ease of use and practicality of mobile money services.

The late majority consists of individuals who adopt innovations only after the majority of society has already embraced them (Mallinson, 2021). They tend to be sceptical of new technologies and may adopt them out of necessity rather than enthusiasm. In the context of digital payment adoption, the late majority may exhibit a more conservative approach, focusing on social influence and hedonic value in their decision-making process. Laggards are individuals who are the last to adopt innovations, often due to strong resistance to change or a lack of access to information (Karch, 2022). They may be deeply entrenched in traditional practices and reluctant to embrace new technologies. In the context of digital payment adoption, laggards may exhibit minimal interest in digital payment, relying instead on familiar and established methods of financial transactions.

One of the key strengths of the diffusion of innovation (DOI) theory is its comprehensive framework for understanding the diffusion process of innovations (Valente, 1995). The theory offers insights into why certain innovations are adopted while others are not, by identifying critical factors influencing adoption decisions, such as the innovation's characteristics and individual adopter traits.

Additionally, the DOI theory recognises the dynamic nature of innovation adoption, acknowledging the roles of both individual characteristics and external contextual factors. While several studies (Pamungkas, 2025; Singh & Strzelecki, 2025; Raman et al., 2024) have applied the DOI theory to investigate technology adoption and diffusion processes, none has specifically examined it in relation to digital payment in a competitive context. Nevertheless, existing studies have explored various innovations across different industries and sectors, providing valuable insights into the factors influencing adoption behaviour and diffusion dynamics (Greenhalgh et al., 2004; Lou & Li, 2017; Nor et al., 2010). These studies serve as foundational research that informs our understanding of innovation adoption and its implications for organisations and society.

Despite its strengths, the DOI theory like any other theory has its limitations (Bayer & Melone, 1988). The theory's primary focus on the characteristics of the innovation and individual adopter traits may not fully capture the nuanced interplay between personal innovativeness and post-usage beliefs in the context of digital payment adoption. Additionally, the DOI theory may not adequately account for certain contextual factors specific to the digital payment or competitive context of digital payments, potentially limiting its explanatory power in this study. To address these limitations, Fred Davis introduced the Technology Acceptance Model (TAM) in 1989.

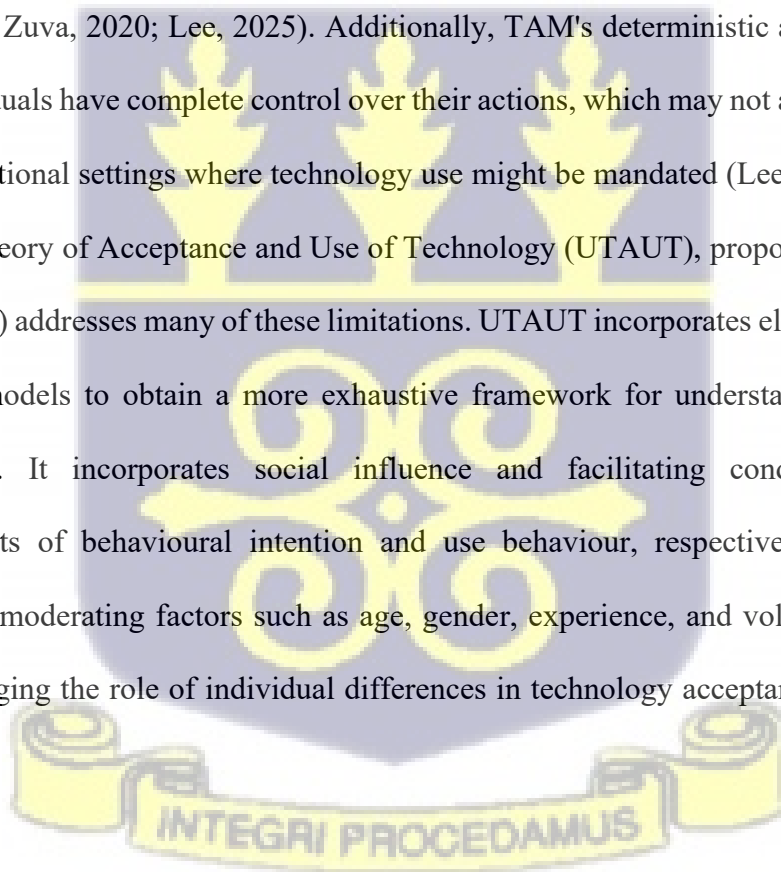
3.2.2 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), introduced by Fred Davis in 1989 (Davis, 1989), has become one of the most influential theories in unravelling user acceptance of information systems. TAM was developed and adapted from the Theory of Reasoned Action (TRA) specifically tailored to predict consumers' acceptance of information systems. The primary goal of TAM was to provide a parsimonious, theoretically justified model that could explain the determinants of computer acceptance across a wide range of end-user computing technologies and user populations (Davis, 1989). At its core, TAM posits that two primary factors influence an individual's intention to use a new technology: perceived usefulness (PU) and perceived ease of use (PEOU). Perceived usefulness is defined as the extent to which a person believes that using a specified system would enhance their job performance. In contrast, perceived ease of use refers to a user's belief that using a specified system would require little or no effort (Davis, 1989a). These two factors are influenced by external variables and directly affect the attitude toward using the technology. The attitude, in turn, influences the behavioural intention to use the system and, ultimately, to actual use of the system.

In the context of digital payment research, TAM has been widely applied to understand user acceptance of various payment technologies. For instance, Schierz et al. (2010) used an extended version of TAM to study mobile payment services acceptance, finding that compatibility, individual mobility, and subjective norm were significant factors alongside perceived usefulness and perceived ease of use. Similarly, Chandra et al. (2010) applied TAM to examine the adoption of digital payment systems in Singapore and included constructs such as perceived security and trust.

The strength of TAM lies in its simplicity and robustness. Its simplicity makes it easy to apply across different technological contexts, and it has consistently explained a substantial proportion of the variance (typically around 40%) in usage intentions and behaviour (Venkatesh & Davis, 2000). Moreover, TAM's focus on perceived usefulness has proven particularly valuable in organisational contexts where performance enhancement is a key concern. However, TAM is not without its weaknesses.

Critics argue that the TAM's simplicity, while a strength, is also a limitation, as it fails to capture the full complexity of technology adoption decisions. The model has been criticised for not considering factors such as social influences and facilitating conditions (Malatji, van Eck & Zuva, 2020; Lee, 2025). Additionally, TAM's deterministic approach assumes that individuals have complete control over their actions, which may not always be the case in organisational settings where technology use might be mandated (Lee et al., 2003). The Unified Theory of Acceptance and Use of Technology (UTAUT), proposed by Venkatesh et al. (2012) addresses many of these limitations. UTAUT incorporates elements from eight previous models to obtain a more exhaustive framework for understanding technology acceptance. It incorporates social influence and facilitating conditions as direct determinants of behavioural intention and use behaviour, respectively. UTAUT also introduces moderating factors such as age, gender, experience, and voluntariness of use, acknowledging the role of individual differences in technology acceptance (Venkatesh et al., 2012).



In conclusion, while TAM has been a cornerstone in technology acceptance research, including studies on digital payment systems, its limitations have led to the development of more comprehensive models, such as the UTAUT. These evolved models provide a richer understanding of the complex factors influencing technology adoption, balancing

parsimony with explanatory power to offer researchers and practitioners more nuanced tools for predicting and managing technology acceptance in various contexts.

3.2.3 The Unified Theory of Acceptance and Use of Technology

The UTAUT framework was developed by Venkatesh, M. G. Morris, G. B. Davis, and F. D. Davis (Venkatesh et al., 2003a) through the synthesis of existing constructs adopted in eight robust existing frameworks (see Table 3.1), namely Motivational Model (MM), Theory of Planned Behaviour (TPB), Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Innovation Diffusion Theory (also known as Diffusion of Innovations (DOI)), Social Cognitive Theory (SCT), Combined Theory of Planned Behaviour/Technology Acceptance Model and Model of PC Utilisation (MPCU). Their objective was to integrate the fragmented theories and research on the acceptance of information technology and individual acceptance into a unified theoretical model (Venkatesh et al., 2003). The integration of as many as eight theories makes the UTAUT model one of the most comprehensive and important theories for explaining IT adoption (Min et al., 2008). The authors drew inspiration from the aforementioned models to develop four distinct constructs as direct factors of technology acceptance: performance acceptance, effort expectancy, social influence, and facilitating conditions. The researchers maintained that the four constructs are moderated by gender, age and voluntariness of use of the system. Another inherent factor identified in the model is the behavioural intention to adopt a system which depends on the facilitating conditions.

Among the four predictors, performance expectancy is consistently a strong predictor of behavioural intention toward technology use in UTAUT-based studies (Xue, 2024). Effort expectancy remains important as an ease-of-use determinant that can influence adoption, especially where usability perceptions are critical to user uptake (Merz et al., 2025). In the

UTAUT framework, social influence continues to exert a significant direct effect on behavioural intentions, as peers' and relevant others' expectations shape users' technology decisions (Ramadhina et al., 2025). However, recent research also highlights that the relative strength of these predictors can vary by context and technology type, suggesting that no single construct universally dominates across all settings (Azri et al., 2025; Sergéeva, 2025).

Table 3.1: Consolidation of existing technology adoption models under UTAUT2

Theory	Seminal Work	Contribution to UTAUT2
Theory of Reasoned Action (TRA)	Fishbein & Ajzen (1975)	Introduced the idea that behavioural intention is determined by attitude and subjective norms. Forms the foundational logic for intention-based models like UTAUT2.
Technology Acceptance Model (TAM)	Davis (1989)	Introduced perceived usefulness and perceived ease of use as key determinants of technology acceptance. Forms basis for performance and effort expectancy in UTAUT2.
Motivational Model (MM)	Davis, Bagozzi & Warshaw (1992)	Emphasized intrinsic and extrinsic motivation in system use. Informs the inclusion of hedonic motivation in UTAUT2.
Theory of Planned Behaviour (TPB)	Ajzen (1991)	Adds perceived behavioural control to TRA. Influences the facilitating conditions and social influence constructs in UTAUT2.
Combined TAM and TPB (C-TAM-TPB)	Taylor & Todd (1995)	Synthesized TAM and TPB, highlighting the interplay between individual attitudes, norms, and control beliefs. Reinforces the multidimensional structure of UTAUT2.
Model of PC Utilization (MPCU)	Thompson et al. (1991)	Focused on actual usage behaviour and facilitating conditions. Directly contributes to UTAUT2's operationalization of facilitating conditions.
Innovation Diffusion Theory (IDT)	Rogers (1995)	Explains adoption based on innovation characteristics such as observability and trialability. Informs constructs like performance expectancy and social influence.
Social Cognitive Theory (SCT)	Bandura (1986)	Introduces the concept of self-efficacy and observational learning. Informs facilitating conditions and user agency in UTAUT2.

3.2.3.1 Performance Expectancy

The authors presented performance expectancy as a measure of the degree to which a person expects that employing a specific technology or system would improve his or her performance at work. Performance expectancy is "the degree to which an individual believes that using the system will help him or her to attain gains in job performance" (Venkatesh et al., 2003, p.447). The construct of performance expectations can be linked to perceived usefulness (from the Technology Acceptance Model), extrinsic motivation (from the Motivation Model), job fit (from the Model of PC Utilisation), relative advantage (from Innovation Diffusion Theory), and outcome expectancies (from Social Cognitive Theory). Three factors that affect performance expectancy are perceived usefulness, extrinsic motivation, and job fit (Nandru et al., 2025). Within each of the individual models tested, the variables related to performance expectancy were the strongest predictors of intention to use the target technology.

Farzin et al. (2021) demonstrate that performance expectancy remains a central determinant of behavioural intention in mobile banking, showing that users prioritise gains in efficiency, speed, and transactional effectiveness when forming adoption intentions. Migliore et al. (2022) further confirm this relationship in their comparative study, showing that perceived performance benefits consistently explain intention even when innovation resistance factors are introduced.

3.2.3.2 Effort Expectancy

The authors adopted effort expectancy to measure the level of comfort a system's usage is connected. Effort expectancy is "the degree of ease associated with the use of the system" (Venkatesh et al., 2003, p.450). The other constructs related to the concept of effort expectancy include: perceived ease of use (TAM), complexity (MPCU), and ease of use

(IDT). It is determined by how people perceive an innovation's function, how it will be used, and how easy or difficult it will be to utilise. As a result, it is believed that complexity may discourage continuous use. In other words, people won't readily accept innovations that are challenging to comprehend and apply. Most of the existing IS studies (Abrahão et al., 2016; Bhatiasevi, 2016; Gao & Waechter, 2017; Owusu Kwateng et al., 2019; Owusu, 2017) that applied the UTAUT found a positive association between effort expectancy and continued use.

3.2.3.3 Social Influence

The authors adopted social influence as the level to which a person considers other people's opinions to be significant while deciding whether to employ a new system. It is “the degree to which an individual perceives that important others believe he or she should use the new system” (Venkatesh et al., 2003, p.451). In the other models (TRA, TAM, TPB/DTPB, and C-TAM-TPB), social elements are treated as a subjective standard, while image is viewed as a subjective norm in IDT. Thompson et al. (1991) used the phrase "social norms" to describe their concept and acknowledged that it is comparable to the subjective norm employed in TRA. Each of these constructs, although having substantially distinct labels, involves the explicit or implicit idea that the person's behaviour is impacted by how they feel other people will see them as a result of having used the technology. As a result, social influence serves as a gauge of the consumers' values and beliefs; it embodies both the previous adoption of ideas and the capacity of an invention to address the demands of the present (Rogers, 1983). Most of the existing IS studies (Abrahão et al., 2016a; Bhatiasevi, 2016a; Kissi et al., 2017a; Kwateng et al., 2019a; Madan & Yadav, 2016a; Penney et al., 2021a; Savić & Pešterac, 2019a) that applied the UTAUT found a positive association between social influence and continued use.

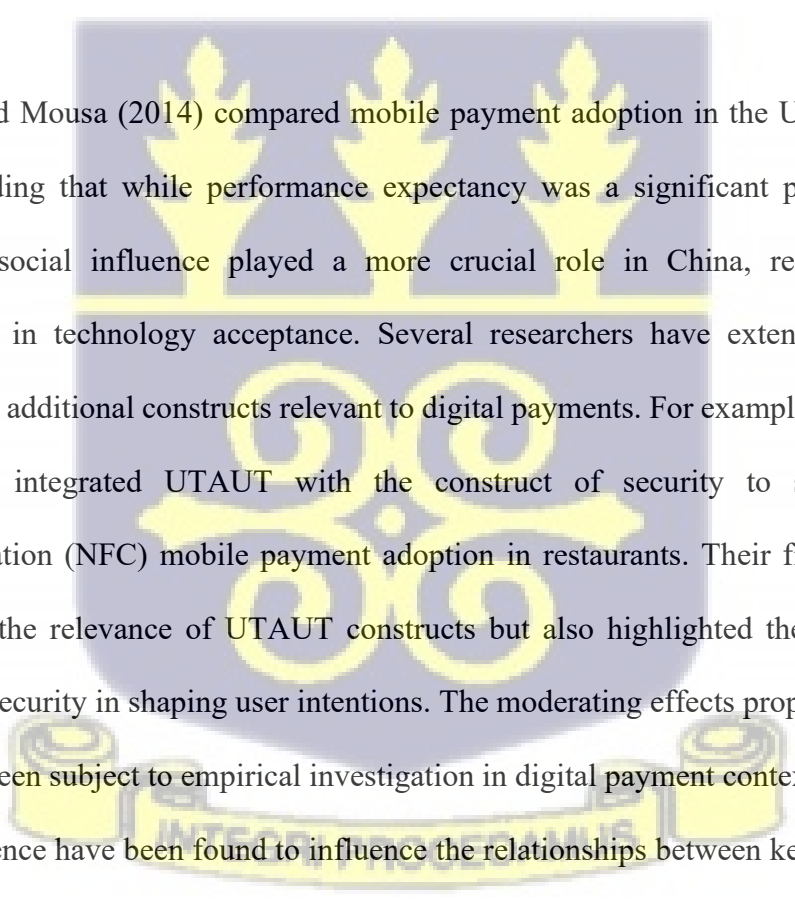
3.2.3.4 Facilitating Conditions

The authors introduce facilitating conditions as the extent to which a person thinks that a technological and organisational infrastructure is in place to assist the usage of the system. It is “the degree to which an individual believes that an organisational and technical infrastructure exists to support the use of the system” (Venkatesh et al., 2003, p.453). The other variables that define facilitating conditions include perceived behavioural control (TPB/DTPB, C-TAM-TPB), facilitating conditions (MPCU), and compatibility as measures of this construct (IDT). According to Venkatesh et al. (2003), facilitating conditions are insignificant in predicting continued when both effort and performance expectancy constructs are present. The UTAUT construct of facilitating conditions consists of items theorised to model the relationship between the organisation's attempts to overcome barriers to use and the potential users' intent to use. Most of the existing IS studies (Kwateng et al., 2019a; Madan & Yadav, 2016a; Savić & Pešterac, 2019a) that applied the UTAUT found a positive association between facilitating conditions and continued use.

3.2.4 The UTAUT and Digital Payment Research

The Unified Theory of Acceptance and Use of Technology (UTAUT) has been widely applied in empirical research to understand the adoption and use of digital payment systems across various contexts. This comprehensive model, developed by Venkatesh et al. (2003), has proven particularly useful in explaining the complex factors influencing users' acceptance of new payment technologies. Numerous studies have employed UTAUT to investigate mobile payment adoption. For instance, Oliveira et al. (2016) conducted a study in Portugal, combining UTAUT with perceived security and privacy risks. Their findings highlighted the significance of performance expectancy, social influence, and technology characteristics in shaping behavioural intentions to adopt mobile payment solutions. Similarly, Slade et al. (2015) applied an extended UTAUT model to examine mobile

payment adoption in the UK, incorporating trust and risk constructs. Their research underscored the importance of performance expectancy and social influence, while also revealing the critical role of perceived risk in inhibiting adoption intentions. In the context of developing economies, Alaeddin et al. (2018) utilised UTAUT to study the adoption of e-wallet services in Malaysia. Their research revealed that performance expectancy, effort expectancy, and social influence significantly influenced behavioural intentions to use e-wallets. Interestingly, they found that facilitating conditions directly affected actual usage behaviour, emphasising the importance of infrastructure and support systems in promoting digital payment adoption. Cross-cultural studies have also leveraged UTAUT to understand variations in digital payment adoption.

The logo of the University of Ghana is a large, semi-transparent watermark in the center of the page. It features a shield with three golden flames at the top, a central golden emblem, and a banner at the bottom with the motto 'INTELECTUS PRO DOMINA'.

Alshare and Mousa (2014) compared mobile payment adoption in the United States and China, finding that while performance expectancy was a significant predictor in both countries, social influence played a more crucial role in China, reflecting cultural differences in technology acceptance. Several researchers have extended UTAUT to incorporate additional constructs relevant to digital payments. For example, Khalilzadeh et al. (2017) integrated UTAUT with the construct of security to study near-field communication (NFC) mobile payment adoption in restaurants. Their findings not only confirmed the relevance of UTAUT constructs but also highlighted the critical role of perceived security in shaping user intentions. The moderating effects proposed in UTAUT have also been subject to empirical investigation in digital payment contexts. Age, gender, and experience have been found to influence the relationships between key constructs and behavioural intentions.

For instance, Chopdar et al. (2018) found that age and gender moderated the effects of effort expectancy and social influence on mobile shopping app adoption intentions across

India and the USA. While UTAUT has provided valuable insights into digital payment adoption, some studies have noted limitations. For example, Tak and Panwar (2017) found that UTAUT explained only a moderate amount of variance in mobile payment adoption intentions among Indian consumers, suggesting the need for context-specific extensions to the model. In conclusion, empirical research using UTAUT in the digital payment domain has consistently highlighted the importance of performance expectancy and social influence in shaping adoption intentions. The framework has proven flexible enough to accommodate additional constructs relevant to payment technologies, such as trust, risk, and security. However, the varying significance of constructs across different cultural contexts and types of digital payment systems suggests the need for continued refinement and adaptation of the model to specific technological and cultural environments.

The Unified Theory of Acceptance and Use of Technology (UTAUT) has been widely applied in digital payment research, offering valuable insights into user adoption behaviour. However, a significant limitation of UTAUT is its failure to adequately address the competitive landscape of digital service providers and the critical role of branding in achieving competitive advantage. In the rapidly evolving digital payment ecosystem, where numerous providers offer similar services, UTAUT's focus on technology acceptance overlooks the nuanced factors that influence users' choices between competing platforms. Branding, which encompasses elements such as brand identity, brand loyalty, and brand associations, plays a crucial role in differentiating services that may be functionally similar (Keller, 1993; Sweeney & Soutar, 2001). These branding aspects can significantly impact user perceptions and choices, potentially overriding or modifying the effects of UTAUT's core constructs like performance expectancy or social influence. For instance, a strong brand might mitigate perceived risks or enhance social influence, factors not explicitly considered in the UTAUT framework. Moreover, brand-related factors could influence

how users perceive a digital payment system's ease of use or usefulness, thereby indirectly affecting the model's core constructs. The omission of these competitive and branding dimensions limits UTAUT's ability to fully explain and predict user behaviour in a competitive market environment, suggesting a need for extensions or modifications to the model that incorporate these critical elements of modern digital service competition (Cher & Tianchong, 2016; Dwivedi et al., 2019b).

Several studies have focused on examining the applicability of the UTAUT model in specific contexts, such as Ghana (Amos-Abanyie, 2019; Kwateng et al., 2019b), Nigeria (Kissi et al., 2017; Olaleye et al., 2018), Serbia (Savić & Pešterac, 2019), India (Madan & Yadav, 2016; Pal & Patra, 2021; Patil et al., 2017; Sharma & Mishra, 2022), China Gao & Waechter, 2017a; Zhao & Bacao, 2020), South Korea (Lin et al., 2023), and Indonesia (Chang et al., 2023; Musyaffi et al., 2021). These studies have generally confirmed the validity of the UTAUT constructs, such as performance expectancy, effort expectancy, social influence, and facilitating conditions, in predicting user intentions and behaviour towards mobile payment adoption.

However, researchers have also recognised the need to extend the UTAUT model by incorporating additional constructs to better capture the complexities of mobile payment adoption. Common extensions include perceived risk (Gao & Waechter, 2017; Madan & Yadav, 2016; Olaleye et al., 2018; Penney et al., 2021), perceived trust (Lim et al., 2019; Madan & Yadav, 2016; Al-Saedi et al., 2020), perceived cost (Bhatiasevi, 2016; Madan & Yadav, 2016; Al-Saedi et al., 2020), perceived value (Dai et al., 2014; Madan & Yadav, 2016), and perceived security (Al-Okailya et al., 2020; Lim et al., 2019). The aforementioned studies, focusing on various aspects of consumers' perception, validate the argument that greater emphasis needs to be put on consumer-brand relationships.

Several studies have also incorporated constructs from other theories, such as the Technology Acceptance Model (TAM) (Di Pietro et al., 2015; Khalilzadeh et al., 2017), the Expectancy Confirmation Model (ECM) (Chen & Li, 2017; Zhao & Bacao, 2020), the Innovation Resistance Theory (IRT) (Migliore et al., 2022; Sivathanu, 2019), and the Motivation-Opportunity-Ability (MOA) model (Hu et al., 2022).

In terms of methodological approaches, the majority of the studies employed quantitative methods, primarily surveys and structural equation modelling (SEM) techniques, such as partial least squares (PLS-SEM) and covariance-based SEM (CB-SEM). Some studies also incorporated qualitative methods, such as interviews (Chen & Li, 2017; Odoom & Kosiba, 2020) and focus group discussions (Himel et al., 2021), to gain deeper insights into user perceptions and experiences.

The findings from these studies (see Fig. 3.2) have provided valuable insights into the factors driving the adoption and continued usage of mobile payment services. Performance expectancy, effort expectancy, social influence, facilitating conditions, perceived trust, and perceived value have consistently emerged as significant predictors of user intentions and behaviour. However, the impact of perceived risk, perceived cost, and other contextual factors has been mixed, highlighting the need for further investigation and contextual considerations. Several limitations have been acknowledged in the reviewed studies, including geographical constraints, reliance on cross-sectional data, sample representativeness, and the potential for additional contextual factors to influence user behaviour. Additionally, some studies have recognised the need to explore user segments and profiles, as well as the dynamic nature of technology adoption over time.

Table 3.2: Literature summary on Post-Usage of Digital Payment

Author(s)/Year	Country	Purpose of the Study/Research Objective	Construct(s) Used	Underlying Theoretical Framework	Methodology	Theory Findings
Gao et al. (2017)	China	Investigated users' continuous usage intention of QR code mobile payment services	Performance expectancy, effort expectancy, social influence, perceived risk	UTAUT	Survey of 215 Chinese customers of mobile payment systems using QR codes, structural equation modelling	5 out of 7 hypotheses supported - performance expectancy, effort expectancy, and social influence positively impacted intention, but perceived risk did not negatively impact intention
Abraho et al. (2016)	Brazil	Examined intentions to adopt a future mobile payment service among existing mobile phone users	Performance expectancy, effort expectancy, social influence, perceived risk, perceived cost	UTAUT	Survey of 605 mobile subscribers from a telecoms company in southern Brazil, structural equation modelling	Performance expectancy, effort expectancy, social influence, and perceived risk accounted for 76% of behavioural intention. The perceived cost was statistically insignificant.
Kissi et al. (2017)	Nigeria	Examined factors influencing university students' use of debit card services	Social influence, trust in online transactions, performance expectancy, effort expectancy, facilitating conditions	UTAUT with bank trust and online transaction characteristics	Survey of 400 university students at a Nigerian university, multiple linear regression	Social influence, trust in online transactions, and performance expectancy significantly influenced behavioural intention to use debit cards. Negligible results for effort expectancy and facilitating conditions.
Bhatiasevi (2016)	Thailand	Identified factors leading to mobile banking adoption	Performance expectancy, effort expectancy, social influence, perceived credibility, perceived convenience	Extended UTAUT model	Literature review, expert interviews, field survey, convergent and discriminant validity tests, structural equation modelling	A positive association between intention and performance expectancy, effort expectancy, social influence, perceived credibility, and perceived convenience. No support for hypotheses on financial cost and facilitation conditions.



Savi & Peterac (2019)	Serbia	Examined factors influencing mobile banking usage intentions	Performance expectancy, effort expectancy, social influence, facilitating conditions	UTAUT	Survey of 313 respondents in Central Serbia, SPSS analysis	All UTAUT factors significantly impacted usage intentions, with performance expectancy most significant and effort expectancy least significant.
Amos-Abanyie (2019)	Ghana	Examined factors explaining the use of mobile money services (MMS) by SME operators	Performance expectancy, effort expectancy, social influence, facilitating conditions, cost, trust	UTAUT	A case study using questionnaires of 100 SME entrepreneurs in Tema, Ghana	Performance expectancy, effort expectancy, social influence, accessibility, cost, support, and security impacted SMEs' behavioural intention and usage of MMS.
Kwateng et al. (2019)	Ghana	Studied factors impacting consumers to adopt and use m-banking services	Habit, price/value, trust, and UTAUT2 constructs with moderators	UTAUT2 with age, education, experience, and gender moderators	Survey of 300 Ghanaian m-banking users, SmartPLS analysis	Habit, price/value, and trust were primary factors impacting adoption and use. UTAUT2 relationships moderated by individual differences.
Madan & Yadav (2016)	India	Identified factors significantly influencing user acceptability of mobile wallet services	Performance expectancy, social influence, facilitating conditions, perceived value, perceived trust, perceived regulatory support, promotional benefits, effort expectancy, perceived risk	Technology adoption frameworks	Judgment, snowball and convenience sampling of postgraduate students and professionals in Delhi NCR region.	Performance expectancy, social influence, facilitating conditions, perceived value, perceived trust, perceived regulatory support, and promotional benefits positively impacted behavioural intention. Perceived risk negatively impacted intention. Effort expectancy was negligible.
Owusu (2017)	Ghana	Investigated critical factors hindering full adoption of mobile money platform in the Ghanaian financial market	Performance expectancy, effort expectancy, social influence, facilitating conditions	UTAUT	Quantitative study with structured interviews and questionnaires of 200 respondents	Performance expectancy significantly impacted intentions (moderated by gender). Effort expectancy had no bearing on intentions. Social influence significantly impacted intentions. Facilitating conditions effects mixed.

Ngwenya & Pelsler (2020)	Zimbabwe	Focused on utilitarian, hedonistic, personal values in continued adoption of mobile money platform	Utilitarian values, hedonic values, personal values, customer satisfaction	Means-end theory	Standardized online questionnaire for Ecocash customers	Utilitarian and hedonic values impacted the intention to continue using Ecocash. Hedonic and personal values impacted satisfaction which impacted intentions.
Dai et al. (2014)	-	Provided service value perspective on continued use of mobile technology-mediated services (MTMS)	Utilitarian value, hedonic value, effort-based cost	Services marketing, IS usage research	-	Usefulness recognition influenced utilitarian and hedonic value perceptions impacting continuance intention. Effort-based cost poorly indicated hedonic and utilitarian value.
Penney et al. (2021)	Ghana	Explored factors influencing consumers' behavioural intention to adopt and use mobile money	Performance expectancy, effort expectancy, social influence, habit, price value, perceived risk, trust, facilitating conditions, hedonic motivation	UTAUT extended with perceived risk and trust	Survey of 373 Ghanaian mobile money users, structural equation modelling	Performance expectancy, effort expectancy, social influence, habit, price value, perceived risk and trust significantly influenced behavioural intention. Facilitating conditions and hedonic motivation did not.
Lim et al. (2019)	-	Investigated relationships between perceived security, knowledge, confirmation, perceived usefulness, and satisfaction for Fintech services	Knowledge, perceived security, confirmation, perceived usefulness, satisfaction	Extended Post-Acceptance Model (EPAM)	Survey of Fintech service users	Knowledge and perceived security influenced utility perceptions and acceptance. Perceived security did not directly impact satisfaction and continuance intention.



Himel et al. (2021)	Bangladesh	Looked at Bangladeshi consumers' attitudes and intentions towards mobile financial services (MFS) adoption	Perceived usefulness, perceived ease of use, perceived trust, acceptance barriers	Combined TAM and Innovation Resistance Theory	Mixed methods - PLS modelling of survey responses and focus group discussion	Perceived usefulness, ease of use and trust positively influenced attitudes and intentions. Acceptance barriers negatively impacted attitudes and intentions.
Chen & Li (2017)	-	Examined research model derived from IT continuance, risk-trust, affect-cognition literature	User satisfaction, disconfirmation of pre-adoption perceived usefulness and risk	IT continuance, risk-trust, affect-cognition theories	Qualitative semi-structured interviews and quantitative survey	User satisfaction positively impacted continued use. Disconfirmed perceived usefulness impacted satisfaction and post-adoption perceived usefulness. Disconfirmed perceived risk impacted post-adoption risk and satisfaction.
Migliore et al. (2022)	Italy, China	Investigated the adoption gap in mobile payment systems between Italy and China, focusing on intention to adopt	Drivers and barriers combined from UTAUT2 and Innovation Resistance Theory	UTAUT2, Innovation Resistance Theory	Web survey, multi-group analysis using structural equation modelling	Social influence played a significant role in Italy's high uncertainty avoidance culture. The tradition barrier was the only significant barrier to adoption.
Tu & Tu (2020)	Taiwan	Explored the relationship between positive and negative factors in willingness and usage of mobile payment	Social influence, facilitating conditions, habit, perceived risk, mental accounting	Extended UTAUT2	Survey of 455 mobile payment users in Taiwan	Social influence, facilitating conditions, habit positively impacted behavioural intention. Mental accounting negatively impacted intention



3.2.5 Post-Usage of Digital Payment and Continued Usage

Consumers continued use of digital payments has become a critical area of study, particularly in the wake of technological advancements and shifting consumer preferences. While the initial adoption of digital payment systems is well-documented, the factors influencing consumers' long-term engagement remain complex and multifaceted. A dynamic interplay of trust, security, user satisfaction, contextual influences, and economic incentives influences the continuance of digital payment usage.

While trust and security serve as foundational pillars for sustained engagement, user experience and perceived usefulness drive daily interactions with digital payment systems. Additionally, social and cultural factors shape consumer attitudes, while economic incentives provide supplementary motivations for continued use. However, the relative importance of these factors varies across different market conditions, regulatory environments, and user segments. The literature suggests that, to foster long-term digital payment adoption, service providers must adopt a holistic approach that integrates supply-push and demand-pull strategies.

3.2.5.1 Trust, Security and Risk Perception

Trust emerges as one of the most dominant determinants of digital payment continuance. Studies consistently highlight that trust directly impacts consumer satisfaction and long-term usage (Daragmeh et al., 2022; Obidat et al., 2022). Consumers are more likely to continue using digital payment systems when they believe their financial information is secure and protected against fraud. However, trust does not operate in isolation; it is strongly linked to security measures implemented by service providers. Robust security protocols enhance consumers' perceived ease of use and usefulness, reinforcing their intent to continue usage.

In contrast, risk perception negatively affects continuance intention, with consumers expressing concerns over financial loss, cyber threats, and potential misuse of personal data (Obidat et al., 2022). However, the extent of these concerns varies across different cultural and economic contexts. In emerging economies, where regulatory frameworks may be weaker, consumers exhibit higher sensitivity to security risks, which can inhibit long-term adoption (Boateng et al., 2024). Although trust and security positively influence digital payment usage, the effectiveness of these factors depends on regulatory environments and the perceived reliability of financial institutions.

3.2.5.2 User Experience, Satisfaction and Perceived Usefulness

The role of user experience and satisfaction in digital payment continuance is also well-established. Satisfaction is regarded as a strong predictor of continued usage, as it encompasses factors such as usability, convenience, and alignment with consumer expectations (Khayer & Bao, 2019; Dlodlo, 2014). User experience is crucial in generating positive emotions, strengthening engagement with digital payment platforms. Elements such as app design, seamless transactions, and quick responsiveness significantly enhance satisfaction, leading to increased consumer retention (Ramadan & Aita, 2018).

A key factor influencing satisfaction is perceived usefulness, which relates to the extent to which consumers believe digital payments add value to their daily transactions. Several studies highlight that when consumers perceive digital payments as convenient, efficient, and beneficial compared to traditional payment methods, their likelihood of continued usage increases (Muna & Sukresna, 2024; Obidat et al., 2022). However, there is a diminishing effect of perceived ease of use over time. Ease of use becomes a less significant determinant of continuance as users become more familiar with digital payment systems or as other factors, such as security and incentives, gain prominence (Ramadan & Aita, 2018).

This highlights the need for payment service providers to continuously innovate beyond usability enhancements to sustain user engagement.

3.2.5.3 Contextual Influences: Social, Cultural, and Economic Factors

Social and environmental factors play a crucial role in determining the extent to which consumers continue using digital payment systems. Social influence, particularly from peers and family, has been shown to positively impact digital payment continuance in certain cultural contexts (Handoko, 2022; Matthew, 2024). This is particularly relevant in collectivist societies, where recommendations from social groups significantly shape consumer behaviour.

Cultural factors further influence adoption and usage patterns. Studies indicate that digital payment systems experience varied levels of acceptance depending on the socio-cultural environment (Ramadan & Aita, 2018; Matthew, 2024). For instance, in regions where cash-based transactions remain dominant, consumers may perceive digital payments as less trustworthy or less aligned with traditional financial behaviours, hindering continuance. Additionally, the impact of facilitating conditions determines the extent to which consumers can integrate digital payments into their daily routines (Handoko, 2022). These factors have been highlighted as the availability of digital infrastructure, internet connectivity, or government policy.

Economic incentives present another contextual factor with mixed effects on digital payment retention. While some studies suggest that incentives such as cashback rewards and loyalty programs enhance continued usage, others indicate that these incentives have only short-term impacts (Muna & Sukresna, 2024). This suggests that although economic benefits may attract initial engagement, they do not necessarily drive long-term retention

unless paired with factors such as security, trust, and user satisfaction. Moreover, market maturity plays a role in determining the effectiveness of these incentives; highly competitive digital payment ecosystems may require stronger incentive structures to maintain user engagement.

3.2.6 Trust Transfer Theory

Brand trust is key to successful brand extension strategies (Soren and Chakraborty, 2024; Alrawad et al., 2023). It encompasses multiple dimensions such as reliability, fairness, satisfaction, and perceived integrity. Recent research also underscores the role of brand trust as a foundational driver of consumer openness to brand extensions, with growing evidence that trust facilitates initial trial and amplifies the perceived fit between the parent brand and its extension (Bian & Yan, 2022; Lu et al., 2024).

In branding research, parent brand trust has emerged as a specific form of institutional trust that transfers assurance from a well-established brand to a new offering or service extension. This logic is rooted in the trust transfer theory (Doney & Cannon, 1997), which suggests that consumers facing uncertainty with a new product may rely on their existing trust in the parent brand as a heuristic shortcut. Applied to digital payment contexts, studies like Chandra et al. (2010) and Singh and Srivastava (2018) demonstrate that trust in the brand's ability, integrity, and benevolence encourages users to proceed from intention to actual use. Notably, Malaquias and Hwang (2016) and Gao and Waechter (2017) found that this parent-brand trust may outperform traditional drivers like perceived usefulness or even brand extension fit in explaining behavioural outcomes in digital environments.

A review of the trust transfer literature show that several theoretical mechanisms facilitated trust transfer:

- i. Structural assurance (Su et al., 2022; Yan & Pan, 2014) provided users with perceived safeguards for financial transactions.
- ii. Perceived fit and similarity (Cao et al., 2018; Zhang et al., 2019) reinforced the idea that the parent and extension belonged to the same category or service logic.
- iii. Entitativity (Gong et al., 2016; Gong et al., 2020) made users perceive the parent and extension as part of a coherent whole.
- iv. Brand alignment and endorsement (Mogaji & Nguyen, 2024) amplified credibility and familiarity in the extension.

At the same time, the effectiveness of trust transfer was moderated by various factors:

- i. User characteristics, such as self-efficacy (Lee et al., 2017) and need for interaction (Zhang et al., 2019), influenced how readily consumers accepted the extension.
- ii. Privacy concerns and low reputational standing (Zhu et al., 2023; Köster et al., 2016) weakened the trust pathway.
- iii. Cultural and contextual conditions, including platform maturity and market norms, shaped the generalisability of findings.

In brand extensions into fintech, especially where regulatory oversight is still evolving, the role of institutional trust becomes intertwined with brand trust. Zarifis et al. (2014) argue that payment platforms require reimagined trust frameworks distinct from those used in e-commerce. This presents a critical gap: existing models may inadequately explain how trust operates in digital financial services where institutional assurance and brand credibility are simultaneously at play. Parent brand trust plays a crucial role in the adoption of digital payment services.

In a country where financial fraud is a concern, consumers are more likely to trust digital payment platforms offered by brands they already know and trust. This trust can significantly reduce perceived risks associated with digital transactions, making consumers more willing to adopt new services. For instance, a consumer who trusts their bank for traditional banking services is more likely to adopt that bank's digital payment platform over a new, unknown fintech company. Many studies (Dwivedi & Merrilees, 2013; Michel & Donthu, 2014; Sichtmann & Diamantopoulos, 2013a) have consistently highlighted the importance of perceived fit between the parent brand and the extension category as a key determinant of brand extension success (Athanasopoulou et al., 2015; Walsh & Williams, 2017).

While several studies recognise that trust can be generated by both the parent brand and the digital extension, the evidence overwhelmingly supports the primacy of parent-brand trust in initiating the transfer of trust. For example, Zhang et al. (2019) and Su et al. (2021b) clearly show that trust in the extension is unlikely to form independently without initial trust in the parent, particularly during the early stages of adoption. Even in contexts where the extension builds its own trust through service performance, it is the parent brand trust that catalyses early adoption decisions, reduces initial perceived risk, and frames user expectations.

3.2.7 Branding and Digital Payment Research

Existing studies on brand extensions have progressed beyond merely considering functional fit. They demonstrate that consumer evaluations are influenced by factors such as brand image, emotional attachment, and individual characteristics (Tsai et al., 2020; Vahdat et al., 2020). However, these studies often treat these factors as separate influences, providing limited understanding of how they interact in highly competitive service

environments. Specifically, although emotional attachment and brand image are acknowledged as important, the conditions under which these factors lead to adoption or ongoing use are not well theorized.

Research on cultural differences adds another layer of complexity. Hao et al. (2020) show that evaluations of brand extensions differ between Eastern and Western contexts, indicating that consumer responses are not universal but rather rooted in broader socio-cultural frameworks. Despite this insight, much of the existing literature does not explore how these cultural variations interact with market structure, regulatory contexts, or brand dominance - elements that play a significant role in emerging digital service ecosystems.

Additionally, studies examining the feedback effects between brand extensions and parent brand equity highlight that extensions can either strengthen or weaken the parent brand, depending on consumer perceptions (Böger et al., 2018; Joshi & Yadav, 2017). While this research acknowledges these bidirectional effects, it provides limited guidance on how trust in the parent brand affects these outcomes, especially for service-based and technology-mediated extensions, such as digital payments.

Overall, this body of literature emphasizes the conceptual complexity of brand extension strategies while revealing a tendency to analyse branding variables in isolation. There is a lack of synthesis regarding how brand image, trust, perceived fit, and market context collectively shape consumer responses, particularly in technology-driven services. This gap is particularly significant in contexts like Ghana's digital payment market, where services are introduced as extensions of dominant parent brands operating in competitive and regulated environments. In such scenarios, branding serves not just a symbolic role but also

acts as a tool through which consumers navigate uncertainty, evaluate credibility and form intentions to adopt the services

3.2.8 Review of Brand Extension Fit Literature

As digital payment services proliferate, established consumer brands are extending into this space. While prior research recognises the importance of brand-level constructs in shaping consumer acceptance of these extensions, most studies fall short of systematically integrating these constructs within dominant technology adoption frameworks like the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2). In particular, brand extension fit, a well-established concept in branding literature, is often included only partially or treated as peripheral. This review argues for a more deliberate integration of brand extension fit as a supporting but essential construct within UTAUT2, especially in the context of brand-led digital payment innovations.

Several studies in the domain of digital payments include variables related to brand extension fit, such as perceived similarity, synergy, brand association, and business tie, but seldom apply the model comprehensively. For instance, Zhu et al. (2023) use synergy and fit within the Stimulus–Organism–Response (S-O-R) framework without mapping these variables onto established adoption constructs. Similarly, Zhang et al. (2019) frame perceived similarity and brand tie as schematic or spillover effects, but with no clear linkage to structured adoption predictors.

These fragmented applications miss an opportunity to embed brand-based consumer evaluations into structured behavioural intention models. This is especially limiting in high-trust and high-risk categories like digital payments, where brand signals significantly influence perceived value, effort expectancy, and even behavioural reinforcement

mechanisms such as habit and hedonic motivation, all of which are core constructs in UTAUT2.

The UTAUT2 model provides a robust structure for predicting technology use, capturing constructs such as performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit (Venkatesh et al., 2012). Yet, it has been critiqued for underrepresenting brand-related factors, which are especially salient when a product or service is an extension of a known brand. Studies such as Jiang (2022) and Chen and Huang (2023) attempt to address this gap by adding brand association or positioning variables into TAM-based frameworks. However, their modifications remain surface-level, often lacking deeper conceptual alignment between the brand extension logic and core adoption variables.

The current literature suffers from two major theoretical gaps:

- i. Superficial incorporation of brand variables into adoption models, usually in the form of added independent variables rather than integrated constructs.
- ii. Neglect of emotional or relational factors, such as trust transfer, brand attachment, or experiential continuity, which are crucial in financial service adoption but largely missing from cognitive-only frameworks.

In recent empirical research, three core dimensions of brand extension fit have emerged as most salient: technical/functional fit, image-based fit, and service quality alignment. These dimensions influence extension success differently, especially across various product and service categories. Technical or functional fit, also referred to as perceived fit, is the most consistently studied dimension of brand extension fit. It captures the degree to which

consumers perceive a logical or functional connection between the parent brand and the extension (Guo et al., 2018; Song et al., 2010; Pina et al., 2006).

In the digital context, technical fit has been linked to stronger continuance purchase intentions, improved perceptions of the extension's quality, and a more favourable corporate image. Song et al. (2010), for example, found that both perceived fit and a perceived "tie" between the original and new offering enhanced the perceived quality and popularity of digital brand extensions. However, the strength of technical fit varies across extension types. Sichtmann et al. (2017) demonstrated that in service-to-service extensions, reliance on the parent brand's quality can outweigh mere category fit, indicating that functional alignment may be more critical in digital product-to-product extensions than in service extensions, where trust plays a larger role.

Image-based fit refers to the alignment of brand image between the parent and the extension. Key constructs here include perceived quality transfer and parent brand conviction. Image-based fit underscores the psychological and symbolic continuity between brands, allowing consumers to infer quality and credibility from the parent brand's image (Völckner et al., 2010; Song et al., 2010). In one study, parent brand quality emerged as the dominant driver of extension success, outweighing even technical fit (Völckner et al., 2010). However, Sichtmann et al. (2017) noted that parent brand conviction may exert a weaker influence in service-to-service extensions, possibly because of consumer expectations around experiential consistency and reliability rather than symbolic association.

A less commonly examined but highly relevant dimension in digital service contexts is service quality alignment. This refers to the perceived consistency in service quality

between the parent brand's original offering and its extension (Guo et al., 2018; Völckner et al., 2010). This dimension was found to be especially influential in driving positive consumer outcomes such as continuance intentions and perceived extension quality. In digital services, where intangible experiences and performance variability are inherent, service quality alignment functions as a proxy for reliability and satisfaction continuity.

The literature reveals a lack of consensus on which dimension of brand extension fit is most critical, with findings often context-specific and occasionally contradictory. While perceived fit is the most frequently studied and broadly supported, parent brand quality and service quality alignment are also prominent predictors of extension success, particularly in service or digital domains.

Given this multidimensional nature, this review argues that research on digital payment brand extensions should adopt a composite approach to brand extension fit. Attempting to isolate individual dimensions may misrepresent consumer decision-making processes, which are likely to synthesise functional, image-based, and service-based cues holistically. The operational environments of digital payments, encompassing security, ease-of-use, brand trust, and experiential quality, demand an integrated assessment of fit to capture the true predictors of success.

The adoption of digital payments in Ghana has seen a significant increase over the past decade, driven by a mix of factors such as technological advancements, government initiatives, and changing consumer preferences. The Ghana Interbank Payment and Settlement Systems (GhIPSS) reported that the volume of mobile money interoperability transactions increased by 444% in 2020 compared to 2019, highlighting the rapid growth in digital payment adoption (Bank of Ghana, 2021). This surge can be attributed to the

government's financial inclusion efforts, the proliferation of smartphones, and the COVID-19 pandemic, which accelerated the shift towards contactless transactions.

Ghana's digital payment landscape has evolved to include a diverse array of services offered by both telecommunications companies (telcos) and traditional banks. The major telcos, including MTN, Vodafone, and AirtelTigo, have introduced mobile money services that allow users to transfer funds, pay bills, and make purchases using their mobile phones. MTN's MoMo, Vodafone Cash, and AirtelTigo Money have become household names, each vying for market share. Concurrently, traditional banks have not been left behind, with many introducing their digital payment platforms. For instance, Ecobank's Ecobank Mobile App, Fidelity Bank's Fidelity Mobile App, and Standard Chartered's SC Mobile offer comprehensive digital banking services, including fund transfers and bill payments.

This proliferation of digital payment options has created a highly competitive market environment. As of 2021, there were over 17 million active mobile money accounts in Ghana, with MTN holding the largest market share at approximately 75% (National Communications Authority, 2021). Banks have also seen significant uptake of their digital platforms, with many reporting double-digit growth in digital transactions year-on-year. This competitive landscape has led to continuous innovation, with providers regularly introducing new features and services to differentiate themselves and attract customers. In such a fiercely competitive market, branding has emerged as a critical factor in determining consumer choice and loyalty. Established brands, whether telcos or banks have a significant advantage due to their existing brand equity. For example, MTN's strong brand presence in the telecommunications sector has contributed to the success of its MoMo service. Similarly, banks with strong reputations for security and reliability have been able to leverage these associations to promote their digital payment platforms.

The concept of brand extension fit becomes relevant in this context. A verifiable assumption is that consumers are more likely to adopt digital payment services from brands they perceive as having a logical fit with financial services. For telcos, this has meant emphasising their technological expertise and widespread network coverage in extensions to digital payments. Banks, on the other hand, have leveraged their financial expertise and security track record for line extensions into digital payments. The success of these brand extensions - category brand extensions in the case of telcos and line extensions in the case of banks - often depends on how well the parent brand's associations align with the attributes required for digital payment services, such as reliability, security, and ease of use.



CHAPTER FOUR

CONCEPTUAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

4.1 Introduction

This section presents a discussion of the various hypotheses proposed in the study. The conceptual framework depicted in the diagram is based on the Unified Theory of Acceptance and Use of Technology 2 (UTAUT 2) model and focuses on the use of a digital platform (DP) brand. The framework examines how various antecedents influence user intention, behaviour, and continuance of the DP brand, with the inclusion of mediators and moderators such as brand extension fit (BEF) and parent brand trust (PBT). The variables in the model are categorised as independent (antecedents), mediators, and outcome (dependent) variables. The UTAUT 2 model is an extension of the original UTAUT model and is designed to explain technology adoption and use by incorporating new constructs such as hedonic motivation, price value, and habit (Venkatesh et al., 2012).

In this framework, performance expectancy (PE), effort expectancy (EE), social influence (SI), facilitating conditions (FC), hedonic motivation (HM), price value (PV), and habit (HT) are presented as antecedents or independent variables. These factors represent the perceived ease, usefulness, and motivational elements that influence individuals' intentions to use the DP brand. The first dependent variable in the framework is use intention (UI), which is influenced by the UTAUT 2 antecedents. Intention to use a brand or technology is a strong predictor of actual use behaviour, as established in various technology acceptance models (Davis, 1989; Venkatesh et al., 2012). Use intention refers to the degree to which a person plans to engage with the DP brand, driven by their perceptions of its performance, ease of use, social encouragement, and other factors such as price and habit. Following use intention, the next dependent variable used is behaviour (UB), which

captures the actual interaction and engagement with the DP brand. The transition from intention to behaviour is a crucial step, as not all intentions translate into actual usage Ajzen, 1991. The relationship between intention and behaviour is influenced by UTAUT 2 antecedents, such as facilitating conditions and the degree to which an individual feels supported to use the technology or brand. This relationship is consistent with the UTAUT framework, which emphasises that intention alone may not result in use behaviour unless the facilitating conditions are favourable. The outcome in the framework is the use continuance (UC), which reflects long-term engagement and loyalty to the DP brand. 'Use continuance' is essential in determining customer retention and brand loyalty.

As noted by Bhattacharjee (2001), continuance intention represents a customer's decision to keep using a service or product over time, influenced by their satisfaction with the initial experience and trust in the brand. The framework introduces two key contextual factors: brand extension fit (BEF) and parent brand trust (PBT). Brand extension fit refers to the perceived alignment between the DP brand and its parent brand, which can moderate the effect of use intention on use continuance and mediate the effect of use behaviour on use continuance. Parent brand trust plays a moderating role by influencing use intention and their decision to continue using the DP brand. Parent brands also play a mediating role by influencing use behaviour and their decision to continue using the DP brand. Trust in the parent brand can enhance the likelihood of use continuance, as strong brand trust builds customer loyalty (Chaudhuri & Holbrook, 2001). These contextual factors adjust the strength of the relationship between variables in the framework, ensuring a comprehensive understanding of how external brand factors affect user behaviour and continuance. Figure 4.1 illustrates the conceptual framework.

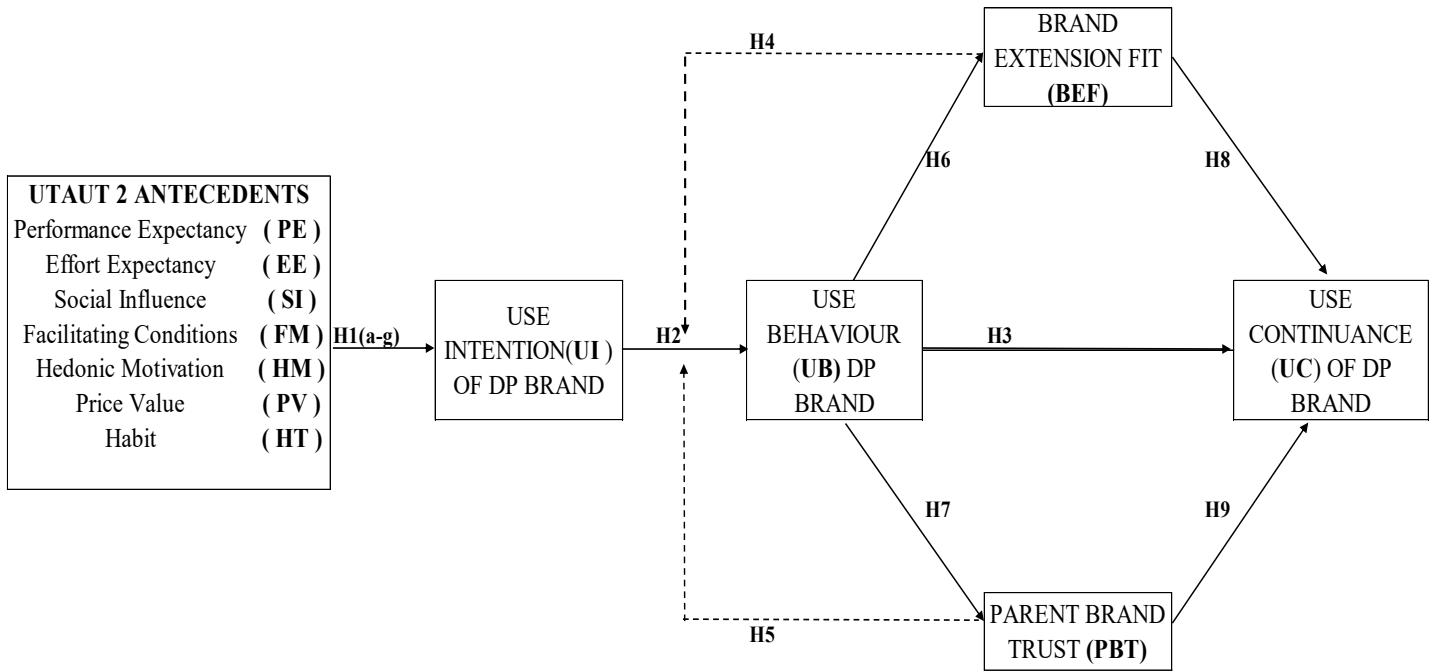


Figure 4.1: Author's conceptual framework based on Venkatesh et al., 2012; Aaker & Keller, 1990; Doney & Cannon, 1997

4.2 Hypothesis Development

In line with the conceptual framework, the proposed hypotheses are designed to examine the relationships between the key variables influencing the adoption and continuance of the digital platform (DP) brand. Drawing from the Unified Theory of Acceptance and the Use of Technology 2 (UTAUT 2) model, the hypotheses focus on how antecedents such as performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit impact users' intention to use (UI), actual use behaviour (UB), and use continuance (UC) of the DP brand. Additionally, the contextual effects of brand extension fit (BEF) and parent brand trust (PBT) on these relationships are included to assess their role in strengthening or weakening the links between user behaviour and brand loyalty.

The hypotheses aim to empirically test how these factors collectively influence the user's adoption lifecycle, from initial intention to long-term engagement with the DP brand. By

integrating both psychological and brand-related factors, the current study contributes to a deeper understanding of how individual perceptions and external brand influences shape the decision-making process in digital platform adoption. Each hypothesis addresses a specific aspect of these relationships, forming a coherent narrative that reflects the theoretical underpinnings of UTAUT 2 and brand loyalty literature.

4.2.1 Performance Expectancy

Performance expectancy refers to the degree to which individuals believe that using a particular system or technology will help them achieve better performance outcomes (Sari et al., 2024). In the context of digital payment brands, performance expectancy reflects users' perceptions of how efficiently and effectively the platform allows them to complete financial transactions (Farzin et al., 2021). When users anticipate that a digital payment brand will enhance their convenience, speed, and reliability in conducting transactions, they are more likely to develop favourable attitudes toward using the platform (Alalwan et al., 2017). Prior studies on technology acceptance models have consistently demonstrated that performance expectancy is a key predictor of use intentions, as users are motivated to adopt technologies they perceive as beneficial in meeting their performance needs (Venkatesh et al., 2012).

The relationship between performance expectancy and use intention has been extensively studied. Several empirical studies have found a significant positive relationship between performance expectancy and intentions to adopt digital payment methods (Venkatesh et al., 2012; Teo et al., 2015; Oliveira et al., 2016). For instance, Teo et al. (2015) reported that users who perceived digital payments as more efficient and beneficial were more likely to adopt these solutions. However, some studies (Kim et al., 2015; Liébana-Cabanillas et al., 2019) have also revealed mixed or negative findings. Kim et al. (2015) found that

performance expectancy had a weaker influence on adoption intentions in specific cultural contexts, while Liébana-Cabanillas et al. (2019) observed that security concerns could mitigate the positive effects of performance expectancy. In the face of these variations, the majority of research supports the hypothesis that performance expectancy positively influences the use intentions of digital payment brands, suggesting that emphasising the benefits and efficiency of these systems could be crucial for their widespread adoption (Zhou et al., 2010; Alalwan et al., 2017)). Following these assumptions, it can be hypothesised that:

H_{1a}: Performance expectancy has a positive effect on the use intentions of digital payment brand extensions.

4.2.2 Effort Expectancy

Effort expectancy, which refers to the perceived ease of use associated with a particular system or technology (Owusu Kwateng et al., 2019), plays a crucial role in shaping user adoption intentions. Research has shown varied results regarding its impact across different demographics and contexts. For instance, Venkatesh et al. (2012) found that effort expectancy significantly influenced behavioural intentions, particularly among older users and those with limited experience. Conversely, Oliveira et al. (2016) observed that in some mobile payment scenarios, effort expectancy had a negligible effect on adoption intentions. Interestingly, Pal et al. (2020) found an intervening effect of gender: effort expectancy exerted a stronger influence on women's adoption intentions than on men's. In emerging markets, Islam and Ferrer (2025) noted that the simplicity of digital payment interfaces was crucial for widespread adoption, especially among less tech-savvy populations. However, as digital literacy increases globally, some studies suggest that the impact of effort expectancy diminishes over time (Zhou et al., 2010). Notwithstanding these complexities, the consensus in the literature is that lower perceived effort in using digital payment

services tends to correlate with higher adoption rates, underscoring the importance of user-friendly design in fintech innovations (Slade et al., 2015; Patil et al., 2020). In digital payment systems, ease of use plays a particularly critical role in influencing user intention, as consumers seek fast, hassle-free experiences when conducting financial transactions (Püschel et al., 2010). This aligns with findings from previous studies, which indicate that effort expectancy has a strong positive impact on use intentions in various technology settings. Based on this, the following hypothesis is proposed:

H1b: Effort expectancy has a positive effect on the use intentions of digital payment brand extensions.

4.2.3 Social Influence

Social influence, a key determinant in the adoption of a particular system or technology, operates through a diverse link of societal norms, peer pressure, and cultural factors (Farzin et al., 2021). Unlike performance and effort expectancy, which focus on individual perceptions, social influence captures the external pressures and collective mindset shaping user behaviour. In collectivist societies, Mortimer et al. (2015) found that social influence had a more pronounced effect on adoption intentions compared to individualistic cultures. Interestingly, Wu & Lin (2017) observed a "bandwagon effect" where early adopters significantly influenced the uptake of mobile payment systems among their social circles. The role of opinion leaders and social media influencers in promoting digital payment adoption has gained traction, as highlighted by Siddiqui & Goyal (2023) in their study of WeChat Pay's rapid expansion in China. Conversely, Baptista & Oliveira (2015) noted that in some African countries, traditional cash-based systems remained prevalent due to strong cultural ties, demonstrating the potential for social influence to both accelerate and hinder adoption. The generational divide also plays a role, with Millennials and Gen Z showing greater susceptibility to peer influence in payment choices (Salam et al., 2024). Moreover,

Alalwan et al. (2017) found that social influence could mitigate perceived risks associated with digital payments, suggesting its potential as a trust-building mechanism. As digital payments become more ubiquitous, the nature of social influence evolves, shifting from novelty-driven adoption to normative pressure for inclusion in the digital economy (Schierz et al., 2010; Koenig-Lewis et al., 2015). Hence, it can be hypothesised that:

H_{1c}: Social influence has a positive effect on the use intentions of digital payment brand extensions.

4.2.4 Facilitating Conditions

Facilitating conditions, which encompass the organisational and technical infrastructure supporting the use of a particular system or technology effectively (Owusu Kwateng et al., 2019) play a crucial role in their adoption and continued usage. This construct goes beyond individual perceptions, focusing on the external environment that enables or constrains payment technology use (Al-Nuaimi & Al-Emran, 2021). Venkatesh et al. (2012) found that facilitating conditions directly influence both behavioural intention and actual usage behaviour, particularly among older users and those with more experience. In developing economies, Kshetri (2017) highlighted the importance of robust telecommunication networks and reliable electricity supply as key facilitating conditions for mobile money services. Interestingly, Oliveira et al. (2016) observed that the presence of alternatives to digital payments could act as a negative facilitating condition, inhibiting adoption in some contexts. The availability of customer support, clear user guidelines, and compatibility with existing financial systems have also been identified as critical facilitating conditions (Zhou et al., 2010). Moreover, regulatory frameworks that ensure data privacy and transaction security serve as important facilitating conditions, fostering trust in digital payment ecosystems (Patil et al., 2020). As digital payments evolve, the nature of facilitating conditions continues to expand, encompassing factors such as interoperability across

different payment platforms and integration with emerging technologies such as blockchain and artificial intelligence (Slade et al., 2015). Therefore, the hypothesis:

H_{1d}: Facilitating conditions have a positive effect on the use intentions of digital payment brand extensions.

4.2.5 Hedonic Motivation

Hedonic motivation, the pleasure or enjoyment derived from using digital payment services, offers a unique perspective on adoption behaviour that extends beyond utilitarian factors (Alalwan et al., 2017). Unlike performance expectancy or effort expectancy, hedonic motivation taps into the emotional and experiential aspects of technology use (Alalwan et al., 2018). Venkatesh et al. (2012) incorporated this construction into the UTAUT2 model, recognising its significance in consumer contexts. Studies have shown that the gamification of payment apps, such as reward systems and social sharing features, can significantly enhance hedonic motivation and, consequently, adoption intentions (Hsiao & Tang, 2014).

Interestingly, cultural differences play a role in the impact of hedonic motivation; for instance, Yang et al. (2012) found it to be more influential in individualistic societies compared to collectivist ones. In the context of mobile wallets, Pal et al., (2021) observed that younger users were more susceptible to hedonic influences, often viewing digital payments as a fun and trendy activity. However, Bhatia et al. (2023) noted that as digital payments become more commonplace, the hedonic aspect may diminish, suggesting a potential shift in its importance over time. Notwithstanding, the majority of studies support the positive influence of hedonic motivation on digital payment adoption, highlighting the importance of user experience design in fintech innovations (Oliveira et al., 2016; Alalwan et al., 2017). Following these, it can be hypothesised that:

H_{1e}: Hedonic motivation has a positive effect on the use intentions of digital payment brand extensions.

4.2.6 Price Value

Price value, in the context of a particular system or technology, refers to the perceived trade-off between the benefits received and the monetary cost incurred (Owusu Kwateng et al., 2019). Venkatesh et al. (2012) introduced this construct in UTAUT2, recognising its importance in consumer technology adoption. Studies have shown that when users perceive high value relative to cost, their intention to adopt digital payment methods increases (Alalwan et al., 2017; Oliveira et al., 2016). Interestingly, Teo et al. (2015) found that price value had a more significant impact on adoption intentions in developing economies where cost sensitivity is higher. However, as many digital payment solutions are free to use, some researchers argue that the concept of price value should be expanded to include non-monetary costs such as data privacy (Alalwan et al., 2018). Overall, while price value is generally positively associated with adoption intentions, its impact varies across different contexts and user segments (Zhou et al., 2010; Slade et al., 2015). Therefore, the hypothesis:

H_{1f}: Price value has a positive effect on the use intentions of digital payment brand extensions.

4.2.7 Habit

Habit, in the context of digital payment systems, refers to the extent to which individuals use these services automatically due to learning or repetition (Alalwan et al., 2017). Venkatesh et al. (2012) added this construct to UTAUT2, recognising its role in sustained technology use. Studies have shown that as users become accustomed to digital payments, habit becomes a stronger predictor of continued use than initial adoption factors (Hijazi et

al., 2023; Oliveira et al., 2016). Interestingly, Pal et al. (2020) found that habit formation can mitigate perceived risks associated with digital transactions. However, strong habits with traditional payment methods can also act as barriers to digital payment adoption (Slade et al., 2015b). Thus, habit plays a significant role in the long-term success of digital payment services, influencing both usage frequency and user loyalty (Alalwan et al., 2017; Zhou et al., 2010). In the context of digital payment brands, if users have developed a habit of using these services frequently and effortlessly, this established behaviour can positively influence their intention to continue using the brands. Habitual use can reduce the perceived effort and increase the likelihood of continued usage (Alalwan et al., 2016). Accordingly, the next hypothesis is presented as follows:

H_{1g}: Habit has a positive effect on the use intentions of digital payment brand extensions.

4.2.8 Use Intention on Use Behaviour

Use intention, a critical precursor to actual use behaviour in digital payment services represents an individual's readiness to engage with the technology (Alalwan et al., 2017). While intention often correlates strongly with behaviour, the relationship is not always straightforward. Kim et al. (2023) found that contextual factors, such as transaction urgency or merchant acceptance, can influence the intention-behaviour link. Liébana-Cabanillas et al. (2019) observed a gap between intention and behaviour in older adults, suggesting the need for targeted support during the adoption process. Venkatesh et al. (2012) noted that the strength of the intention-behaviour relationship tends to increase with experience, as users become more familiar with digital payment systems. However, Bhattacharjee and Lin (2015) cautioned that external barriers, like technical issues or security concerns, can disrupt the translation of intentions into actual use, highlighting the importance of robust infrastructure and user support in facilitating this transition. Following these assumptions, it can be hypothesised that:

H₂: Use intention has a positive effect on the use behaviour of digital payment brand extensions.

4.2.9 Use Behaviour on Use Continuance

According to Alalwan et al. (2017), use behaviour refers to the actual engagement with technology, while use continuance refers to the ongoing, sustained use of that technology over time. In the view of Oliveira et al. (2016), use behaviour's impact on continuance intentions in digital payment services reflects the dynamic nature of technology adoption. Initial use experiences significantly shape users' decisions to continue or discontinue the technology (Hornbæk & Hertzum, 2017). Gupta et al. (2023) found that satisfaction derived from actual use was a stronger predictor of continuance than pre-adoption expectations. Zhou (2013) observed that trust built through positive use experiences played a crucial role in fostering continuance intentions for mobile payment systems. Susanto et al. (2016) noted that different factors influence continuance at various stages of use, with convenience and habit becoming more important over time. However, Lee and Kim (2020) cautioned that negative experiences, particularly related to security or transaction failures, can dramatically reduce continuance intentions despite previous positive use. This underscores the need for consistent, high-quality user experiences to maintain long-term engagement with digital payment services. Thus, it can be hypothesised that:

H₃: Use behaviour has a positive effect on the use continuance of digital payment brand extensions.

4.2.10 The moderating role of brand extension fit on use Intention and use behaviour

Brand extension fit significantly influences the relationship between use intention and actual use behaviour regarding the use of new technology. Wang et al. (2023) found that high fit strengthens the intention-behaviour link, as users perceive the extension as a natural brand progression. Interestingly, Riley et al. (2015) observed that, in cases of low fit, strong

brand loyalty could partially compensate, yet still lead to positive use intentions. However, Heinze and Matt (2018) noted that, even for diverse financial services, high fit might not fully mitigate usability concerns. In terms of use behaviour, Carter and Curry (2013), and Knoerzer and Millemann (2021) observed that high-fit extensions led to more consistent usage patterns. Additionally, Edinger-Schons and Thöne (2017) found that fit influenced the interpretation of early use experiences, with high-fit extensions given more leeway for minor issues. However, Mao et al. (2012) cautioned that an extremely high fit might lead to quick use saturation due to a perceived lack of novelty, suggesting an optimal fit level may be most effective for sustaining engagement over time. Following these assumptions, it can be hypothesised that:

H4: Brand extension fit positively moderates the relationship between use intention and use behaviour of digital payment brand extensions.

4.2.11 The moderating role of parent brand trust on use intention on use behaviour

Parent brand trust significantly moderates the relationship between use intention and actual use behaviour in digital payment brands. Kwon and Cho (2025) found that high trust in the parent brand strengthened the intention-behaviour link, facilitating smoother adoption of new payment technologies. Interestingly, Malaquias and Hwang (2016) observed that in emerging markets, Parent brand trust could compensate for perceived technological risks, encouraging use despite initial hesitations. However, Sharma and Sharma (2019) noted that while trust boosted initial use, its impact on sustained behaviour diminished over time as users gained direct experience. Faqih (2016) further revealed that the trust-moderation effect varied across demographic groups, with older users relying more heavily on parent brand trust when translating intentions into actions. This link suggests that while parent brand trust is a powerful moderator, its influence on the intention-behaviour relationship

evolves throughout the user's journey with digital payment services. Hence, it can be hypothesised that:

H₅: Parent brand trust positively moderates the relationship between use intention and use behaviour of digital payment brand extensions.

4.2.12 Use Behaviour on Brand Extension Fit

Brand extension fit refers to the perceived alignment between a brand's existing products or services and a new product or service it introduces (Deng & Messinger, 2022). In the context of digital payment brands, 'use behaviour on brand extension fit', explores how consumers' actual usage patterns influence their perception and acceptance of new offerings under the same brand. Sahin and Soylemez (2024) found that positive experiences with a brand's core product can enhance the perceived fit of its extensions, particularly in technology-driven sectors. In the digital payment domain, Chen and Lai (2023) observed that frequent users of a mobile payment app were more likely to adopt additional financial services offered by the same provider, suggesting a strong link between use behaviour and extension acceptance. Interestingly, Dwivedi et al. (2019) noted that the nature of use (e.g., transaction frequency, variety of use cases) can influence the relationship between use behaviour and perceived fit of brand extensions. However, Martínez and Pina (2010) cautioned that overextension or poorly executed expansions could dilute brand equity, even among loyal users. This highlights the need for strategic alignment between existing use patterns and proposed extensions in the digital payment ecosystem. Therefore, the hypothesis:

H₆: Use behaviour positively influences the perceived brand extension fit of digital payment brand extensions.

4.2.13 Use Behaviour on Parent Brand Trust

The use of the 'parent brand' in this instance refers to the endorser brand in a brand extension. With respect to trust, the distinction between the parent brand and the brand extension is necessary to indicate where the consumers' evaluation of trust should originate. The implicit or explicit application of brand trust is, therefore, not any different from what applies in the existing literature.

Parent brand trust or credibility can therefore be defined as, the confidence and reliability users place in the parent brand (Keller & Aker, 1992). According to Gao and Waechter (2017), use behaviour's impact on brand trust in the digital payment sector reveals a link between user experience and brand perception. Frequent, positive interactions with a payment platform tend to bolster trust in the parent brand, as noted by Kim and Peterson (2017) in their meta-analysis of online trust factors. Karjaluoto et al. (2019) also found that the nature of transactions matters; high-value or sensitive payments handled successfully led to greater trust increases compared to routine, low-value transactions. Zhou (2013) observed a reciprocal relationship, where initial brand trust encouraged use, which in turn reinforced trust, creating a virtuous cycle. However, Malaquias and Hwang (2016) cautioned that negative experiences, particularly security breaches or transaction errors, could rapidly erode trust, even for established brands. This suggests that consistent, reliable performance is crucial for maintaining and building trust through use behaviour. Moreover, Choi and Lee (2017) highlighted that transparency in data usage and proactive customer support during the use phase significantly influenced trust development, emphasising the importance of ongoing user engagement in shaping brand perceptions. Therefore, the hypothesis:

H₇: Use behaviour positively influences parent brand trust in the context of digital payment brand extensions.

4.2.14 Brand Extension Fit on Use Continuance

Brand extension fit significantly influences the use continuance in digital payment brands. Hem et al. (2014) found that extensions perceived as logical and consistent with the parent brand's image were more likely to foster continued use. Interestingly, Dwivedi et al. (2019) observed that high fit could mitigate the negative impact of minor service failures on continuance intentions. However, Sichtmann and Diamantopoulos (2013) cautioned that overly broad extensions might dilute the brand's perceived expertise, potentially reducing continuance rates. Overall, a well-fitted brand extension tends to leverage existing trust and familiarity, enhancing the likelihood of sustained use of the digital payment services. Thus, it can be hypothesised that:

H₈: Perceived brand extension fit positively influences the use continuance of digital payment brand extensions.

4.2.15 Parent brand trust on Use Continuance

Parent brand trust plays a crucial role in driving the use continuance of digital payment brands. Kim et al. (2015) found that high trust in the parent brand significantly increased users' willingness to persist with new payment technologies, even when faced with initial difficulties. Notably, Marinkovic and Kalinic (2017) observed that trust transferred from the parent brand could help overcome perceived risks associated with digital transactions. However, Lee et al. (2018) cautioned that this effect might diminish over time as users accumulate direct experience with the specific payment solution. Nevertheless, parent brand trust remains a key factor in fostering long-term loyalty and continued use in the competitive digital payment landscape. Following these assumptions, it can be hypothesised that:

H₉: Parent brand trust positively influences the use continuance of digital payment brand extensions.

4.2.16 The mediating role of brand extension fit on Use Behaviour on Use Continuance

Brand extension fit acts as a crucial mediator between use behaviour and use continuance regarding the use of a new technology or system. O'Reilly et al. (2017) found that high-fit extensions strengthened the positive relationship between initial use and continued engagement, as users perceived the new offering as a logical expansion of their existing brand experience. Dwivedi et al. (2019c) observed that fit mediated the impact of use frequency on continuance intentions, with well-fitted extensions more likely to translate regular use into long-term loyalty. Interestingly, Sichtmann and Diamantopoulos (2013) noted that fit's mediating effect was more pronounced for utilitarian rather than hedonic payment features. However, Min (2023) cautioned that extremely high fit could sometimes lead to quicker saturation, potentially weakening the use-continuance link over time. This suggests that while brand extension fit generally enhances the translation of use behaviour into continuance, its optimal level may vary depending on the specific context and user expectations in the digital payment brands. Following these assumptions, it can be hypothesised that:

H₁₀: Brand extension fit mediates the relationship between use behaviour and use continuance of digital payment brand extensions.

4.2.17 The mediating role of parent brand trust on Use Behaviour on Use Continuance

Parent brand trust significantly mediates the relationship between use behaviour and use continuance in digital payment brands. Kim et al. (2015) found that positive use

experiences enhanced trust in the parent brand, strengthening continuance intentions. Marinkovic and Kalinic (2017) observed that trust mediated the impact of transaction frequency on long-term loyalty, with higher trust levels amplifying the positive effects of regular use. Interestingly, Zhou (2013) noted that trust's mediating role was more pronounced in the early stages of adoption, gradually diminishing as users accumulated direct experience with the payment solution. However, Lee and Ahn (2013) cautioned that negative use experiences could rapidly erode trust, potentially disrupting the use-continuance link. This suggests that while parent brand trust generally facilitates the translation of use behaviour into continued engagement, maintaining consistent, positive user experiences is crucial for sustaining this mediating effect in dynamic digital payment brands. Thus, it can be hypothesised that:

H₁₁: Parent brand trust mediates the relationship between use behaviour and use continuance of digital payment brand extensions.



CHAPTER FIVE
RESEARCH DESIGN AND METHODOLOGY

5.0 Chapter Overview

As established in previous chapters, this research employs the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) as the underpinning theoretical framework, alongside brand extension theory, to examine consumers' adoption of digital payment solutions in emerging markets. The synthesis of literature has provided theoretical direction for addressing the research problem, necessitating an empirical approach. This chapter outlines the research methodology and design guiding the empirical investigation. It maps out the methods and approach employed in conducting the research, beginning with research paradigms and philosophical assumptions, followed by research purpose, strategy, and approach. The chapter further provides detailed descriptions of the research design and data collection methods (refer to Fig. 5.1).

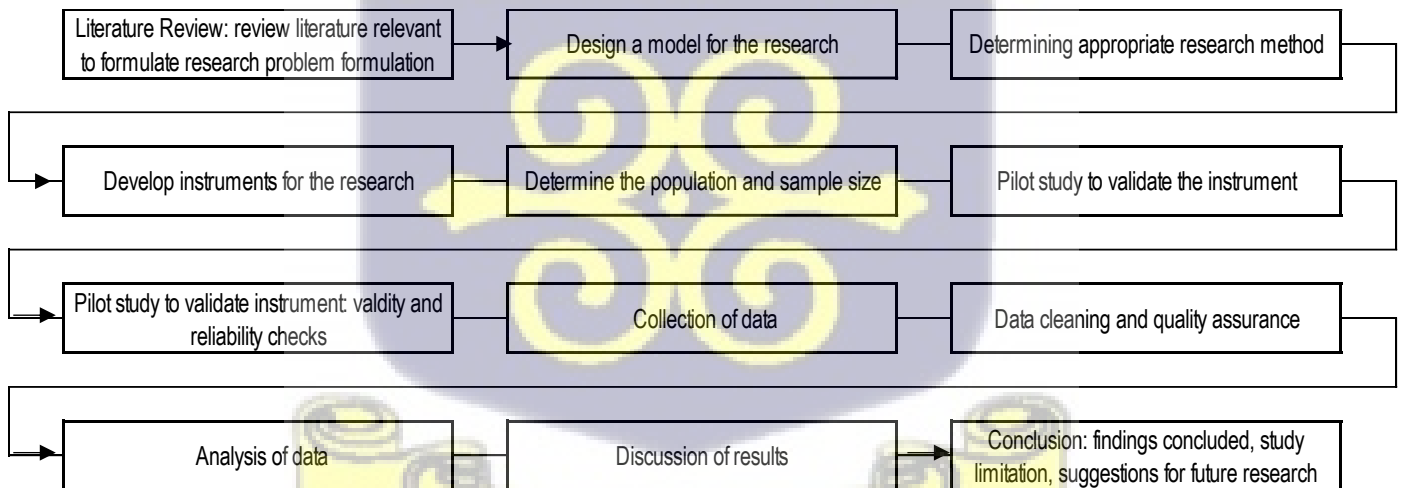


Figure 5.1: Iterative flowchart for research design and execution

5.1 Paradigms and Philosophical Perspectives

Generally, all academic research has been noted to be established on a paradigm or philosophical perspective (Blaikie, 2020). A paradigm has been defined as a set of beliefs, values and techniques shared by members of a scientific community, which acts as a guide or map, dictating the kinds of problems scientists should address and the types of explanations acceptable to them (Kuhn, 1970).

The most referenced paradigms that reflect major theoretical directions in social science research are positivism, interpretivism, realism, relativism and critical realism (Lindgreen et al., 2021). These paradigms have clear distinctions based on their epistemological, ontological and methodological assumptions. Table 5.1 provides a summary of these differences.

5.1.1 Positivism as Research Paradigm

The positivist approach adopted in this study is predominantly quantitative-based, whereas its opposites (relativist/ interpretivist/ subjectivist) often examine situations from a qualitative perspective (Crossan, 2003). The positivist philosophical stance originates from Auguste Comte's work on 'Course of Positive Philosophy', which emphasises that valid knowledge comes from scientific methods of inquiry (Pather & Remenyi, 2004). According to Denscombe (2021), positivism is an approach to social science research that seeks to apply the natural science model to investigations of social phenomena and explanations of the social world.

The positivist paradigm is founded on several key philosophical suppositions that align with the current study's examination of digital payment adoption (Easterby-Smith et al., 2021). First, the paradigm assumes that reality is external and objective, where the

researcher maintains independence from the phenomena being studied (Easterby-Smith & Thorpe, 2010). This is particularly relevant for studying digital payment adoption, where user behaviours and attitudes can be objectively measured and analysed without researcher interference.

Table 5.1: Paradigms in Social Science Research

PARADIGM	ONTOLOGY (nature of reality)	EPISTEMOLOGY (nature of knowledge generated)	METHODOLOGY (how knowledge is created)
POSITIVISM	There is a single, objective reality where digital payment adoption behaviours can be measured and quantified. Technology acceptance follows universal laws and patterns.	Value-free. Knowledge of digital payment adoption is objective, free of time influences, and context independent. Relationships between UTAUT2 constructs can be measured precisely.	Researchers formulate hypotheses about digital payment adoption and test them empirically through surveys and statistical analysis. Variables like performance expectancy and brand extension fit are measured using standardized scales. Deductive reasoning dominates.
INTERPRETIVISM	Multiple realities exist in how users perceive and experience digital payments. Reality is socially constructed through user interactions with payment technologies and brands.	Value-laden. Knowledge generated is subjective, time-bound and context-dependent. Understanding comes from interpreting how users make sense of digital payment solutions.	Knowledge is created by identifying various user interpretations of digital payment experiences and establishing patterns through qualitative methods like interviews and focus groups. Inductive logic and emergent design.
REALISM	Digital payment adoption has an underlying reality, but it can only be understood probabilistically through multiple measurements and observations.	Value-cognizant/Value-aware. Findings about payment adoption are probably true but require triangulation from multiple sources for verification.	Payment adoption phenomena are understood through hypothesis testing using mixed methods to establish patterns. Both quantitative and qualitative data help explain adoption behaviour. Hypothetical-Deduction approach.
RELATIVISM	Multiple realities exist in digital payment adoption. Truth about technology acceptance is not absolute but relative to cultural, social and individual contexts.	Knowledge about payment adoption requires human processing and interpretation within specific contexts.	Research focuses on developing useful theories about payment adoption that work in specific contexts rather than universal laws. Methods are chosen based on contextual fit.
CRITICAL REALISM	Two worlds exist: The observable payment adoption behaviours (transitive) and the underlying mechanisms driving adoption (intransitive).	Transitive knowledge about visible adoption patterns is value-laden. Intransitive knowledge about fundamental adoption mechanisms remains relatively stable.	Researchers seek to uncover deep structures and mechanisms underlying observed payment adoption behaviours. Multiple methods and triangulation are required. Retroductive reasoning is employed.

Source: Adapted from Blaikie (2020)

Additionally, positivism emphasises that knowledge should be based on observable facts rather than subjective interpretations (Phillips & Burbules, 2001). In the context of digital payment adoption, this means focusing on measurable constructs such as usage patterns, adoption rates, and quantifiable user perceptions rather than subjective experiences. The paradigm's emphasis on causality aligns well with the study's objective of understanding how UTAUT2 antecedents, parent brand trust and brand extension fit influence adoption outcomes.

The prefatory exposition on research methodology aligns with the current research's goal of testing and extending UTAUT2 theory in the digital payment context. This aligns with the current research's goal of testing and extending UTAUT2 theory in the digital payment context. The positivist approach enables the development and testing of hypotheses about relationships between variables, facilitating theory validation and refinement (Gill & Johnson, 2010). The adoption of positivism is also justified by its emphasis on methodological principles that enhance research quality. These include:

1. The use of a highly structured methodology to facilitate replication (Gill & Johnson, 2010).
2. The emphasis on quantifiable observations that enable statistical analysis (Blaikie, 2020).
3. The focus on hypothesis testing and theory verification (Creswell, 2021).
4. The importance of researcher objectivity and value-free interpretation (Pather & Remenyi, 2004).

Furthermore, positivism's ontological assumption that reality is singular and objective, aligns with the need to generate generalisable findings about digital payment adoption across different contexts. The epistemological stance that knowledge must be verified

through empirical evidence supports the study's use of structured questionnaires and statistical analysis to test theoretical propositions (Buchanan et al., 2013).

In technology adoption research, the positivist paradigm has been widely employed and validated. Venkatesh et al. (2003) note that positivist approaches have been particularly successful in developing and testing theories about technology acceptance and use. This paradigmatic tradition provides a strong foundation for examining how users evaluate and adopt digital payment solutions, allowing for the development of predictive models that can inform both theory and practice.

The selection of positivism also facilitates integration with existing technology adoption literature, which predominantly follows positivist traditions (Dwivedi et al., 2019b). This philosophical alignment enables meaningful comparison with previous findings while contributing to the cumulative body of knowledge in technology adoption research. The paradigm's emphasis on measurement and quantification further supports the study's goal of developing practical insights for digital payment providers based on empirical evidence rather than speculation or interpretation.

5.2 Research Strategy

Two central visions on research strategy exist – deductive and inductive. For testing theories, it is useful to use a deductive approach; conversely, the inductive approach is helpful when aiming to build new theory (Buchanan et al., 2013). This study employs a deductive approach, starting with analysing UTAUT2 and brand extension theories, then testing these theories through empirical data collection. The approach moves from generalised information into specific examples. Using a sufficient sample size in the

empirical study makes it possible to generalise the findings to the specific study (Sekaran & Bougie, 2010).

The deductive research approach is most common when researchers use what is known from a particular area and the theories connected to the specific phenomenon to later reject or strengthen the theory (Bryman, 2015). The approach follows linear steps to test current theory which is later confirmed or rejected. For the current study, this enables systematic testing of UTAUT2 constructs and brand extension fit in the context of digital payment adoption.

5.3 Research Approach

Research approaches represent the plans and procedures spanning from broad assumptions to detailed methods of data collection, analysis, and interpretation (Creswell, 2021). This study employs a quantitative research approach using a cross-sectional survey design. The choice of a quantitative approach aligns with, and builds on, previous technology adoption studies Venkatesh et al. (2003) and enables the examination of relationships between variables through statistical analysis.

5.3.1 Survey as Research Method

The survey method has been adopted as the primary data collection approach, described by Malhotra et al. (2017) to collect information from one or more people on constructs which are often relevant to organisations. From a research perspective, surveys are typically used as methods in the positivist paradigm to achieve systematic observation, interviewing, and questioning through predetermined, structured research questions with the intention of providing standardisation and consistency (Bell, Harley & Bryman, 2022).

The current study employs an analytical survey which articulates relationships and examines correlations to determine if relationships exist between variables in an exploratory way. According to Malhotra et al. (2021), the survey research process comprises defining purpose and scope according to research questions, constructing survey instruments that operationalise key constructs, designing a sampling strategy, survey administration and data collection, data analysis, and interpretation of findings.

5.4 Research Design for The Study

The research is quantitative and adopts a survey research approach involving structured questionnaires designed to obtain information from digital payment users and potential adopters. The research problem was formulated based on existing theory, and the intention is to create more knowledge about specific factors and their relationships among one another, hence the choice of an analytical survey (Chandra et al., 2010). To be able to draw general conclusions within the digital payment adoption context and collect optimum valid results, a significant sample was needed from the available user population. For this reason, a deductive approach has been adopted in this thesis; the theories examined needed empirical testing to make an appropriate analysis (Creswell, 2021). The first step involved the examination and collection of existing theories to gain deeper knowledge of digital payment adoption. The second part then provided empirical results for understanding the subject to confirm or reject theoretical propositions.

The study is cross-sectional, and previous cross-sectional studies on technology adoption have mainly employed the survey strategy (such as Pang et al., 2021; Venkatesh et al., 2003). The choice for this research design became necessary not only due to the explanatory nature of the study but also because it has been suggested to be suitable for analysing such phenomena by considering a cross-section of the population at one point in time (Sekaran

& Bougie, 2010; Kim et al., 2021). A cross-sectional design is particularly appropriate for the current study, as it enables examination of adoption attitudes and behaviours at a specific point in time, thereby capturing the current state of digital payment acceptance in emerging markets.

The survey strategy for this study enables the researcher to identify and statistically explain the relationships among UTAUT2 antecedents, brand extension fit and adoption outcomes. Survey research also aligns with previous technology adoption studies and enables the collection of standardised data from a large sample, facilitating statistical analysis and generalisation of findings (Malhotra et al., 2017). Additionally, the design incorporates both explanatory and measurement elements to address the research objectives comprehensively. The explanatory component examines causal relationships between variables, while the measurement aspect ensures a reliable and valid assessment of theoretical constructs. This dual focus strengthens the research design's ability to test the theory and generate practical insights for digital payment providers.

5.5 Data Collection Methods

5.5.1 Population and Sampling Frame

Dillman's (2022) asserts that a prerequisite to sample selection is defining the target population as narrowly as possible, with sample selection depending on population size, homogeneity, sample media, cost considerations, and required precision.

A sample frame for past and current Ghana-based users of the digital payment brand extension called MTN MoMo was not available. However, data from MTN's Annual Report for 2023 suggests the brand's total number of active mobile money accounts was seventeen million (17,000,000). Following (Krejcie & Morgan, 1970) sample size

determination table, for a population of 17,000,000, a sample size of 387 is deemed adequate at a 95% confidence level and 5% margin of error. This is further supported by Cohen's (1992) recommendation that for structural equation modelling with medium effect size at power = 0.80 and $\alpha = 0.05$, a minimum sample of 200 is required.

Additionally, (Hair et al., 2022) suggest that for structural equation modelling, a ratio of 10 respondents per parameter is ideal. Given that the current study's model contains 35 parameters, a minimum sample of 350 would be necessary. Taking into consideration these various theoretical recommendations and accounting for potential data collection errors, the researcher determined a target sample size of 387, which exceeds the minimum requirements suggested in the literature while remaining practically feasible.

5.5.2 Sampling Technique

The study employs a multi-stage sampling approach beginning with a purposive selection of Greater Accra and Ashanti regions based on their dominance in digital payment penetration and commercial activity in Ghana (Bank of Ghana, 2020). Following Armah et al. (2023) and Chopdar et al. (2018) successful application of mall intercept surveys in digital payment adoption research, two major shopping malls - one each in Accra (Accra Mall) and Kumasi (Kumasi City Mall) - are selected as data collection points. The research also used one open market in each city, Kaneshie in Accra and Kumasi Central Market in Kumasi. The use of the modern trade and traditional trade outlets were to provide access to respondents across a wide socio-economic group and to enhance the representation of the sample.

The mall intercept approach is particularly appropriate for this study as it provides access to digital payment users across diverse demographic segments while maintaining cost

efficiency (Idoko et al., 2019). This approach also aligns with recent technology adoption studies in emerging markets that have successfully used mall intercepts to reach digitally active consumers (Aklin et al., 2018; Ramli et al., 2023). Within each mall, systematic random sampling is employed where every *k*th shopper exiting the mall is approached, with *k* determined by dividing the estimated daily mall traffic by the required daily sample size. This systematic selection helps reduce selection bias while ensuring representative sampling across different times of day and days of the week (Hair et al., 2021). To proceed with the survey, respondents must meet pre-defined screening criteria including prior digital payment usage, minimum age requirement of 18 years, English literacy (since the PhD candidate did not have the resources to pursue instrument translation protocols) and prior or current usage of MTN MoMo.

The sampling approach ensures that the final sample adequately represents the diversity of digital payment users while maintaining statistical rigour and practical feasibility. This balanced consideration of theoretical requirements and practical constraints strengthens the study's potential for generating generalisable findings about adoption of digital payment brand extensions in emerging markets.

5.5.3 Research Instrument

The research instrument is developed based on the objectives and research questions following procedures outlined by Malhotra et al. (2017) for designing questionnaires. The questionnaire development process follows a systematic three-stage approach to ensure content validity and reliability. The first stage consists of a thorough synthesis of the literature, particularly in areas of UTAUT2, brand extension theory, and digital payment adoption. From these, the concepts in the current research model are drawn. The second stage involves developing and adapting construct variables and their measurement items

based on supporting literature. The questionnaire comprises three main sections measuring UTAUT2 constructs, brand-related factors, and adoption outcomes.

The UTAUT2 constructs are measured using validated scales from Venkatesh et al. (2012), including Performance Expectancy (4 items, e.g., "Using digital payment improves my payment transactions"), Effort Expectancy (4 items), Social Influence (4 items), Facilitating Conditions (4 items), Hedonic Motivation (3 items), Price Value (4 items), and Habit (4 items). These scales demonstrate good reliability with standardised loadings ranging from 0.489 to 0.881 and significant t-values. Brand-related constructs include Brand Trust (4 items), and Brand Extension Fit (6 items) adapted from Deng & Messinger (2022). Brand Extension Fit items (BEF1-BEF6) show satisfactory loadings between 0.496 and 0.687, while Brand Trust items (BT1-BT4) demonstrate loadings from 0.250 to 0.796. The relatively lower loading of BT4 (0.250) suggests potential refinement needs during analysis.

Adoption outcome measures comprise Use Intention (5 items), Use Behaviour (3 items), and Use Continuance (4 items) adapted from (Pang et al., 2021). These scales show strong psychometric properties with standardised loadings ranging from 0.629 to 0.866 and significant t-values across all items. Use Intention items (UI1-UI5) particularly demonstrate strong reliability with loadings between 0.629 and 0.779. All constructs utilise seven-point Likert scales, ranging from strongly disagree (1) to strongly agree (7), following common practice in technology adoption research (Hair et al., 2021). The measurement model reveals satisfactory R^2 values ranging from 0.062 to 0.777, indicating acceptable levels of variance explained by the items.

To address potential challenges associated with written questionnaires, particularly misinterpretation by respondents, the third stage involves comprehensive pilot testing following DeVellis' (2020) recommendations. The appropriateness of wording for both modified and newly created scales is evaluated using a panel of academic experts (PhD Marketing students and Lecturers) as well as digital payment industry practitioners. This rigorous development process ensures the instrument's content validity while maintaining consistency with established measurement approaches in technology adoption literature.

The initial measurement model assessment reveals satisfactory psychometric properties across most constructs, though some items (e.g., BT4, HB4) may require attention during the main analysis phase. The t-values are all significant, suggesting that the items adequately represent their respective constructs. This comprehensive instrument provides a solid foundation for examining digital payment adoption through the lens of UTAUT2 and brand extension theory.

5.6 Mode of Analysis

The analytical methods employed in this study aim to systematically examine the relationships between UTAUT2 constructs, brand extension fit, and digital payment adoption outcomes. Data analysis employs both Statistical Package for Social Sciences (SPSS) version 27.0 and AMOS version 27.0. These software packages have been widely used by researchers in technology adoption studies as quantitative data analysis instruments (Kim et al., 2021; Pang et al., 2021; Venkatesh et al., 2003). SPSS is utilised for preliminary coding, data cleaning, and exploratory factor analysis, before transferring to AMOS for confirmatory factor analysis and structural equation modelling.

5.6.1 Factor Analysis

In line with examine digital payment adoption constructs, there is a need to explore the scales used in this study by looking for 'clumps' or groups among the inter-correlations of the set of variables used to measure the constructs (Pallant, 2020). The family of factor analytic techniques is often used extensively by researchers involved in the development and evaluation of tests and scales. The literature presents two main approaches to factor analysis – exploratory and confirmatory.

Exploratory factor analysis (EFA) is used in the early stages of research to examine interrelationships among UTAUT2 constructs, brand extension fit, and adoption outcomes. Confirmatory factor analysis (CFA) represents a more complex and sophisticated set of techniques used later in the research process to test specific hypotheses concerning the structure underlying these variables (Tabachnick et al., 2018). Drawing on Pallant (2020), three main steps are followed in carrying out EFA:

1. Assessment of data suitability through Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test of sphericity
2. Factor extraction using principal components analysis with eigenvalues exceeding 1.0
3. Factor rotation and interpretation using varimax rotation to achieve the simplest structure

5.6.2 Structural Equation Modelling

Structural equation modelling (SEM) represents a statistical procedure for testing measurement, functional, predictive, and causal hypotheses (Schumacker & Lomax, 2016). SEM, also referred to as causal modelling or analysis of covariance structures (Ullman, 2006), is a statistical method that takes a confirmatory approach to simultaneously estimate

a series of separate but interdependent multiple regression equations while accounting for measurement errors in latent variables (Jöreskog, 1969). The use of SEM in this study yields benefits that are not possible with first-generation statistical methods. Drawing on Bagozzi and Yi (2012), these advantages include:

1. Integration of multiple analytical functions under a single framework.
2. More precise specifications of hypotheses about digital payment adoption.
3. Consideration of measurement reliability in hypothesis testing.
4. Guidance for both exploratory and confirmatory research phases.
5. Ability to suggest novel hypotheses about adoption behaviour.

The study adopts Anderson and Gerbing's (1988) two-stage approach where measurement model and structural model estimation are separated. In the first stage, the measurement model is tested using CFA, in which all constructs (UTAUT2 antecedents, parent brand trust, brand extension fit, and adoption outcomes) are assumed to covary with one another (Kline, 2015). The second stage involves testing the structural relationships between constructs as hypothesised in the research model.

5.6.3 Testing Model Fitness

Assessing model fit involves interpreting how well the conceptualised digital payment adoption model fits the empirical data. Following Schumacker and Lomax (2021), multiple fit indices are employed:

Absolute Fit Indices:

- Chi-square (χ^2)
- Goodness-of-fit index ($GFI \geq 0.90$)
- Adjusted goodness-of-fit index ($AGFI \geq 0.90$)
- Root-mean-square residual ($RMR \leq 0.08$)
- Root-Mean-Square-Error of Approximation ($RMSEA \leq 0.08$)

Comparative Fit Indices:

- Normed fit index (NFI ≥ 0.90)
- Comparative fit index (CFI ≥ 0.90)
- Tucker-Lewis Index (TLI ≥ 0.90)

The sufficiency of the theorised model's ability to create a covariance matrix is evaluated using the χ^2 goodness-of-fit value. However, since χ^2 is affected by sample size, the ratio of χ^2 to degrees of freedom ($\chi^2/df \leq 3$) is also considered (Hu & Bentler, 1999). These multiple indices provide a comprehensive assessment of model adequacy while accounting for different aspects of model fit. The selection of these analytical techniques and fit indices is based on their established use in technology adoption research and their ability to handle complex theoretical relationships while accounting for measurement errors. The combination of EFA, CFA, and SEM enables a thorough examination of both measurement properties and structural relationships in the digital payment adoption model.

5.7 Reliability and Validity Assessment

5.7.1 Reliability Assessment

The reliability of measurement scales indicates how free they are from random error (Pallant, 2021). In this study examining digital payment adoption, reliability assessment is crucial for ensuring consistency and dependability of results across multiple constructs and measurement items. Following contemporary methodological guidelines, multiple approaches are employed to establish reliability.

Internal consistency reliability is primarily assessed using Cronbach's alpha coefficient, with values above 0.70 considered acceptable for established scales (Hair et al., 2021). For

newly developed or adapted scales in technology adoption contexts, values above 0.60 may be acceptable during exploratory stages (Malhotra et al., 2017). Additionally, item-to-total correlations exceeding 0.50 and inter-item correlations above 0.30 are examined to ensure scale reliability at the item level (Churchill, 2019).

Composite reliability (CR) provides another measure of internal consistency, particularly suitable for latent variable analysis in structural equation modelling. The CR threshold is set at 0.70, indicating good reliability (Bagozzi & Yi, 2012; Fornell & Larcker, 1981). The Average Variance Extracted (AVE) should exceed 0.50, demonstrating that the constructs explain more than 50% of the variance in their indicators (Hair et al., 2021).

Test-retest reliability is established through pilot testing with a two-week interval between measurements, following DeVellis' and Thorpe (2021) recommendations for scale validation. This temporal stability assessment helps ensure that measurements remain consistent across time periods, particularly important for technology adoption constructs that may be influenced by rapid changes in the digital payment landscape.

5.7.2 Validity Assessment

Validity assessment encompasses multiple forms to ensure comprehensive measurement quality, which is particularly crucial in technology adoption research, where constructs can be complex and multifaceted. Content validity is established through a systematic review of the literature and expert panel evaluation. The panel comprises academic experts in technology adoption, digital payment practitioners, and research methodologists who assess item relevance, clarity, and comprehensiveness (Straub et al., 2004).

Construct validity examines whether the measures represent the constructs they are intended to measure. This is assessed through factor analysis results and theoretical alignment within the nomological network of UTAUT2 and brand extension theories. The process includes examining both convergent and discriminant validity aspects (MacKenzie et al., 2021).

Convergent validity is assessed through:

- Factor loadings exceeding 0.50.
- Average Variance Extracted (AVE) values above 0.50.
- Significant t-values for all factor loadings.
- Strong correlations between related constructs.

Discriminant validity is following established using multiple criteria:

- Fornell-Larcker criterion where the square root of AVE exceeds inter-construct correlations.
- Cross-loading examination ensuring items load highest on their intended constructs.
- Heterotrait-Monotrait (HTMT) ratio analysis with values below 0.85.
- Confidence interval tests for factor correlations.

Nomological validity is examined by testing whether the relationships between constructs in the measurement model are consistent with theoretical expectations from UTAUT2 and brand extension literature. This includes analysing both the direction and strength of relationships between antecedents, moderators, and adoption outcomes (Straub et al., 2004).

5.8 Moderation and Mediation Analysis

Mediation and moderation analyses are conducted as part of process analysis, following contemporary approaches in technology adoption research (Hayes, 2021). The classic Baron and Kenny (1986) approach is augmented with modern methods including bootstrap confidence intervals and specific indirect effects analysis, reflecting current best practices in structural equation modelling (Preacher & Hayes, 2008).

5.8.1 Mediation Analysis

Mediation analysis examines how UTAUT2 constructs influence digital payment adoption through intervening variables. The analysis includes:

- Testing direct and indirect effects.
- Calculating specific indirect effects for multiple mediator models.
- Examining parallel and serial mediation paths.
- Using bootstrap methods with 5000 resamples for confidence intervals.
- Assessing effect size through standardised indirect effects.

5.8.2 Moderation Analysis

The role of brand extension fit as a moderator is examined through:

- Interaction effect analysis using product terms.
- Multi-group comparisons across different levels of brand extension fit.
- Simple slopes analysis for significant interactions.
- Johnson-Neyman technique for identifying regions of significance.
- Conditional process analysis combining moderation and mediation.

This comprehensive analysis of moderating effects provides insights into when and under what conditions specific adoption effects can be expected, contributing to both theoretical understanding and practical implementation of digital payment solutions.

The detailed reliability, validity, and process analyses ensure robust and credible findings while maintaining methodological rigour throughout the research process. These analytical approaches align with the current best practices in technology adoption research while accommodating the specific requirements of examining digital payment adoption in emerging markets.

5.9 Chapter Summary

The methodology chapter has established the research paradigm and approach used for this investigation. It has outlined the methods and procedures for identifying respondents, developing the study questionnaire, collecting information, and analysing research data. The principal analytical techniques were deemed appropriate and the assumptions required for their use were supported, setting the stage for the presentation of research findings in subsequent chapters.

The research design facilitates the examination of digital payment adoption through robust empirical investigation while maintaining methodological rigour. The combination of established scales with careful validation procedures ensures high-quality data collection, while sophisticated analytical techniques enable comprehensive hypothesis testing. The next chapter presents the empirical findings obtained through this methodological framework.

This comprehensive methodological approach enables investigation of both the direct effects of UTAUT2 antecedents on adoption behaviour and the moderating influence of brand extension fit, contributing to both theoretical understanding and practical implementation of digital payment solutions in emerging markets. Table 5.2 summarises the methodological framework employed in this study:

Table 5.2: Summary of Methodological Choices

Level of Decision	Choice
Epistemological and Ontological Assumptions	Positivism with formulated research questions and hypotheses tested empirically under controlled circumstances
Research Methods	Cross-sectional analytical survey seeking to articulate relationships between multiple constructs (Yin, 2021) - Explanatory scheme adopted to study digital payment adoption phenomenon - Deductive approach through empirical testing of UTAUT2 and brand extension theories
Data Collection Methods	Structured questionnaire developed from literature - Purposively selected digital payment users from database - Responses obtained through key informants
Sampling Strategy	Purposive sampling strategy that was designed to obtain a sample that meets specified criteria. However, the study uses a hall intercept method that incorporates a systematic selection of sampling units.
Mode of Analysis	Quantitative techniques, including descriptive statistics, multivariate analysis (EFA, CFA), and Structural Equation Modelling
Reliability and Validity	Purification processes ensuring content validity, dimensionality, construct validity, convergent validity, discriminant validity, and nomological validity



CHAPTER SIX

DATA ANALYSIS AND RESULTS

6.1 Introduction

This chapter presents the empirical results and analysis of the study examining consumers' adoption and continued use of digital payment brand extensions. The analyses reported here build directly on the methodological procedures outlined in Chapter Five and focus on validating the measurement model and testing the hypothesised structural relationships.

The chapter begins with an assessment of non-response bias to establish the representativeness of the survey data. This is followed by exploratory factor analysis (EFA) to refine the measurement scales and confirm the underlying construct structure. Confirmatory factor analysis (CFA) is then employed to evaluate the reliability, convergent validity, and discriminant validity of the measurement model. Finally, structural equation modelling (SEM) is used to test the hypothesised relationships between the study constructs, including the interaction effects involving brand extension fit and parent brand trust.

Together, these analyses provide empirical evidence on the drivers of digital payment adoption and usage behaviour within an emerging market context, offering a robust foundation for the discussion and theoretical implications presented in subsequent chapters.

6.2 Response Analysis

This section reports the preliminary statistical checks conducted prior to testing the structural model. Specifically, it examines non-response bias and evaluates inter-construct correlations, discriminant validity using the Fornell–Larcker criterion, and multicollinearity through variance inflation factors (VIF). These diagnostic tests are

necessary to ensure that the data meet the assumptions required for reliable structural equation modelling.

6.2.1 Non-Response Bias

Non-response bias is a common concern in survey-based research, as respondents may differ systematically from non-respondents, thereby threatening the validity and generalisability of the findings (Armstrong & Overton, 1977; Rogelberg & Stanton, 2007). A widely accepted approach to assessing non-response bias involves comparing early and late respondents, with late respondents assumed to approximate the characteristics of non-respondents (Miller & Smith, 1983).

In this study, non-response bias was assessed by comparing early and late respondents across key study constructs using Levene's test for equality of variances and independent-samples t-tests. Levene's test was first applied to assess whether the assumption of equal variances between the two groups was met. Where the significance value exceeded 0.05, the assumption of equal variances was retained, consistent with established statistical guidelines (Field, 2013). The subsequent t-tests examined whether statistically significant differences existed between the mean responses of early and late respondents.

As shown in Table 6.1, the t-test results indicate that the differences in mean scores between early and late respondents were not statistically significant across the examined constructs ($p > 0.05$). These findings suggest that non-response bias is unlikely to be a serious concern in the dataset. This conclusion is consistent with prior methodological guidance, which argues that the absence of significant differences between early and late respondents provides reassurance regarding the representativeness of survey data (Hair et al., 2019).

Table 6. 1: Non-response bias

Variables			Levene's Test for Equality of Variances		t-test for Equality of Means
	Group	Mean	F	Sig.	t
Performance expectancy	1	6.234	0.630	0.428	-0.576
	2	6.276			
Effort expectancy	1	6.276	0.020	0.887	-0.397
	2	6.305			
Social influence	1	3.947	0.345	0.557	2.013
	2	3.812			
Facilitating condition	1	4.175	0.657	0.418	2.257
	2	4.073			
Hedonic motivation	1	6.180	0.907	0.342	-0.250
	2	6.199			
Price value	1	6.033	0.794	0.409	-2.475
	2	6.067			
Habit	1	6.186	1.324	0.251	-0.261
	2	6.205			
Brand trust	1	6.010	0.319	0.572	-1.411
	2	6.119			
Brand extension fit	1	6.106	0.439	0.412	0.564
	2	6.371			
Use intention	1	6.318	0.425	0.515	0.241
	2	6.301			
Use continuance	1	6.235	0.184	0.668	-0.815
	2	6.295			
Use behaviour	1	6.202	0.656	0.506	2.179
	2	6.164			

6.2.2 Descriptive Statistics of Variables

Descriptive statistics is, therefore, the first set of tools for data analysis, providing a concise summary of the main features of the dataset. It simply delineates the central tendencies and variabilities in each dataset. In essence, they outline the bare features of data in any research study, usually in an intelligible and interpretable format. Descriptive statistics usually involves central tendency, dispersion, and distribution shape measures. All these measures summarise the data's properties or characteristics (Field, 2013). Regarding the average value or the description of the typical value of the distribution, Gravetter and Wallnau (2016) state that it is measured by measures of central tendency, which include mean, median, and mode. The mean, being the most frequently used measure, is simply the

arithmetic average of all values, whereas the median refers to the middle value arranged in order. On the other hand, the mode is the value that frequently occurs most in the dataset (Cohen et al., 2013). Measures of dispersion, standard deviation, variance, and range refer to how data deviates or spreads out from the central tendency (Pallant, 2020). The standard deviation, which is applied to most research, is used to express the average deviation from the mean, either to indicate consistency or heterogeneity of data (Hair et al., 2019). Shape statistics describe the shape of the distribution of the data, from skewness to kurtosis (Tabachnick et al., 2013). Skewness tells how symmetric the distribution is; kurtosis is how peaked or flat the distribution is relative to a normal distribution (George & Mallery, 2019).

The mean values across constructs generally range from moderate to high (2.89 to 4.97), indicating overall positive perceptions and intentions towards digital payment solutions (Table 6.2). Standard deviations vary between 0.57 and 1.18, suggesting moderate variability in responses. Skewness values predominantly fall between -1 and 1, indicating relatively symmetrical distributions for most items. However, some variables, such as Use Continuance (D.1, D.3, D.4) and Habit (A.24-A.27), show negative skewness, suggesting a tendency towards higher ratings (Table 6.2). Kurtosis values exhibit a mix of platykurtic (< 0) and leptokurtic (> 0) distributions, with notable leptokurtic tendencies in Use Continuance and Habit constructs, indicating more peaked distributions with heavier tails compared to a normal distribution. The Brand Extension Fit construct (B.1-B.6) demonstrates consistently high means (4.88-4.97) with relatively low standard deviations (0.69-0.71), suggesting strong perceived alignment between digital payment solutions and their originating brands (Table 6.2). These descriptive statistics provide valuable insights into the distribution and characteristics of the variables, forming a foundation for further statistical analyses and interpretations in the study of digital payment solution adoption and use.

Table 6. 2: Descriptive statistics of variables

Item	M	SD	Skewness	Kurtosis
Performance Expectancy	3.65	1.17	0.25	-0.89
Using a digital payment solution increases my productivity.	3.67	1.15	.30	-0.77
Using a digital payment solution helps me accomplish payments more quickly.	3.66	1.18	.20	-0.92
I can save time when I use digital payment solution in the payment process.	3.57	1.18	.39	-0.80
I find digital payment solution useful in my daily life	3.68	1.18	.10	-1.07
Price Value	3.02	0.95	0.78	0.18
I can save money by using a digital payment solution	3.14	.96	.55	-0.42
I like to search for cheap deals in digital payment solution services	3.05	.95	.75	0.09
Digital payment solution offers better value for money	2.96	.97	.93	0.45
Digital payment solution offers valuable promotions for me	2.92	.92	.89	0.61
Effort Expectancy	3.20	0.92	0.76	0.16
Learning how to use digital payment solution was easy for me.	3.30	.94	0.82	0.16
It does not take a long time to learn how to use new features of digital payment solution	3.26	.98	0.69	-0.14
Overall, I find digital payment solution easy to use.	3.10	.83	0.81	0.59
It is easy for me to become skilful at using digital payment solution	3.15	.92	0.70	0.00
Use Intention	4.01	0.98	-0.18	-0.85
I expect my use of digital payments to increase in the future	4.04	.96	-.19	-.88
I intend to use digital payments in the future	4.07	.97	-.20	-.86
Where there is an opportunity to make payments to other parties, I will use digital payments	4.03	1.01	-.27	-.77
I will always try to use digital payments if I need to make a payment to someone	4.00	1.01	-.19	-.85
I plan to use digital payments frequently	3.89	.96	-.06	-.89
Social Influence	4.03	0.91	-0.23	-0.69
People who are important have suggested that I use a digital payment solution	3.83	.93	.02	-.74
People who influence my behaviour think that I should use digital payment solution	4.02	.87	-.28	-.80
People whose opinions I value suggest that I use digital payment solution	4.15	.96	-.37	-.63
Most of the people around me are using digital payment solution	4.13	.87	-.27	-.59

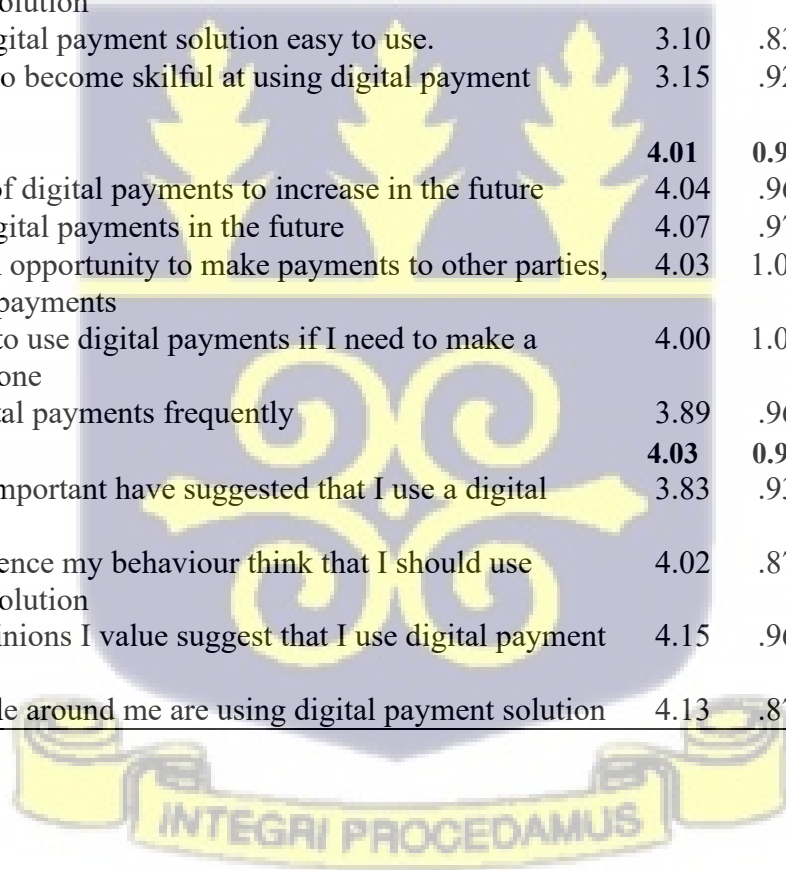


Table 6.2 continued

Item	M	SD	Skewness	Kurtosis
Facilitating Condition	4.42	0.90	-0.59	0.26
I have the resources necessary to use digital payment solution	4.39	.93	-.46	-.17
I have the knowledge necessary to use digital payment solution	4.44	.91	-.63	.28
Digital payment solution is compatible with other digital tools and services that I use	4.62	.83	-.99	1.33
I can get help from others when I have difficulties using a digital payment solution	4.28	.95	-.29	-.42
Brand Trust	3.81	0.92	0.06	-0.76
I believe that digital payment solution is trustworthy	3.77	.90	.11	-.79
I trust digital payment solution	3.63	.89	.31	-.46
I do not doubt the honesty of digital payment solution.	3.90	.95	-.08	-.87
Even if not monitored, I would trust digital payment solution to do the job right.	3.93	.96	-.10	-.92
Use Behaviour	4.39	0.96	-0.37	-0.34
I usually use my digital payment solution repetitively over a given month.	4.32	.93	-.18	-0.42
I use my digital payment solution for a large portion of my financial transactions In a given month.	4.46	.93	-.49	-0.19
I take advantage of most of the available uses of digital payment solution	4.39	1.01	-.45	-0.42
Use Continuance	4.75	0.66	-0.83	2.04
I intend to continue using digital payment solution.	4.69	.69	-1.16	2.74
I will keep using digital payment solution as regularly as I do now.	4.66	.71	-.82	1.33
I will continue to use digital payment solution than any alternative means	4.91	.57	-.52	2.05
I will strongly recommend digital payment solution to others.	4.80	.62	-.66	1.47
Habit	4.72	0.74	-0.80	1.50
Using digital payment solution has become a habit for me	4.78	.73	-.97	2.20
Using digital payment solution is something that I do without thinking	4.78	.75	-.71	1.30
Using digital payment solution is a part of my daily routine	4.65	.77	-.79	1.20
I am addicted to using digital payment solution	4.65	.72	-.75	1.32
Hedonic Motivation	3.03	0.82	0.79	0.55
It is fun for me to use digital payment solution	3.18	.88	.78	.14
I find the use of digital payment solution enjoyable	3.03	.78	.72	.65
I feel excited when using digital payment solution	2.89	.81	.86	.85

Table 6.2 continued

Item	M	SD	Skewness	Kurtosis
<i>Brand Extension Fit</i>	4.92	0.70	-0.48	1.28
Looking at digital payment solution and the company brand it originates from, the two are similar in terms of their specific features and attributes.	4.93	0.71	-0.71	1.02
Looking at digital payment solution and the company brand it originates from, the two are similar in terms of their basic functions and benefits.	4.88	0.70	-0.72	1.40
Looking at digital payment solution and the company brand it originate from, the two are similar in terms of the resources required to develop the products (e.g., people, facilities, skills, strategy, knowledge, expertise).	4.89	0.71	-0.61	0.98
Looking at the digital payment solution and the company brand it originates from, the two are similar in terms of their abstract images and concepts (i.e., associations, concepts or images that come to you mind when you think about the brand/product).	4.88	0.69	0.60	1.17
Looking at digital payment solution and the company brand (telecom brand or bank brand) it originates from, the two are similar in terms of the occasions you use them (i.e., where or when to use them).	4.95	0.70	-0.57	0.90
Looking at digital payment solution and the company brand it originates from, you consider yourself and other users of digital payment solution as the same target group of the company brand.	4.97	0.70	-0.89	2.23

6.2.3 Exploratory factor analysis (CFA)

EFA is a statistical technique that allows the identification of the underlying structure in a set of variables. This typically applies to the early phases of scale development and validation for identifying latent constructs and assessing the dimensionality of measurement scales (Hair et al., 2019). The 49 items used to form the scales for the conceptual constructs were factor-analysed and subjected to principal component analysis using SPSS version 22. Prior to PCA, the suitability of the data for factor analysis was checked. Inspection of the correlation matrix showed many coefficients had acceptable values of 0.3 and above. The value for Kaiser-Meyer-Olkin (KMO) was 0.983, well above

the recommended value of 0.6 (Kaiser 1970) and Bartlett's Test of Sphericity (Bartlett 1954) was statistically significant, thus the correlation matrix is highly factorable; Approx. Chi-square = 20810.071, df = 1176, sig. 0.000. Table 6.3 shows the KMO and Bartlett's Test of the data gathered from the respondents. First, the extremely high KMO value of 0.983 indicates that the patterns of correlations are very compact, thus indicating that factor analysis must turn out clear and reliable factors. Also, the very highly significant Bartlett's Test at $p < 0.001$ confirms that the correlation matrix is not an identity matrix, hence supporting even more solidly the appropriateness of factor analysis for this dataset.

Table 6. 3: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.983
Bartlett's Test of Sphericity	Approx. Chi-Square	20810.071
	df	1176.000
	Sig.	<0.001

6.2.4 Rotation and Reliability of the EFA

To assist in the interpretation of these components, orthogonal rotation methods - Varimax was carried out for the 49 variables to see how many strong loadings there were and to ascertain which variables loaded substantially onto the various components. In exploratory factor analysis, loadings all at 0.7 or greater are usually considered high enough for any variable to be retained for analysis. Some scholars are, however, of the opinion that a loading value of 0.5 is considerable enough to be adequately strong (Hair et al., 2014). Based on this, variables that did not meet the 0.5 loadings were dropped from further analysis. Computation of the internal reliability of the other construct variables was also done. Reliability is defined as the extent to which measurement reproduces consistent results, especially if the process of measurement is to be repeated (Malhotra & Birks, 2017). Second, Pallant (2020) corroborates the essence of reliability by postulating that scales used for analysis should have their reliability assessed, specifically whether the items making up

the scale "hang together" (i.e., internal consistency). Cronbach's alpha coefficient, a widely used indicator of internal consistency, was employed to assess the reliability of the scales used in this survey. Researchers, such as Pallant (2020) and Hair et al. (2014) warn that ideally, this value should be greater than 0.7 for managerial decisions. A threshold level could be 0.6 in exploratory research, however. Cronbach's alpha was used to assess the internal reliability of the 12 factors. Only factors exceeding the minimum value of 0.6 postulated by Hair et al. 2010 were accepted. To check the value of the variables that loaded onto the factors, the item-to-total correlation was set above 0.3 as recommended by Tabachnick et al., (2018). Table 6.4 compares the principal component extraction of the Varimax rotation method along with the internal consistency measures on the final retained variables of the various constructs. The results show that all twelve factors exceed 0.7 in Cronbach's alpha values, ranging from 0.709 to 0.833, which is an indication of high internal consistency. The variance explained by each factor ranged from 51.014% to 79.363%, implying that these extracted factors explain a significant part of the variation in the observed variables. Most items demonstrated strong factor loadings (>0.7) and item-total correlations above 0.3, further supporting the reliability and validity of these measurement scales used in this study on digital payment solutions.

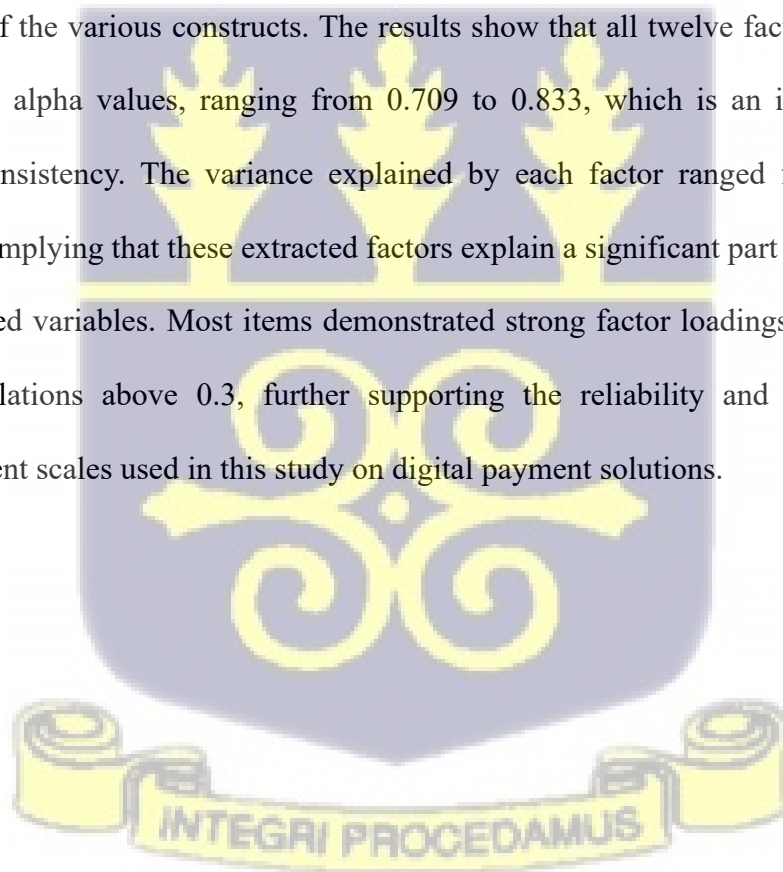


Table 6. 4: Rotated Component Matrix and Internal Consistencies

Factors	Items	Principal component loadings		Internal consistencies	
		Orthogonal (Varimax)	Variance Explained	Cronbach's Alpha	Item-total Correlation
Factor 1	PE2	.757	65.692	.736	.573
	PE3	.854			.730
	PE4	.818			.668
Factor 2	EE1	.728	51.014	.740	.530
	EE2	.766			.586
	EE3	.811			.658
	EE4	.516			.266
Factor 3	SI1	.763	68.242	.739	.582
	SI2	.903			.815
	SI3	.806			.650
Factor 4	FC1	.766	62.667	.709	.587
	FC2	.857			.738
	FC3	.748			.558
Factor 5	HM1	.757	63.444	.710	.574
	HM2	.830			.689
	HM3	.800			.640
Factor 6	PV2	.891	79.363	.738	.794
	PV3	.891			.794
Factor 7	HB1	.781	57.819	.731	.610
	HB2	.736			.542
	HB3	.763			.583
Factor 8	BT1	.795	66.729	.749	.623
	BT2	.871			.759
	BT3	.781			.610
Factor 9	BEF3	.738	63.740	.711	.544
	BEF4	.840			.706
	BEF5	.809			.654
Factor 10	UI2	.775	66.658	.833	.601
	UI3	.818			.67
	UI4	.848			.694
	UI5	.822			.676
Factor 11	UC1	.772	66.164	.821	.579
	UC2	.893			.797
	UC3	.815			.664
	UC4	.768			.589
Factor 12	UB1	.824	64.594	.824	.697
	UB2	.807			.651
	UB3	.778			.606

Table 6.4 presents the final retained variables which survived the exploratory factor analysis of the measuring items for the constructs. The argument for a reduction in the preliminary pool of measurement items, supported by the EFA results, as included in the questionnaire for the validation of the conceptual framework is stated above in the section on EFA. After this analysis, 38 items out of the initial 49 items were available for

investigation. The final scales used to measure Performance Expectancy, Price Value, Effort Expectancy, Use Intention, Social Influence, Facilitating Condition, Brand Trust, Use Behaviour, Use Continuance, Habit, Hedonic Motivation, and Brand Extension Fit are assessed thoroughly with their measurement properties. Internal consistencies have also been checked by using Cronbach's Alpha and the item-to-total correlation values. The first stage of the exploratory factor analysis, with stringent content validity checks on the measurement items, resulted in a determination of reducing the items under the construct of the Price Value from 4 to 2 items, Social Influence from 4 to 3 items, Facilitating Condition from 4 to 3 items, Habit from 4 to 3 items, Brand Trust from 4 to 3, Use Intention from 5 to 4, Effort Expectancy from 4 to 3 items, and Brand Extension Fit from 6 to 3 items. The other constructs were constant as shown in that Performance Expectancy and Use Behaviour had 3 items, Use Continuance had 4 items, and Hedonic Motivation had 3 items. A strong theoretical rationale had always been emphasised at the time that the examination processes were done for including or excluding certain measurement items from further analysis.

6.2.5 Profile of Respondent

Table 6.5 provides a detailed demographic profile of the participants, all of whom consented to participate in the survey (100%). Regarding age distribution, most respondents fall within the 26-35 years age group, accounting for 44.2% of the sample, followed by 22.1% in the 36-45 years group, 21.5% in the 18-25 years group, and 11.9% who are 46 years and above. Only one respondent (0.3%) refused to disclose their age. In terms of educational qualifications, more than half of the participants (51.9%) hold a first degree, making this the most represented category. Additionally, 30% of respondents have attained secondary school education, while 12.9% have postgraduate qualifications. Smaller proportions are seen among those with technical or vocational training (5.2%). This

distribution suggests that the sampling strategy to interview only literate respondents is validated.

Table 6. 5: Demographic profile of participants

Variable	N=387	Percent (%)
Do you consent to participating in this survey?		
Yes	387	100
Record the respondent's sex		
Male	201	52%
Female	186	48%
How old will you be when you celebrate your birthday this year?		
18 - 25 years	83	21.5
26 - 35 years	171	44.2
36 - 45 years	86	22.1
46 years and above	46	11.9
Refuse to mention age	1	0.3
What is the highest educational qualification you have attained?		
Postgraduate	50	12.9%
First degree	201	51.9%
Secondary School	91	30.0%
Technical/ Vocational Institute	20	5.2%
What is your occupation?		
High-level Professional	20	5%
Middle-level White Collar	119	31%
Skilled Services and Trades	103	27%
Skilled Primary Sector Workers	82	21%
Low-Skilled and Manual Workers	63	16%

The table below (Table 6.6) shows the distribution of respondents by the type of parent brand they are associated with. Out of the 387 respondents, 100% are from a telecom company and 100% are from commercial banks. 14% represents other types of parent brands. This distribution indicates a strong representation from both telecom companies and commercial banks, with a smaller portion from other industries.

Table 6. 6: Information on parent brands from which digital payment was made

Parent Brand Type	Frequency	Per cent
Telecom Company	387	100.0
Commercial Bank	387	100.0
Other	54	14.0
Total	387	100.0

The data in Table 6.7 provides a comprehensive overview of the respondents' experience and usage of digital payment brands from telecom companies. The most tried digital payment brand is MTN MoMo, with 100% of respondents using it exclusively. A significant proportion of respondents (19.4%) have tried both MTN MoMo and Vodafone Cash, indicating a preference for multiple payment options. MTN MoMo and AT Money were tried together by 11.6% of respondents. 7.8% have experienced all three brands, MTN MoMo, Vodafone Cash, and AT Money, demonstrating broader exposure to digital payment options.

When examining specific usage of digital payment brands, 100% of respondents have used MTN MoMo, making it the most popular brand. MTN MoMo stands out as the most frequently used digital payment brand, with 100% of respondents reporting it as their primary brand. Vodafone Cash is used by 22.0%, while AT Money is used by 18.1%. Table 11 illustrates that MTN MoMo is the dominant digital payment brand among respondents, both in terms of overall experience and current usage. Vodafone Cash and AT Money are less commonly used but still hold significant portions of the market. The data reflects a strong preference for MTN MoMo, indicating its leading position in the telecom-based digital payment market.

Table 6. 7: Digital brand for payment

Category	Frequency	Percent
Which digital payment BRAND from a telecom company have you ever tried before?		
MTN MoMo	387	100.0
MTN MoMo & Vodafone Cash	75	19.4
MTN MoMo & AT Money	45	11.6
MTN MoMo & Vodafone Cash & AT Money	30	7.8
Which digital payment BRAND from a telecom company would you say you use the most now?		
MTN MoMo	387	100.0
Vodafone Cash	85	22.0
AT Money	70	18.1
Total	387	100.0

6.2.6 Confirmatory factor analysis (CFA)

Running EFA alone to develop a construct is not enough to make it clear about its dimensionality. On the contrary, the technique must be supplemented with CFA. One of the major advantages of CFA includes the ability to estimate multiple interrelated dependence relationships. Structural Equation Modelling using AMOS 23 for Windows has been utilised because it is based on multi-statistical tests to explain the overall strength of a model's predictions (Jöreskog & Sörbom, 1996). Furthermore, several goodness-of-fit measures need to be taken jointly in order to gauge the results in three ways: overall fit, comparative fit to a base model, and model parsimony (Hair et al. 2010; Byrne, 2013). Since testing a model fit is multi-perspective, Bollen (1989) suggests that which model represents an acceptable fit ultimately be determined by the researcher. Confirmatory Factor Analysis (CFA), being one of the statistical techniques underlying the structural equation model paradigm, refers to a set of procedures used to test postulated relations between measured indicator variables and an underlying latent construct (Brown, 2015). Unlike almost any form of exploratory factor analysis, CFA demands a precisely stated factor structure based on theory or justified by previous research if it is to determine whether the indicators should logically be grouped (Kline, 2015). This technique is employed in social sciences, psychology, and marketing research to test construct validity to confirm or reject postulated measurement models.

Table 6.8 below presents the results of an initial CFA for constructs relating to the adoption of digital payments. The standardised loadings, that is, the correlation of items with their respective constructs, vary in strength across the model. Some are more than the recommended threshold of 0.7, such as SI2 at 0.881, some below, such as BT4 at 0.250 (Hair et al., 2019). The t-values, which express statistical significance, are generally larger than the required 1.96, thus showing significant relations between the items and constructs. The item reliabilities, expressed by R^2 , range considerably from good reliabilities, such as SI2 with $R^2 = 0.777$, to bad reliabilities, like BT4 with $R^2 = 0.062$. These results thus suggest

that some of the constructs look promising, while others need refinement through item deletion or modification to improve construct validity and, consequently, the overall model fit (Harrington, 2009).

Table 6. 8: Initial measurement model for constructs

Constructs	Items	Standardised loadings	t-values	R ²
Performance expectancy	PE4	.722	Fixed	.522
	PE3	.711	10.998	.506
	PE2	.659	10.284	.434
	PE1	.489	7.761	.239
Effort expectancy	EE4	.352	Fixed	.124
	EE3	.723	5.543	.523
	EE2	.559	5.169	.312
	EE1	.700	5.505	.490
Social influence	SI4	.414	Fixed	.172
	SI3	.690	6.58	.476
	SI2	.881	6.792	.777
	SI1	.638	6.403	.408
Facilitating condition	FC4	.505	Fixed	.255
	FC3	.667	7.638	.445
	FC2	.692	7.772	.479
	FC1	.610	7.289	.372
Hedonic motivation	HM3	.660	Fixed	.436
	HM2	.720	10.071	.519
	HM1	.642	9.255	.412
Price value	PV4	.551	Fixed	.303
	PV3	.751	8.103	.564
	PV2	.681	7.854	.464
	PV1	.422	5.755	.178
Habit	HB4	.421	Fixed	.178
	HB3	.593	6.092	.352
	HB2	.542	5.856	.294
	HB1	.667	6.365	.445
Brand trust	BT4	.250	Fixed	.062
	BT3	.682	3.925	.465
	BT2	.796	3.980	.633
	BT1	.670	3.916	.449
Brand expectation fit	BEF6	.508	Fixed	.258
	BEF5	.628	7.295	.394
	BEF4	.687	7.622	.473
	BEF3	.671	7.538	.450
	BEF2	.496	6.346	.246
	BEF1	.524	6.574	.275
Use intention of digital payment	UI5	.779	Fixed	.606
	UI4	.764	13.883	.584
	UI3	.719	12.933	.517
	UI2	.669	11.907	.447
	UI1	.629	11.112	.395
Use condition	UC4	.671	Fixed	.451
	UC3	.728	11.306	.531
	UC2	.866	12.944	.750
	UC1	.718	11.171	.516
Use behaviour	UB3	.675	Fixed	.416
	UB2	.645	9.461	.456
	UB1	.731	10.402	.535

An initial output obtained from the AMOS software exposed some unfit indices (refer to Table 6.8). Thus, it called for some adjustments and additional purifications (Kline, 2005). The modification indices obtained from the output file of AMOS pointed to potential adjustments in the model proposed. Hair et al. (2010, p. 713) also suggest that, at a minimum, items that do not do well on model integrity, model fit or construct validity should be deleted. As a result, the original measurement model was modified based on the sizes of factor loadings, cross-loadings, measurement errors and correlation between measurement errors.

Output from the AMOS software recommended that some items be modified by a step-by-step deletion/re-specification of weak variables. However, to avoid the risk of empirical modifications without theoretical rationale, scale items were dropped/deleted step by step to ensure that it is a relevant deletion. Items that were deleted in phase II were from PE (1), EE (4), SI (4), FC (4), PV (4), HB (4), BT (4), and BEF (1, 2, 6). As a result, 10 items were dropped out post-CFA, and the new purified construct consisted of 39 items offering the best fit indices. Table 6.9 hereby shows the improvement of the goodness-of-fit indexes due to the modifications of the measurement model.

Table 6. 9: Improvement in fit of measurement model

Phase	Modification	GFI	RMSE	NFI	CFI	χ^2/df
I.	Original measurement model	.763	.065	.662	.772	2.306
II.	Deleted: PE (1); EE (4); SI (4); FC (4); PV (4); HB (4); BT (4); BEF (1,2,6);	.902	.057	.900	.921	1.995

6.2.7 Validity and Reliability of Final Measurement model

Table 6.10 presents the final measurement model, which demonstrates good fit and reliability for the study. The reliability measures in this study exceed the acceptable levels recommended by scholars, with Cronbach's alphas > .70, Average Variance Extracted > .50,

and composite reliability $> .70$. The model also exhibits good convergent validity, with factor loadings ranging from 0.515 to 0.951, most of them above 0.7. The composite reliability (CR) values range from 0.703 to 0.838, surpassing the recommended threshold of 0.7. Average Variance Extracted (AVE) values fall between 0.500 and 0.567, all above the acceptable threshold of 0.5. Cronbach's Alpha values range from 0.701 to 0.836, further supporting the internal consistency of the scales. The R^2 values span from 0.265 to 0.905, indicating that latent variables explain between 26.5% and 90.5% of the variances in their respective indicators. Hence, the measurement model presented in Table 14 and Figure 5 below is considered to be the model that adequately fits the data for this study. Thus, these are the established measures for Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Condition, Hedonic Motivation, Price Value, Habit, Brand Trust, Brand Extension Fit, Use Intention, Use Continuance, and Use Behaviour with respect to the adoption and use of digital payment solutions.

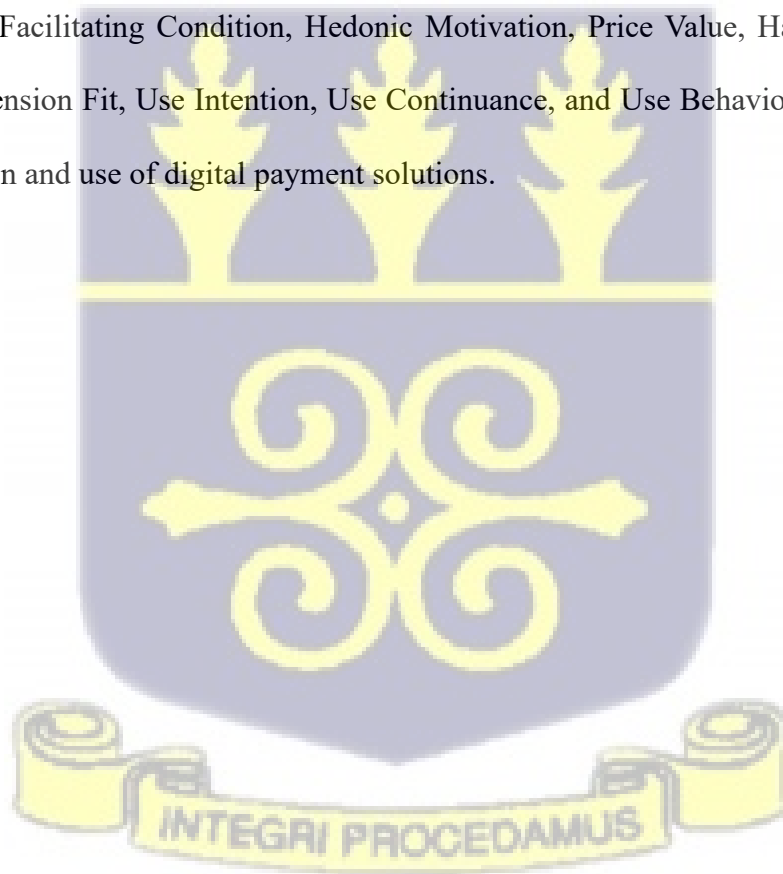


Table 6. 10: CFA results for final measurement model

Constructs	Items	Standardized loadings	t-values	R ²	CR	AVE	CA
Performance expectancy	PE4	0.763	Fixed	0.582	0.743	0.502	0.736
	PE3	0.727	11.608	0.528			
	PE2	0.606	9.776	0.367			
Effort expectancy	EE3	0.720	Fixed	0.518	0.703	0.500	0.701
	EE2	0.540	8.347	0.292			
	EE1	0.726	10.768	0.526			
Social influence	SI3	0.665	Fixed	0.443	0.790	0.567	0.762
	SI2	0.951	9.894	0.905			
	SI1	0.596	9.568	0.355			
Facilitating condition	FC3	0.633	Fixed	0.401	0.708	0.501	0.703
	FC2	0.717	9.469	0.515			
	FC1	0.654	8.926	0.428			
Hedonic motivation	HM3	0.667	Fixed	0.444	0.715	0.543	0.710
	HM2	0.725	10.119	0.526			
	HM1	0.632	9.144	0.399			
Price value	PV4	0.515	Fixed	0.265	0.718	0.500	0.710
	PV3	0.797	7.587	0.635			
	PV2	0.706	7.55	0.499			
Habit	HB3	0.601	Fixed	0.361	0.735	0.503	0.721
	HB2	0.520	7.225	0.270			
	HB1	0.693	8.799	0.480			
Brand trust	BT3	0.667	Fixed	0.445	0.759	0.514	0.749
	BT2	0.801	10.393	0.641			
	BT1	0.675	9.564	0.455			
Brand extension fit	BEF5	0.633	Fixed	0.401	0.719	0.508	0.711
	BEF4	0.839	8.886	0.703			
	BEF3	0.549	7.762	0.301			
Use intention	UI5	0.777	Fixed	0.604	0.838	0.510	0.836
	UI4	0.765	13.893	0.585			
	UI3	0.719	12.944	0.518			
	UI2	0.668	11.896	0.446			
	UI1	0.630	11.127	0.396			
Use continuance	UC4	0.672	Fixed	0.452	0.836	0.562	0.821
	UC3	0.727	11.305	0.529			
	UC2	0.867	12.971	0.752			
	UC1	0.718	11.179	0.516			
Use behaviour	UB3	0.676	Fixed	0.456	0.725	0.509	0.724
	UB2	0.642	9.414	0.412			
	UB1	0.733	10.401	0.538			

6.2.8 Inter-construct correlation, Fornell-Larcker criterion and Variance inflation Factor

Inter-construct correlation, Fornell-Larcker criterion, and Variance Inflation Factor (VIF) are essential statistical measures used in structural equation modelling (SEM) and multivariate analysis to assess discriminant validity and multicollinearity among constructs. Inter-construct correlation refers to the degree of association between different constructs in a model. It is typically measured using Pearson's correlation coefficient, with values ranging from -1 to +1 (Hair et al., 2014). Strong correlations between constructs may indicate potential issues with discriminant validity or multicollinearity. The table (Table 6.11) presents correlations between 12 constructs related to digital payment solution adoption. Most correlations are statistically significant ($p < 0.05$ or $p < 0.01$). The strongest correlation is observed between Use Intention and Facilitating Condition (0.688) and between Use Behaviour and Habit (0.688), while the weakest significant correlation is between Use Intention and Social Influence (0.086).

The Fornell-Larcker criterion is a widely used method for assessing discriminant validity in SEM (Fornell & Larcker, 1981). It compares the square root of the Average Variance Extracted (AVE) for each construct with its correlations with other constructs. To establish discriminant validity, the square root of AVE for each construct should be greater than its correlations with other constructs (Hair et al., 2017). The diagonal elements (in bold) represent each construct's square root of the AVE. To establish discriminant validity, these values should be greater than the off-diagonal elements in the corresponding rows and columns. In this case, all diagonal elements are greater than their respective off-diagonal elements, indicating good discriminant validity among the constructs.

Variance Inflation Factor (VIF) is used to detect multicollinearity in regression analysis and SEM. It quantifies the extent of correlation between one predictor variable and the other predictor variables in a model. Generally, VIF values below 5 are considered acceptable, while values above 10 indicate severe multicollinearity (Hair et al., 2011). The VIF values for all constructs range from 1.103 to 1.919, well below the threshold of 5, indicating that multicollinearity is not a concern in this model (see Table 6.11). In conclusion, the analysis of inter-construct correlations, the Fornell-Larcker criterion, and VIF values suggests that the measurement model demonstrates good discriminant validity and the absence of severe multicollinearity.

Additionally, the consistently low VIF values indicate that, while the constructs are theoretically related within the UTAUT2 and brand extension framework, they remain empirically distinct. This finding suggests that the estimated path coefficients are not distorted by excessive shared variance among the predictors. Consequently, the structural relationships tested in the model can be interpreted with confidence, and the observed significance or lack thereof for individual antecedents reflects substantive effects rather than statistical artefacts resulting from multicollinearity.

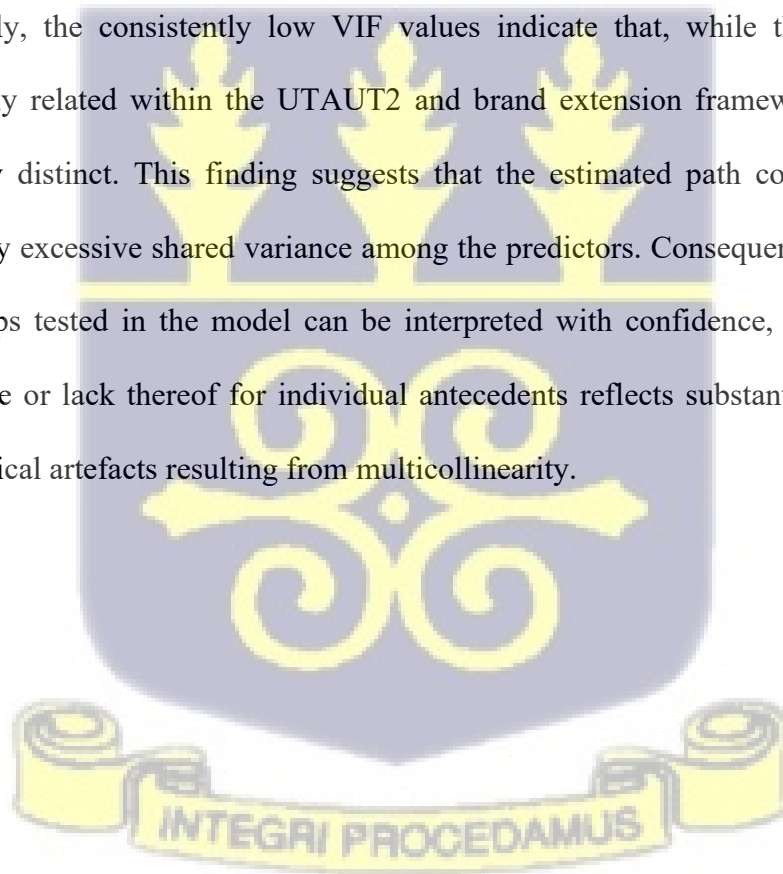


Table 6. 11: Inter-construct correlation, Fornell-Larcker criterion and Variance inflation factor (VIF)

Constructs	1	2	3	4	5	6	7	8	9	10	11	12	VIF
Performance expectancy	0.709												1.801
Effort expectancy	0.612***	0.706											1.919
Social influence	0.148*	0.136†	0.753										1.103
Facilitating condition	0.652***	0.675***	0.282***	0.708									1.586
Hedonic motivation	0.511***	0.574***	0.277***	0.600***	0.738								1.550
Price value	0.163*	0.085	0.182*	0.133†	0.412***	7.707							1.221
Habit	0.613***	0.578***	0.229**	0.650***	0.657***	0.419***	0.709						1.714
Brand trust	0.423***	0.307***	0.187**	0.389***	0.468***	0.417***	0.632***	0.717					1.342
Brand extension fit	0.242**	0.188*	0.141*	0.235**	0.457***	0.417***	0.508***	0.377***	0.713				1.300
Use intention	0.621***	0.579***	0.086	0.688***	0.623***	0.216**	0.599***	0.491***	0.388***	0.714			1.885
Use continuance	0.598***	0.577***	0.154*	0.590***	0.523***	0.200**	0.565***	0.548***	0.283***	0.623***	0.750		1.294
Use behaviour	0.623***	0.435***	0.048	0.636***	0.556***	0.166*	0.688***	0.494***	0.295***	0.572***	0.584***	0.714	1.714

***. Correlation is significant at the 0.01 level (2-tailed). ** Correlation is significant at the 0.05 level (2-tailed). †Correlation is significant at the 0.10 level (2-tailed).



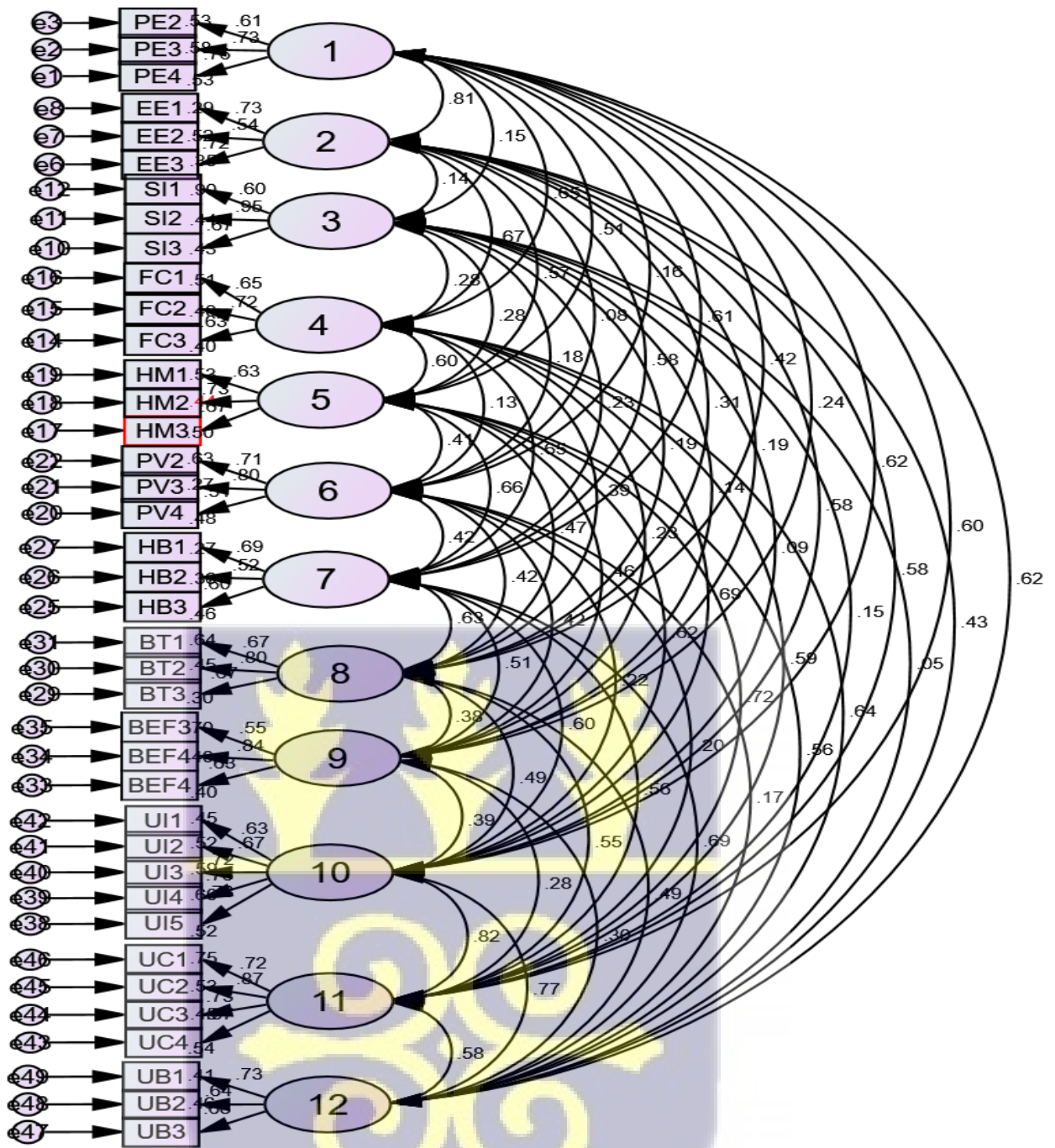


Figure 6.1: Final measurement model

Note(s); PE = Performance expectancy; EE = Effort expectancy; SI = Social influence; FC = Facilitating condition; HM = Hedonic motivation; PV = Price value; HB = Habit; BT = Brand trust; BEF = Brand extension fit; UI = Use intention; UC = Use continuance; UB = Use behaviour

6.3 Measurement Model Analysis

The proposed model for this research is best tested using a dependence method, such as regression analysis or Structural Equation Modelling (Hair et al., 2014). However, with the

complexity of the framework/model and interrelationships between latent constructs, regression analysis was not considered suitable; therefore, the application of Structural Equation Modelling. Structural model testing is indeed the central step of an SEM analysis, in which all constructs are validated, followed by an appropriate measurement model fit (Anderson & Gerbing, 1988; Kline, 2005). Blunch (2008) confirms this, stating that the structural model is where the causal relationships among latent variables are described. Moreover, Byrne (2013) believes that the primary concern of a structural model is to specify which latent constructs directly or indirectly influence the values of other latent constructs within the model. Therefore, the current study's structural model sought to test some hypothetical propositions of the conceptual framework: Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Condition, Hedonic Motivation, Price Value, Habit, Brand Trust, Brand Extension, Fit Use Intention, Use Continuance, and Use Behaviour.

6.3.1 UTAUT 2 Antecedents on Use Intention

The results indicate that performance expectancy exerts a positive and statistically significant influence on use intention ($\beta = 0.210, p < 0.001$). In the Ghanaian context, this suggests that intentions to adopt digital payment solutions are driven primarily by perceived functional value rather than abstract attitudes toward technology. Consumers appear motivated by the extent to which digital payments improve everyday transactional outcomes such as speed, reliability and convenience. The role of novelty or experimentation may be minimal. The finding reinforces the argument that payment frictions are still common in Ghana and adoption decisions are grounded in practical utility rather than exploratory use.

In contrast, effort expectancy does not significantly influence use intention ($\beta = 0.059$, $p > 0.05$). This result implies that ease of use has reached a baseline level of acceptance among consumers and no longer acts as a differentiating factor in shaping adoption intentions. Given the widespread penetration of mobile interfaces in Ghana, usability may be taken for granted rather than actively evaluated. As a result, reductions in perceived effort alone are insufficient to stimulate adoption unless accompanied by clear performance or trust-related benefits.

Similarly, social influence does not have a significant effect on use intention ($\beta = -0.045$, $p > 0.05$). This suggests that decisions to adopt digital payment services are largely individualised rather than socially driven. Rather than relying on peer endorsement or social pressure, consumers appear to form intentions based on personal assessments of value and risk. The finding challenges assumptions that collective norms or peer usage automatically accelerate adoption in emerging markets, especially for financial technologies that carry perceived personal risk.

By contrast, facilitating conditions are strongly and significantly related to use intention ($\beta = 0.290$, $p < 0.001$). This highlights the central role of enabling infrastructure, such as network reliability, device access, agent availability and system support, in shaping adoption intentions. In the Ghanaian digital payment environment, the presence of supportive conditions appears to lower perceived barriers and make adoption feasible in everyday contexts. This underscores the structural nature of adoption, where intentions are shaped not only by perceived benefits but also by the consumer's ability to integrate the service into daily routines.

The results further indicate that hedonic motivation has a positive and significant influence on use intention ($\beta = 0.208, p < 0.001$). Beyond functional value, consumers are more inclined to adopt digital payment solutions when the usage experience is perceived as pleasant or satisfying. This suggests that experiential elements e.g. interface design, feedback mechanisms, and perceived transaction smoothness, play a complementary role alongside utilitarian benefits. Adoption is therefore not purely instrumental but also shaped by the service's perceived engagement during use.

Conversely, price value does not significantly influence use intention ($\beta = 0.052, p > 0.05$). This finding suggests that consumers do not evaluate digital payment adoption primarily through a cost–benefit lens. Instead, considerations such as security, reliability, and convenience appear to outweigh transaction costs or perceived pricing advantages. Competing on price alone is therefore unlikely to be an effective adoption strategy in this context.

Finally, habit does not significantly predict use intention ($\beta = 0.073, p > 0.05$). This indicates that adoption intentions are not driven by automatic or routinised behaviour. Rather than being an extension of existing habits, digital payment adoption appears to be a deliberative decision shaped by perceived value, enabling conditions, and experience-related factors. This supports the view that, in contexts where multiple payment options coexist, habit formation may occur after adoption rather than serving as a precursor to it.

6.3.2 Use Intention on Use Behaviour

The findings depict their strong and significant positive relationship with use intention and use behaviour ($\beta = 0.603, S.E. = 0.045, p = 0.000$). In simpler terms, this means that consumers' intention to use the digital payment brand extension will act as strong and

significant predictor of their actual usage and adoption. The inference drawn demonstrates that the formation of consumer intention to use such services is the step that a digital payment provider wants to take forward in emerging markets for the realisation of real-world usage and wide diffusion. Consumers showing a higher degree of intent to use digital payment solutions are likely to follow through and start actively using the payment methods in their everyday financial transactions and behaviour. This finding stresses the importance of strategies by digital payment providers to form and strengthen consumers' usage intentions, such as highlighting brand distinctiveness or brand extension leverage in this particular case.

6.3.3 Use Behaviour on Use Continuance

The results indicate a highly positive association between use behaviour and use continuance; $\beta = 0.366$, S.E. = 0.059, $p = 0.000$. This result, therefore, means that once such technology commences its usefulness to emerging market consumers by being put into use, the consumers are likely to continue using it over time. This means that getting them to drive early adoption and first use is quite important, since it will be followed by continued usage over the long term. The positive relationship between use behaviour and use continuance underlines the need for a positive user experience and maintenance of the benefits that digital payments offer over traditional payment systems. If consumers derive sufficient satisfaction from the performance, convenience, and reliability of digital payment options, they are more likely to integrate these solutions into their financial behaviour as regular means.

6.3.4 Use Behaviour on Brand Extension Fit

The findings show a highly positive effect of use behaviour on brand extension fit with $\beta = 0.186$, S.E. = 0.055, and $p = 0.000$. This suggests that consumers' actual use of digital

payment solutions will closely align with their perceptions of how well the new payment technologies "fit" with the existing brands and services they are used to. That is to say, in the context of emerging markets, securing a robust fit is important for digital payment providers in terms of driving consumer adoption and usage. If consumers feel coherence and compatibility between a digital payment offer and a wider brand ecosystem, they are more likely to engage in active use and welcome the new payment solution. Brand reputation and trust, and the smooth integration of digital payment functions into current platforms and services, serve as prominent factors shaping consumers' perceptions of brand extension fit. Digital payment providers are better situated to make use of established brands and create a feeling of continuum and familiarity. They can, therefore, more plausibly induce consumers to adopt these new technologies in their usual financial behaviours and daily life.

6.3.5 Use Behaviour on Parent Brand Trust

The findings show that there is a positive and significant relationship between use behaviour and parent brand trust, with $\beta = 0.439$, S.E. = 0.061, and $p = 0.000$. This shows that the perceived consumer trust in the parent brand was considered an issue in driving actual use of the service in digital payment pertaining to that brand. Therefore, if people trust a brand operating a digital payment platform, they are most likely to embrace and be involved in active use of the platform. In digital payment brands, trust in the parent brand can be viewed as the standing of the brand for being reliable and perceived competent at handling sensitive financial transactions. Trust in the parent brand would make the consumers confident in the security, privacy, and general functionality of the services concerning digital payments. Having this trust will eventually mean that more consumers will use the brand's digital payment offerings since they will feel that less risk is involved, and that more assurance is given about their decisions to use them.

6.3.6 Brand Extension Fit on Use Continuance

The results suggest an insignificant interaction between the fit of brand extension and continuance usage: $\beta = 0.075$, S.E. = 0.050, $p = 0.174$. All this suggests that the perceived fit or similarity of core brand offerings and extensions has no significant influence on the individual's intentions towards the continued use of the products or services of a given brand over a period of time. This means that, in this case, other factors like the brand's inherent quality, functionality, or perceived value of the offerings might be more critical for the individual to go ahead and carry on using the brand. It suggests that even where a brand extension is not seen as being a natural or logical 'fit' with the brand's core identity, it will not necessarily harm the consumer's in-group willingness to maintain their relationship with the brand and continue using its products or services.

6.3.7 Parent Brand Trust on Use Continuance

The findings indicate a positive and significant relationship between brand trust and use continuance, $\beta = 0.284$, S.E. = 0.048, $p=0.000$. Therefore, consumers' trust in the parent brand is a crucial driver for the long-term ongoing usage of the brand's digital payment services. This suggests that the higher the degree of trust that consumers have in the parent brand of any digital payment platform, the more they will be comfortable with its continued usage and engagement over an extended period. In this case, the degree of trust in the parent brand means brand's reputation, and regarding its reliability and perceived competence in securely handling financial transactions. Consumers who have trust in the parent brand feel more confident in the safety and privacy of, and overall performance of, digital payment services. This, in return, could show that consumers are most likely to continue using the digital payment offerings made by the brand, as there is a perceived lower risk and a higher level of security in continued usage of the platform.

Table 6. 12: Structural model (Direct effects)

Path	β	S.E.	C.R.	P	Remark
H1a.Performance Expectancy→ Use Intention	.210	.055	3.846	<.001	Supported
H1b.Effort Expectancy→ Use Intention	.059	.047	1.252	.211	Not Supported
H1c.Social Influence → Use Intention	-.045	.030	-1.519	.129	Not Supported
H1d.Facilitating Condition → Use Intention	.290	.055	5.276	<.001	Supported
H1e.Hedonic Motivation → Use Intention	.208	.049	4.228	<.001	Supported
H1f.Price Value → Use Intention	.052	.040	1.302	.193	Not Supported
H1g.Habit → Use Intention	.073	.047	1.537	.124	Not Supported
H2. Use Intention→ Use Behaviour	.603	.045	13.536	<.001	Supported
H5. Use Behaviour → Brand Extension Fit	.186	.055	3.385	<.001	Supported
H6. Use Behaviour → Parent Brand Trust	.439	.061	7.163	<.001	Supported
H7. Use Behaviour → Use Continuance	.366	.059	6.238	<.001	Supported
H8. Brand Extension Fit → Use Continuance	.075	.055	1.359	.174	Not Supported
H9. Brand Trust → Use Continuance	.281	.050	5.681	<.001	Supported

Note: β is Unstandardized coefficient; S.E is Standard error; C.R is critical ratio; p-value is probability value

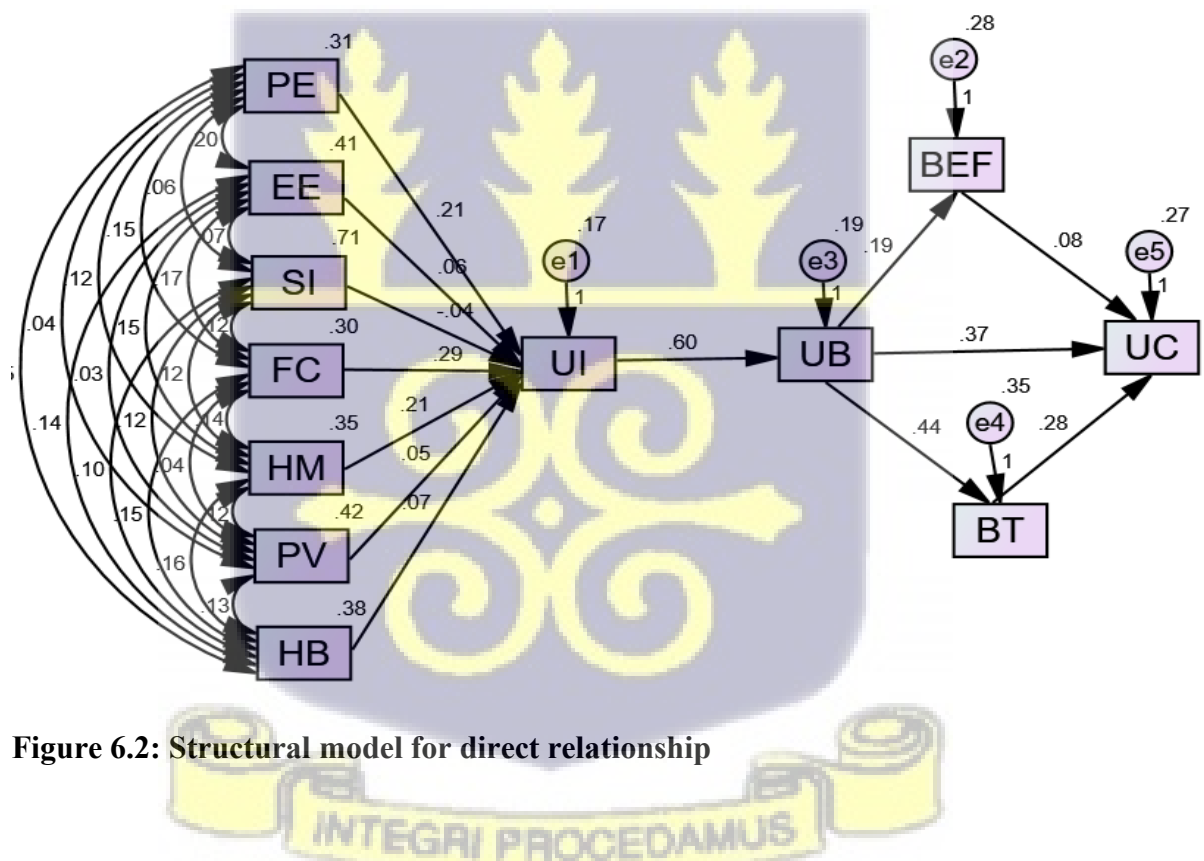


Figure 6.2: Structural model for direct relationship

6.4 Tests for Indirect Effects (Mediation and Moderation)

6.4.1 Test for Mediation

The section presents the mediating effects of use behaviour, brand extension fit, and brand trust on the relationship between these factors and the continuance of use of digital payment

solutions in emerging markets. Mediation analysis was conducted by applying Hayes's PROCESS macro for SPSS, which is an all-inclusive tool for the estimation of direct and indirect effects in mediation models (Hayes, 2021). PROCESS makes use of bootstrapping methods for estimating confidence intervals for indirect effects, thus offering a strict test of mediation hypotheses (Preacher & Hayes, 2008). The following sections detail the results of two mediation analyses: first, how brand extension fit mediates the role of use behaviour on use continuance, and second, how brand trust does. These analyses give insights into mechanisms by which the use of digital payment solutions by consumers affects their intention to continue using the technologies with implications for providers in emerging markets.

The indirect effect of the use behaviour on the continuance, mediated by fit, was not significant (Indirect Effect = 0.014, SE = 0.057, LLCI = -0.004, ULCI = 0.045). The finding suggests that, in emerging markets, how a brand's extension is perceived to fit its image does not strongly mediate the relationship between consumers' making use of digital payment solutions and their continued use of these solutions. It simply means that, even when consumers use a given digital payment method frequently, perceptions of brand extension fit may not influence them to continue using it. It behoves the providers to focus on other factors, such as improving user experience and trust, if they are to ensure sustained use of digital payment technologies.

It also detects an indirect effect of use behaviour on use continuance through brand trust: indirect effect = 0.124, SE = 0.056, LLCI = 0.023, ULCI = 0.228. This means that, in emerging markets, brand trust is a very important mediator in the link between the consumers' use of digital payment solutions and their continued use of these solutions. The more a consumer uses a digital payment platform, the more their trust in the brand

increases, improving their chances of continuing to use the platform. Therein lays the need to establish and engender trust as a sure way to promote long-term adoption and usage of digital payment technologies. Therefore, providers must emphasise transparency, security, and reliability to engender trust and assure user retention.

Table 6. 13: Structural model (Indirect effect)

Relationships	Indirect Effect	SE	LLCI	ULCL	Remarks
<i>UB</i> → <i>BEF</i> → <i>UC</i>	.014	.057	-.004	.045	Not Significant
<i>UB</i> → <i>BT</i> → <i>UC</i>	.124	.056	.023	.228	Significant

6.4.2 Test for Moderation

The section examines the moderated effects of brand extension fit and brand trust on the relationship between the use intention and outcome variable in a digital payment solution context in emerging markets. In the analysis, Hayes' PROCESS macro for SPSS was used, which is a very strong tool in the estimation and probing of interactions within moderation models (Hayes, 2021). PROCESS offers bootstrapping methods to compute confidence intervals of the interaction effects, therefore providing a more robust approach by which to test moderation hypotheses. The following sections depict the results of two moderation analyses: first, that of brand extension fit as a moderator of the relationship between the intention to use and outcome variable; second, that of brand trust in the same relationship. These analyses provide deep insights into the factors that relate to brands and their strength of use in relationship intentions concerning consumers' intended use of digital payment solutions and actual usage outcomes; they also carry important implications for providers in emerging markets.

A significant positive interaction effect on the outcome variable is revealed between use intention and brand extension fit: Coeff = 0.301, SE = 0.052, $t = 4.951$, $p = 0.000$, LLCI = 0.421, ULCI = 0.182. This means that the degree of perceived congruence or similarity

between a brand and its extensions is important in translating an individual's intentions to use a product or a service into actual usage. This result supports the idea that with a good brand extension fitting co-branded or line-extended to a brand's core identity, the relation between an individual's intention of using a product and actual usage behaviour increases. In other words, if the brand extension is perceived as a natural and logical extension of the brand, customers are more likely to follow through on their expressed intentions to use the product. When this perceptual link is not made, the link between use intention and use of the product behaviour may be weakened. It just indicates that customers are less likely to convert intentions to usage when the brand extension is found incongruent or low in similarity to the established identity and core product line of the brand.

The analysis also shows an important positive interaction effect between the intention to use and brand trust on the outcome variable: Coeff = 0.142, SE = 0.022, t = 6.417, p = 0.000, LLCI = 0.185, ULCI = 0.098. This suggests that the true measure of intentions to use a product or service is the extent to which consumers trust the brand. The implication is that consumers who have high levels of trust in a brand may act on these intentions with use behaviours that are relevant to the respective brands. Brand trust acts as a bridge to bolster the linkage between the initial intention to employ a product and the subsequent use. Nevertheless, the trust in brands will be relatively lower and hence distance the association between intending-to-use behaviour and a usage behaviour. It implies that even if consumers intend to use the product, their probability of acting on that intention will be weaker if they do not trust the brand behind the product enough.

Table 6. 14: Structural model (interaction effect)

Relationships	Coeff	se	t	p	LLCI	ULCI	Remarks
UI*BEF-UB	.301	.052	4.951	.000	.421	.182	Supported
UI*BT-UB	.142	.022	6.417	.000	.185	.098	Supported

6.5 Slope Analysis of Interaction Effects

The slope analysis presented in Table 6.15 provides insights into how the relationship between Use Intention (UI) and Use Behaviour (UB) changes under different levels of Brand Extension Fit (BEF) and Brand Trust (BT). The analysis evaluates the strength of the UI-UB relationship at low, high, and mean levels of BEF and BT, highlighting the moderating effects of these variables. When BEF is low (-1SD), the relationship between UI and UB is strong and highly significant ($B = 0.634$, LLCI = 0.545, ULCI = 0.724). This implies that when consumers perceive a weaker fit between the brand and its extensions, their intention to use the product significantly drives their actual usage behaviour. Conversely, when BEF is high (+1SD), the relationship weakens considerably ($B = 0.308$, LLCI = 0.164, ULCI = 0.453), suggesting that a strong perceived fit reduces the dependency on intention for driving behaviour. At the mean level of BEF, the relationship remains moderately strong ($B = 0.471$, LLCI = 0.370, ULCI = 0.573), indicating that, on average, UI has a notable impact on UB, but the effect is tempered by the perceived fit.

Similarly, the relationship between UI and UB is more pronounced when BT is low (-1SD), with a significant coefficient ($B = 0.473$, LLCI = 0.382, ULCI = 0.564). This suggests that when consumers have lower trust in the brand, their usage behaviour is strongly driven by their intention to use the product.

Table 6. 15: Slope analysis of interaction effects

Path	Levels of BEF	B	LLCI	ULCI
UI → UB	Low (-1SD)	.634	.545	.724
	High (+1SD)	.308	.164	.453
	Mean	.471	.370	.573
	Levels of BT			
UI → UB	Low (-1SD)	.473	.382	.564
	High (+1SD)	.292	.175	.409
	Mean	.383	.282	.484

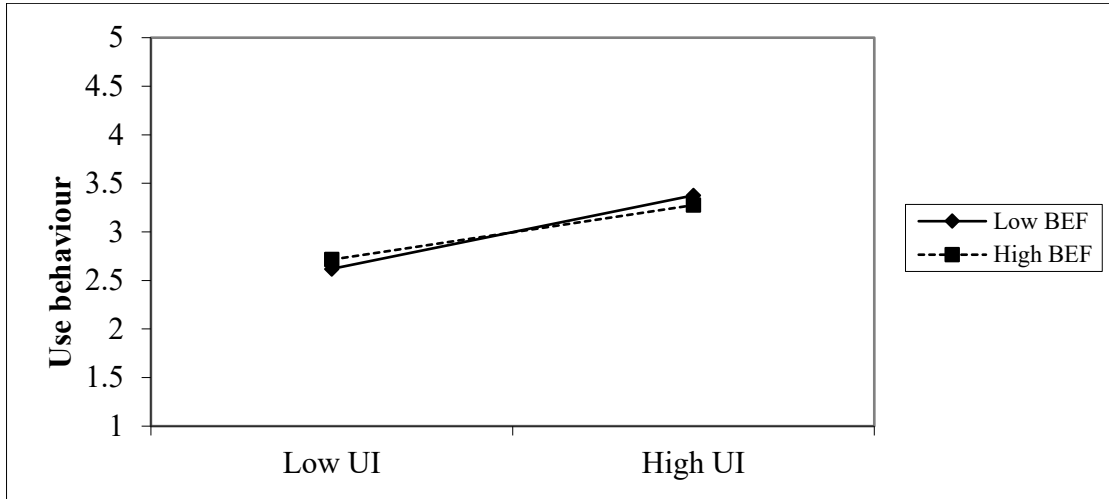


Figure 6.3: Interaction graph for the role of brand extension fit (BEF)

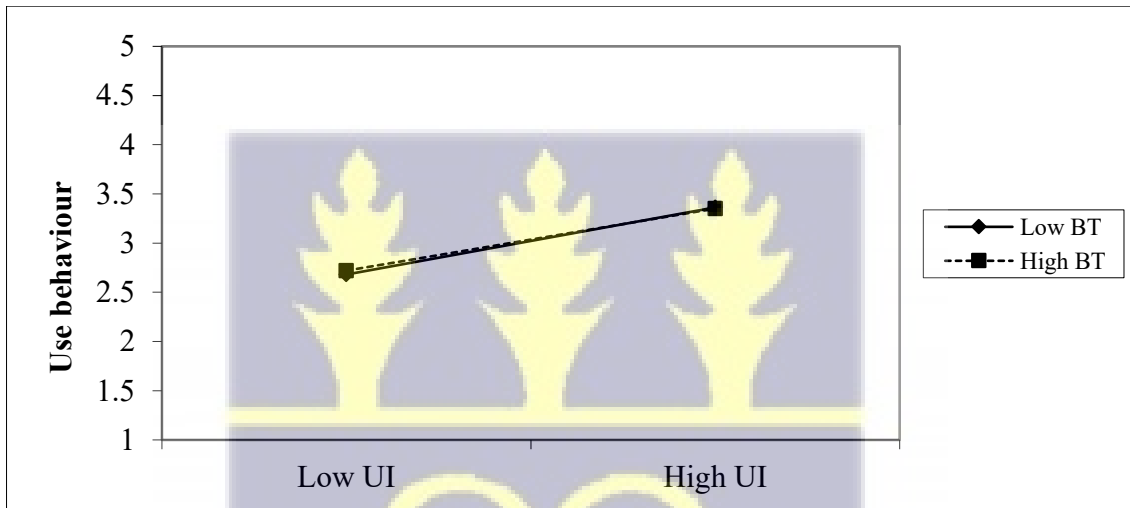


Figure 6.4: Interaction graph for the role of brand trust fit (BT)

6.6 Chapter Summary

Chapter seven analyses the adoption of digital payment solutions using different statistical techniques. The adoption first addresses the problem of non-response bias, followed by descriptive statistics showing the central tendency and variability of the data. Further, this chapter elaborates on the exploratory and confirmatory factor analyses used in identifying and validating the study constructs. In the end, the structural model was tested in order to give insight into the relationship of these constructs with factors influencing the adoption and continued use of digital payment solutions. This holistic approach furthers the improvement in understanding digital payment behaviour in emerging markets.

CHAPTER SEVEN

DISCUSSION OF RESEARCH FINDINGS

7.1 Chapter Overview

The previous chapter outlined the study's empirical results and analysis, including the evaluation of the model, the estimation of results, and the testing of the conceptual framework. This chapter discusses the empirical outcomes of hypothesis testing, highlighting their significance in relation to findings from other studies in the literature. The chapter is divided into two main sections: the first offers a brief background to the study, while the second delves into the study's findings, based on the research objectives presented in the introductory chapter. Finally, a chapter summary recapitulates the key issues addressed throughout the chapter.

7.2 Discussion of Study Findings

This study was motivated by the limited attention to brand-level factors in technology adoption research, especially in models such as UTAUT2. While these models have proven useful in predicting adoption behaviour across various technologies, they generally focus on the attributes of the innovation category rather than the brand offering it. This has created a gap in understanding how branding, or brand extension, and trust in the parent brand specifically influence consumer decisions in a digital payment ecosystem replete with brand extensions.

The thesis argued that, given the flux of innovations in digital payments, brand extension theory offers valuable insights for addressing this gap. Many digital payment platforms in emerging markets are not standalone innovations. They are rolled out by established telecommunications or financial brands, which means consumers often interpret them

through the lens of existing brand relationships. This is against the backdrop of prior studies which show that higher trust in the parent brand reduces perceived risk and boosts acceptance of brand extensions (Echambadi et al., 2006; Winanti & Fernando, 2024). A meta-analysis done by Peng et al. (2023) also show that brand extension fit - the perceived congruence between the core brand and its extension - is the strongest predictor of extension success.

Although the UTAUT2 model was applied in this study, it served as a supporting framework rather than the central theoretical lens. The primary aim was to understand how traditional adoption drivers interact with brand-based constructs to shape consumer behaviour. Specifically, the study explored the relationships among UTAUT2 antecedents, use intention, use behaviour, and use continuance. It further examined how brand extension fits, and parent brand trust operates as a moderator or mediator within these relationships. The insights generated are intended to inform digital service providers and policy actors seeking to promote long-term consumer engagement in emerging economies with a competitive fintech marketplace.

The discussion in this chapter is organised around the five core objectives that guided the study. These objectives were formulated to examine both established and underexplored factors influencing the adoption and continued use of digital payment brand extensions in an emerging market setting. Specifically, the study sought to: (a) identify the antecedents of use intention of digital payment brand extensions; (b) examine whether brand extension fit moderates use intention and use behaviour; (c) examine whether brand extension fit mediates use behaviour and use continuance; (d) assess whether parent brand trust moderates the relationship between use intention and use behaviour; and (e) assess whether parent brand trust mediates the relationship between use behaviour and use continuance.

The findings are presented and discussed in the sections that follow. Where applicable, results are interpreted in light of existing empirical evidence and theoretical propositions, with attention to how they converge with or depart from prior studies. The discussion also examines the contextual dynamics of Ghana as an emerging market, particularly with respect to temporal, regulatory, infrastructural, and brand-related factors shaping consumer behaviour in the digital financial services space.

7.2.1 Objective 1: Antecedents of Use Intention of a Digital Payment Brand

Extension

This section addresses Objective 1 of the study: to examine the antecedents of use intention of digital payment brand extensions. Seven hypotheses were tested based on UTAUT2 constructs. Each result is discussed in terms of its consistency with existing literature and then analysed within the specific realities of the Ghanaian digital payment landscape.

7.2.1a Performance Expectancy → Use Intention

The finding that performance expectancy has a positive and significant influence on use intention is strongly supported by prior literature. It aligns with Venkatesh et al. (2012) and a series of follow-up studies in emerging markets (Alalwan et al., 2017; Oliveira et al., 2016; Patil et al., 2020). Performance expectancy consistently ranks among the strongest predictors of intention to use digital technologies. In studies from other emerging markets, digital payment users gravitate toward platforms perceived as saving time, reducing transaction costs, and enhancing control over personal finances. As digital tools become more mainstream, users begin to judge them by tangible, outcome-oriented criteria. Simply put, what the digital payment propositions can “do” for the user trumps novelty or peer recommendation.

The prominence of performance expectancy reflects a maturing consumer base in Ghana that increasingly demands efficiency, reliability, and speed from digital payment platforms. This is particularly significant in a setting where cash transactions still dominate, but digital alternatives are gaining traction. The platform studied, MTN MoMo, has transitioned from a novel solution to a basic utility, meaning users now assess it through utilitarian lenses. Users expect stability and value-added services as mobile penetration increases and merchant ecosystems expand. This suggests the market is entering a ‘value optimisation’ phase in the technology life cycle, where digital payment solutions are no longer seen as supplementary but essential.

7.2.1b Effort Expectancy → Use Intention

Effort expectancy was not a significant predictor of use intention in this study. This finding diverges from earlier applications of UTAUT2 in nascent markets where ease of use was critical (Venkatesh et al., 2012; Alalwan et al., 2017). However, it is consistent with more recent studies in digitally advanced segments where effort expectancy declines in significance over time (Soodan & Rana, 2020; Manoharan et al., 2021). As user proficiency increases and digital payment interfaces become more intuitive, consumers take ease of use for granted and shift their attention to performance and reliability.

The insignificance of effort expectancy in Ghana likely reflects a transition in consumer familiarity and system design. Over the past decade, MTN and other service providers have streamlined onboarding and transactional processes, lowering the perceived effort involved. The growth of agent-assisted services has also reduced friction for new users. Mobile phone literacy has improved significantly as a result of brand-level investments, with many consumers engaging in multiple digital tasks daily. Ease of use no longer

differentiates one service from another in such contexts. From a lifecycle perspective, this indicates that digital payment usage in Ghana has evolved beyond early adoption, where system learning mattered most. Now, usage decisions are governed more by long-term utility and support structures.

7.2.1c Social Influence → Use Intention

Social influence did not have a statistically significant effect on use intention, which contradicts much of the early technology adoption literature (Venkatesh et al., 2012; Oliveira et al., 2016). Many studies emphasised that peer pressure, family recommendations and social networks were central to digital payment uptake. In other emerging markets, early adopters often relied heavily on trusted social contacts to validate new technologies (Alalwan et al., 2017; Patil et al., 2020). However, recent studies suggest that as digital technologies diffuse and become institutionalised, social influence loses its predictive strength (Widodo et al., 2019; Utami & Irwansyah, 2022).

The decline of social influence in Ghana may indicate a post-normative phase of digital payment adoption (Senyo & Osabutey, 2020). Initially, MTN MoMo uptake may have been driven by peer validation and community trust. Fifteen years on, adoption may have become individualised, shaped more by personal experience and perceived benefits than by social conformity. MTN MoMo may have achieved widespread cultural and market legitimacy, reducing the relevance of social cues. Regulatory enforcement of SIM registration and Know Your Customer (KYC) protocols may also have reframed mobile money as a personal, traceable activity, further weakening peer influence. This shift suggests that the platform has crossed a behavioural threshold where digital payment is no longer perceived as an innovation requiring social approval but as a basic utility shaped by individual needs.

7.2.1d Price Value → Use Intention

The finding that price value did not significantly influence use intention aligns with some recent studies but contradicts earlier expectations within UTAUT2 literature. Venkatesh et al. (2012) and subsequent studies (Soodan & Rana, 2020) suggested that in resource-constrained contexts, perceived value for money plays a major role in technology adoption. However, in environments with similar fee structures or subsidised pricing models, the role of price diminishes (Oliveira et al., 2016). Other studies have also found that once a service is viewed as essential, price elasticity of demand reduces significantly.

In Ghana, pricing for digital payment services is largely uniform across providers and regulated to avoid customer exploitation. This regulatory predictability may reduce consumer sensitivity to transaction costs. Moreover, the marginal costs of MoMo transactions may be perceived as acceptable, particularly when compared to the opportunity costs of traveling to a bank or handling large volumes of cash. This further explains why price value does not serve as a differentiator in use intention. The current usage patterns suggest that consumers may be willing to absorb moderate fees in exchange for convenience, accessibility, and security.

7.2.1e Facilitating Conditions → Use Intention

Facilitating conditions significantly influenced use intention, which is consistent with a broad body of research affirming the importance of technical and environmental support in technology adoption (Pal et al., 2020; Widodo et al., 2019; Patil et al., 2020). UTAUT2 literature positions facilitating conditions as a proxy for infrastructural readiness, including device availability, network coverage and system interoperability. In developing markets, where institutional and infrastructural gaps remain, these external enablers are often essential for converting intention into action.

The results show that facilitating conditions remain a cornerstone of digital payment engagement in contexts like Ghana. Although mobile penetration is high, inconsistent network quality, irregular power supply and agent distribution challenges still shape consumer expectations. MTN MoMo's extensive footprint offers users a sense of reliability and convenience that directly influences intention. Facilitating conditions in this case are not just operational supports; they are viewed as symbols of brand credibility and reliability. The presence of a reliable agent network, fast-loading interfaces, and functional complaint resolution systems enhances user trust and confidence. They also bridge the gap between intention and action in a market still marked by regulatory and infrastructural tensions.

7.2.1f Hedonic Motivation → Use Intention

The study found a significant relationship between hedonic motivation and use intention. This finding is somewhat mixed in existing literature. While earlier studies by Venkatesh et al. (2012) and Oliveira et al. (2016) reported strong correlations, others argue that enjoyment diminishes as users transition from curiosity-driven to routine use (Soodan & Rana, 2020; Manoharan et al., 2021). However, in contexts where the user base is heterogeneous - with early and mid-stage adopters coexisting - hedonic value may persist longer (Sivathanu, 2019).

In Ghana, the sustained influence of hedonic motivation may reflect the coexistence of varying levels of digital maturity. For less experienced users, mobile money still offers novelty and emotional gratification, particularly when contrasted with traditional banking systems. The enjoyment factor is also reflective of a heavy remittance culture in Ghana, where gratitude from recipients of digital payments may create some emotional gratification for senders. This result points to a transitional phase in the technology life

cycle, where digital payments are simultaneously functional and entertaining for different segments of the market. It also suggests that hedonic design remains a valid strategy for deepening engagement, especially among less frequent users or newer adopters.

7.3.1g Habit → Use Intention

Habit did not significantly influence use intention in this study. This finding contradicts much of the UTAUT2 and post-adoption literature, where habit is often found to be a robust predictor of continued intention (Megadewandanu et al., 2016; Deny, 2019). Studies in some emerging markets show that once users become accustomed to using digital payment platforms, usage becomes automatic and self-reinforcing. A lack of significance in Ghana suggests that digital payment usage may still be episodic or discretionary rather than routinised.

The weak role of habit may reflect fragmented usage patterns in Ghana. While overall adoption is high, usage frequency varies widely across demographic and economic groups. For many consumers, digital payments are used intermittently. They are often linked to specific events like salary payments or remittances rather than embedded into daily routines. Interruptions in service, fee fluctuations, or distrust in agents may also inhibit the formation of stable habits. The outcome of the research is noteworthy because without deeper behavioural embedding, digital payment systems risk plateauing in usage despite high initial uptake.



7.2.1h Use Intention → Use Behaviour

The study found a strong and statistically significant relationship between use intention and actual use behaviour. This finding is consistent with the foundational assumptions of the UTAUT2 model and a wide body of empirical research (Venkatesh et al., 2012; Alalwan

et al., 2017). Numerous studies in both developed and emerging markets confirm that behavioural intention is one of the strongest predictors of actual technology use (Patil et al., 2020; Oliveira et al., 2016). Research in mobile banking and digital payment contexts across other emerging markets have highlighted that intention acts as a cognitive commitment that converts into behaviour when facilitating conditions are adequate. The strength of this relationship supports the robustness of intention-based models in predicting adoption behaviours in ICT-related services.

The strength of this link between intention and use behaviour reflects both structural readiness and growing digital maturity in the Ghanaian context. The statistics available from the National Communications Authority (NCA) of Ghana suggests that MTN MoMo has achieved near-ubiquitous market awareness. For many users, the platform has become their primary interface with formal financial systems. However, the translation from intention to action still depends on the credibility of the brand, stability of the service and immediacy of need. The reliability of agent networks (Odoom & Kosiba, 2020), the convenience of USSD channels and the trust embedded in the MTN brand lower perceived risks and facilitate the move from intention to actual usage. The consistency of service delivery becomes a key factor enabling users to act on their intentions at a point where digital payment services are transitioning from early to mainstream adoption. The strong link also underscores the importance of marketing and communication strategies that focus on creating awareness and on strengthening intent through product reliability, problem resolution and reassurance.

7.2.2 Objective 2: Brand Extension Fit Moderates the Relationship Between Use Intention and Use Behaviour

The finding that brand extension fit significantly moderates the relationship between use intention and use behaviour contributes to and extends a well-established body of branding literature. Seminal works by Aaker and Keller (1990) assert that perceived fit - the degree of similarity or complementarity between the parent brand and the extension - plays a central role in determining consumer acceptance. These studies showed that when consumers view a brand extension as a natural continuation or logical evolution of the parent brand's capabilities, they are more likely to develop favourable attitudes and proceed to adopt the extension. This conceptual foundation has been repeatedly validated across various categories, from FMCGs to services, and has gained traction in more recent scholarship dealing with intangible or experiential brand extensions.

The idea that brand extension fit may go beyond influencing attitudes to shaping behavioural outcomes is echoed in the work of Völckner and Sattler (2006) and Hem et al. (2014), who highlighted that fit serves not only as a heuristic for evaluation but also as a signal of credibility and quality. When consumers perceive a close alignment between a brand's identity and the extension offering, it reduces the cognitive dissonance that often accompanies adoption decisions, especially in uncertain or unfamiliar categories. Monga and John (2010) further argued that this mechanism becomes particularly salient in high-risk contexts such as digital services, where consumers cannot rely on physical inspection and instead draw on brand knowledge to assess the offering. Fit facilitates a smoother translation from cognitive intention to behavioural execution in these contexts, making it an essential moderator in technology adoption dynamics.

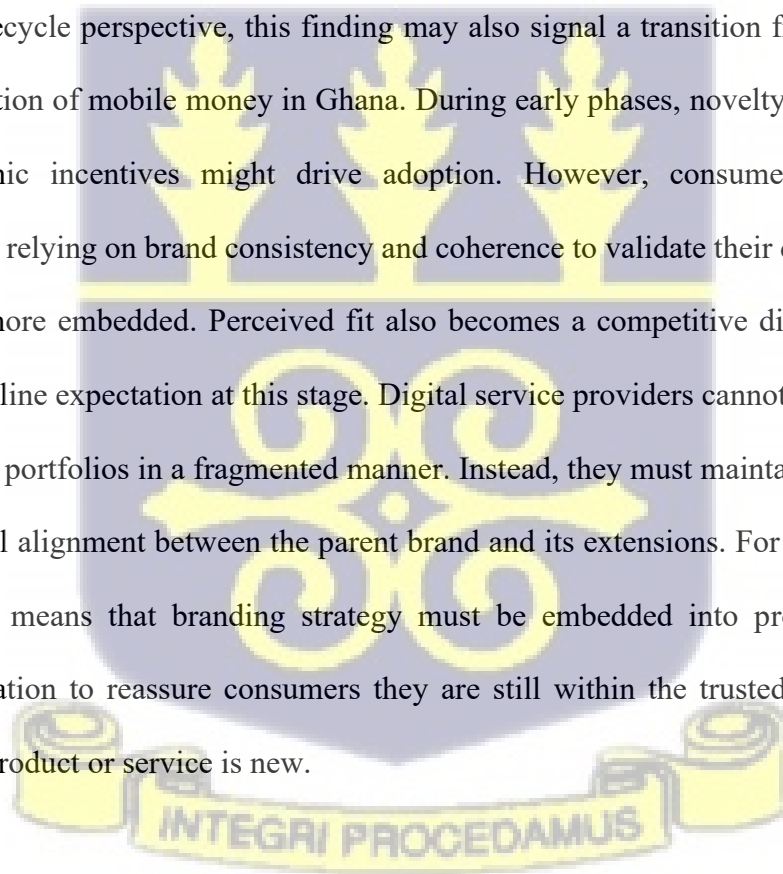
Moreover, research suggests that fit is especially powerful during early adoption or trial phases of a brand extension. Deng and Messinger (2022) found that while long-term behaviours may be influenced by satisfaction, trust, or performance experiences, initial engagement hinges significantly on perceived fit. Peng et al. (2023) also posited that consumers are more likely to act on their intentions when they perceive a brand's extension as a legitimate extension of its capabilities, values or promise. This line of argument makes the moderating role of fit particularly relevant to understanding the intention-behaviour gap, a well-documented challenge in behavioural science, where positive attitudes or intentions do not always translate into action. The current study supports this view by empirically demonstrating that brand extension fit strengthens the link between intention and behaviour, especially in a digital payment context where trust and perceived alignment carry weight in consumer decisions.

Within the Ghanaian digital payment ecosystem, the moderating effect of brand extension fit reflects perceived similarity, trust and familiarity. MTN, the parent brand in question, has enjoyed a dominant market position in telecommunications for over two decades. For many Ghanaians, it represents reliability, national coverage and innovation. The extension – MTN MoMo - while functionally distinct, benefits from this accumulated symbolic capital. When consumers perceive the mobile money service as congruent with MTN's broader service logic, they are more likely to move from thinking about using the service to using it. This reinforces the argument that fit is not just a brand equity enhancer but also a behavioural catalyst in environments where consumer confidence is key.

This dynamic is also relevant in a market undergoing a gradual digital transformation but still marked by infrastructural constraints, informal economies and regulatory uncertainty. The Ghanaian mobile money sector has experienced frequent shifts in fee structures,

transaction limits and compliance requirements. These are developments that can cause hesitation among consumers. In such an environment, a strong brand extension fit serves as a stabilising factor. It reduces perceived risk by signalling continuity and coherence between what the brand has always done and what it now offers. This is crucial when consumers are confronted with competing digital platforms, each offering similar functions but with varying levels of transparency, user experience and trust. The data suggests that those who perceive a tighter fit between MTN's core brand and its MoMo service are more willing to convert their intention into actual behaviour. This is plausible because the fit provides an interpretive frame through which to assess the legitimacy of the extension.

From a lifecycle perspective, this finding may also signal a transition from early to mid-stage adoption of mobile money in Ghana. During early phases, novelty, social influence, or economic incentives might drive adoption. However, consumers become more discerning, relying on brand consistency and coherence to validate their decisions as usage becomes more embedded. Perceived fit also becomes a competitive differentiator rather than a baseline expectation at this stage. Digital service providers cannot afford to manage their brand portfolios in a fragmented manner. Instead, they must maintain conceptual and experiential alignment between the parent brand and its extensions. For MTN and similar firms, this means that branding strategy must be embedded into product design and communication to reassure consumers they are still within the trusted ecosystem, even when the product or service is new.



7.2.3 Objective 3: Brand Extension Fit as a Mediator Between Use Behaviour and Use Continuance

The finding that brand extension fit does not significantly mediate the relationship between use behaviour and use continuance represents a divergence from dominant views in

branding literature. Seminal work by Aaker and Keller (1990) suggest that a strong perceived fit between a parent brand and its extension fosters favourable brand evaluations and encourages continued engagement. This view has been echoed in multiple studies across more recent timelines, including Völckner and Sattler (2006) and Peng et al. (2023), who argue that perceived congruence enhances the consumer-brand relationship, particularly when consumers transition from initial use to sustained adoption. In this model, fit is not only a gatekeeper for entry but also a psychological anchor that stabilises user loyalty over time.

However, other scholars have cautioned against overextending the role of fit in long-term usage contexts. Bottomley and Holden (2001) noted that while fit is often critical at the point of entry, where consumers rely on mental associations and brand familiarity to reduce uncertainty, it may lose influence after the user gains direct experience with the service. Similarly, Broniarczyk and Alba (1994) and Monga and John (2010) observed that repeated use often shifts the consumer's focus from brand-image alignment to experiential outcomes. The utility and functionality of the extension begin to matter more than whether it “makes sense” as part of the brand family. These arguments suggest that the cognitive weight of brand extension fit might diminish once users evaluate the product or service on its own merits, especially in dynamic categories like digital payments.

A related stream of research shifts the emphasis from cognitive associations to affective and functional dimensions of the consumer-brand relationship. Perceptions of quality, value and satisfaction are often stronger predictors of continued use than perceived brand fit in rapidly evolving service environments. From this perspective, brand extension fit may be less effective as a mechanism for mediating long-term digital behaviour, especially when compared to more immediate factors like service performance or perceived reliability.

The absence of a significant mediating effect of brand extension fit in the Ghanaian context is a revealing outcome. It suggests that although consumers may value consistency between a parent brand and its extensions at the entry point, this alignment does not play a decisive role in shaping continued engagement once they begin using the digital service. Once consumers experience the service and determine that it reliably supports key financial transactions, the importance of cognitive brand coherence recedes. From a lifecycle perspective, this result may also suggest that MTN MoMo has reached a stage in the product life cycle – or in the technology life cycle – where consumers’ loyalty to the proposition is evaluated independently of its parent brand. This decoupling implies a brand maturity phase where users no longer rely on inherited brand trust to justify continued engagement. Instead, their behavioural loyalty is shaped by actual service performance and problem resolution. Additionally, consumers’ continued use may also be linked to user interface design and economic rationality. Continuous innovation and consistent service quality supersede traditional brand fit once the service crosses into habitual usage.

7.2.4 Objective 4: Parent Brand Trust as a Moderator Between Use Intention and Use Behaviour

The finding that parent brand trust significantly moderates the relationship between use intention and actual use behaviour is consistent with a broad body of literature that positions trust as a fundamental construct in technology adoption, especially in contexts involving financial risk. Recent studies continue to affirm that trust plays a pivotal role in influencing consumer engagement with digital financial services, especially where perceived risks or uncertainties are high. Alalwan et al. (2017) demonstrated that trust significantly shapes the behavioural intention to use mobile payment systems in emerging market contexts.

Similarly, Gao and Waechter (2017) found that trust affects intention directly and also serves a critical function in enabling the transition from intention to behaviour in environments where users lack full transparency or institutional safeguards. More recently, Patil et al. (2020) underscored that trust in mobile payment platforms is one of the strongest predictors of technology adoption, especially where financial transactions are involved. These findings support the view that trust enables users to convert intentions into actual usage in digital payment ecosystems marked by infrastructural gaps or regulatory volatility and other perceived risks.

The contribution of this study lies in confirming and extending these prior insights within a Sub-Saharan African context, where brand-based trust is a valuable substitute for formal institutional assurances. While many models foreground functionality and fit, the data from this study reinforces the view that a strong parent brand can serve as a behavioural enabler in digital finance—particularly where consumers associate the brand with dependability, secure data handling, and long-term service provision. As such, the moderating role of parent brand trust is not incidental; it is structurally central in overcoming residual consumer hesitation and shaping consistent behavioural patterns. This affirms the evolving perspective in digital branding literature that views trust not only as an antecedent of adoption but also as a critical accelerant in converting intention into behaviour.

In Ghana, the moderating effect of parent brand trust on the intention-behaviour link is especially salient given the socio-technical and institutional context in which mobile money operates. MTN, the parent brand, has built a robust reputation through decades of consistent telecom service delivery, extensive customer engagement, and visible community investment. This credibility becomes a key asset in financial services, where many consumers are still cautious about transacting digitally. For a significant segment of the

population, particularly in lower- to middle-income brackets, trust in the service stems not from the financial product per se, but from the perceived reliability and legitimacy of the parent brand. In this light, parent brand trust acts as a behavioural trigger that enables consumers to actualise their usage intentions without requiring constant reassurance.

This dynamic is particularly relevant against the backdrop of unpredictable regulatory policies, such as the Electronic Transfer Levy (e-levy) and evolving KYC requirements, which have introduced uncertainty into the ecosystem. Yet, where trust in the parent brand is strong, these external shocks appear to have a limited effect on users' willingness to transact. This suggests that parent brand trust functions as a behavioural stabiliser. It buffers users against the impact of environmental disruptions by providing a symbolic guarantee of continuity, responsiveness, and recourse. For consumers who are navigating a fragmented digital landscape with varying levels of service quality and consumer protection, this trust becomes a form of embedded assurance that bridges intention and behaviour.

Moreover, the finding suggests that MTN MoMo may have reached a stage of brand maturity where parent brand trust substitutes for other adoption cues, such as peer influence or promotional incentives. This is significant in the context of high-risk, high-involvement services like mobile money, where reputation plays a disproportionate role. The strategic implication is clear: digital service providers must not view trust-building as a peripheral or one-time exercise. Instead, cultivating deep, parent-level brand trust through transparency, reliability and customer care can serve as a long-term lever for behavioural conversion. In competitive markets like Ghana, where many platforms offer near-identical functionality, trust in the parent brand may be the most enduring differentiator influencing whether consumer intentions translate into active and sustained use.

7.2.5 Objective 5: Parent Brand Trust as a Mediator Between Use Behaviour and Use Continuance

The finding that parent brand trust significantly mediates the relationship between use behaviour and use continuance introduces an important nuance to digital service adoption research. While much of the literature has addressed trust as a precursor to behavioural intention (Alalwan et al., 2017; Oliveira et al., 2016), fewer studies have explicitly examined its role in sustaining consumer engagement after initial use. This study provides evidence that trust in the parent brand does not merely activate the adoption process but continues to influence post-adoption behaviour by reinforcing perceptions of dependability, consistency and value delivery. Senyo and Osabutey (2020) provide implicit evidence from Ghana showing that parent brand trust reinforces users' long-term engagement with mobile money services, especially in contexts where repeated transactions require more than technical efficiency or convenience.

This mediation effect suggests that parent brand trust serves as a behavioural bridge between prior usage and future commitment. Rather than viewing use behaviour and continuance as discrete or sequential, recent research supports the notion that brand trust integrates these phases by framing how users interpret and respond to their initial experiences (Patil et al., 2020). Trust becomes a decisive factor in whether users return to a platform or explore alternatives in contexts where service quality is variable or where multiple providers compete for loyalty.

An important conclusion is that this mediating effect differs conceptually and functionally from moderation. While moderation captures how trust shapes the strength of the intention-behaviour link, mediation explains how trust transmits the effect of usage into sustained use. Trust is not simply about reducing uncertainty during early encounters in the digital

financial space; it becomes a stabilising force that validates users' past experiences and motivates future reliance. This conceptual shift is critical in understanding why some consumers transition into habitual users while others discontinue use despite satisfactory initial interactions. As digital financial ecosystems evolve and become more fragmented, sustaining trust in the parent brand may prove more crucial than expanding feature sets or pursuing aggressive pricing strategies.

In the Ghanaian mobile money context, the mediating role of parent brand trust between use behaviour and use continuance reflects a deeper cultural and economic logic. Consumers look for an assurance that the organisation behind it will remain dependable, fair and accessible over time. MTN, having cultivated a strong institutional presence across telecommunications and financial services, provides a reputational cushion that encourages users to continue engaging with its MoMo platform even in the face of occasional service disruptions, fee changes or policy shifts. This finding underscores that brand trust is not a one-off trigger for adoption but a reinforcing asset that builds with each transaction and becomes central to customer retention.

This is relevant, given the regulatory turbulence and infrastructural fragility that occasionally affect digital payment systems in Ghana. Users often have tenuous formal protections in cases of failed transactions, identity theft or network downtime. Under such conditions, trust in the parent brand substitutes for institutional safeguards and allows consumers to continue engaging with the service without constantly reassessing risk. The present finding shows that trust is not static, it is activated and reactivated by user experiences. Its accumulation over time can explain why some users stick with a platform through changing circumstances while others exit after one or two negative encounters.

Finally, the mediation effect of parent brand trust may also reflect the growing maturity of Ghana's mobile money market. In early adoption phases, novelty and peer influence may drive behaviour, but as digital payments become routine, sustained engagement is more likely to be driven by factors such as accountability, service recovery and ethical brand conduct. For digital payment providers, this means that retaining users requires ongoing trust-building initiatives: transparent communication, responsive support systems and demonstrable investment in customer wellbeing. These findings contribute to a more sophisticated understanding of brand management in digital ecosystems, where long-term success depends on sustained trust in the parent brand.

7.3 Conclusion

This chapter examined how UTAUT2 factors, brand extension fit, and parent brand trust influence the adoption and continued use of digital payment brand extensions in an emerging market. Key findings show that performance expectancy, hedonic motivation, and facilitating conditions are significant drivers of use intention, while effort expectancy, price value, social influence, and habit are less influential in the Ghanaian context. Brand extension fit strengthens the link between intention and behaviour but does not mediate long-term usage. In contrast, parent brand trust plays a central role, moderating the shift from intention to action and mediating continued engagement. These results suggest that functional value alone is not enough; trust in the brand behind the service is vital in turning initial use into loyalty.

The chapter advances theory by showing that branding constructs, particularly trust, enrich the explanatory power of technology adoption models in competitive digital markets. In Ghana, where mobile money has moved past the novelty phase, users rely more on brand credibility than peer influence or habit. Trust serves not only as a risk-reduction tool but

also as a behavioural anchor in a volatile regulatory and service landscape. The implication is clear for providers: sustained usage depends significantly on delivering a consistent, trustworthy brand experience through parent brand and its extension.



CHAPTER EIGHT

SUMMARY, CONCLUSIONS AND IMPLICATIONS

8.1 Chapter Overview

This final chapter encapsulates the entire research journey, synthesising key findings, drawing substantive conclusions, and charting potential future research pathways. It offers a comprehensive reflection on the study's academic and practical significance, providing insights into the broader implications of the investigation. The chapter is strategically organised into four distinct sections to ensure a structured and comprehensive conclusion. Initially, it revisits the core research problem and fundamental objectives, systematically summarising the primary outcomes achieved for each research goal. This foundational overview provides context and reinforces the study's original investigative purpose. The subsequent section delves into the research's theoretical and practical contributions, exploring how the findings extend academic understanding and offer actionable insights for managerial decision-making. By highlighting the study's unique value proposition, this segment demonstrates the research's relevance to both scholarly discourse and organisational strategy. Acknowledging the inherent constraints of any research endeavour, the third section candidly examines the study's limitations. This transparent approach not only demonstrates academic rigour but also provides a critical lens through which future researchers can refine and expand upon the current investigation. The chapter concludes by outlining potential research trajectories, specifically focusing on unexplored avenues related to branding strategies within small and medium enterprises. These recommendations serve as a roadmap for subsequent scholarly inquiry, inviting future researchers to build upon the foundation established by this study.

8.2 Summary of Key Findings

The first objective focused on identifying the key antecedents of use intention for digital payment brand extensions. The study found that performance expectancy, hedonic motivation, and facilitating conditions significantly influenced consumers' intention to use. These drivers point to the relevance of perceived utility, enjoyment, and infrastructural readiness in motivating adoption. In contrast, effort expectancy, price value, social influence, and habit did not show significant effects, indicating that familiarity with digital platforms and evolving user expectations may have diminished the importance of ease of use, peer influence and cost sensitivity in this context.

The second objective examined whether brand extension fit moderates the relationship between use intention and actual use behaviour. The analysis confirmed this moderating effect, showing that a strong alignment between the parent brand and its digital extension improves the likelihood that consumers will act on their stated intentions. This suggests that fit plays a catalytic role in the transition from intention to action, especially in service categories where perceived coherence enhances consumer confidence at the point of decision-making.

The third objective assessed whether brand extension fit mediates the relationship between use behaviour and use continuance. Brand extension fit did not exhibit a significant mediating effect unlike its moderating role. This implies that while fit can influence initial adoption behaviour, it may not be sufficient to sustain long-term usage depending on the stage of product or technology life cycle in the market. For more matured brand extensions, once users engage with the digital payment service, their decision to continue is likely shaped by factors beyond brand consistency, such as service reliability, perceived value or emotional connection.

The fourth objective evaluated the moderating role of parent brand trust on the link between use intention and use behaviour. The findings revealed a strong and positive moderating effect. Consumers who trusted the parent brand were more likely to act on their intention to use the digital payment service. This confirms that trust operates as an important behavioural accelerator, giving users the confidence to proceed with adoption even in the presence of environmental uncertainty or limited institutional protection.

Finally, the study explored whether parent brand trust mediates the relationship between use behaviour and use continuance. The results confirmed that parent brand trust significantly transmits the effects of prior usage into continued engagement. The result highlights trust as a pre-adoption factor and a sustaining force that reinforces loyalty and promotes habitual use. It underscores the strategic importance of brand credibility in cultivating lasting consumer relationships within competitive and evolving digital ecosystems.

8.3 Reflections

In conducting this scholarly investigation, it is essential to critically examine the methodological approaches and research processes utilised to address the core research problem and questions. This reflective analysis aims to constructively evaluate the research design, highlighting its strengths and demonstrating the appropriateness of the chosen methodological strategies. The purpose is not to criticize or diminish the research's value but to provide a comprehensive understanding of the scholarly decisions made throughout the investigative process. The reflection will focus on three fundamental dimensions of the research that fundamentally shape its scholarly contribution: theoretical foundations, conceptual framework, and research methodology. These critical components represent the intellectual infrastructure of the study, serving as key indicators of its academic rigour,

originality, and potential scholarly impact. By systematically analysing these elements, the research seeks to validate its approach and underscore the unique contributions made to the existing body of knowledge in the field.

8.3.1 Reflection on Theories

A key decision in this study was the integration of the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) with two branding constructs: brand extension fit and parent brand trust. The intent was to explain the adoption and continued use of digital payment brand extensions in a competitive context replete with digital payment brand extensions. While UTAUT2 has proven useful in numerous contexts, its application in this study was deliberately positioned as a platform from which to interrogate deeper conceptual issues. The core argument driving the research was that existing technology adoption models, though robust in predicting intention to use digital payment as a product category, do not contemplate consumers evaluations at the product brand level.

The findings of the study validated some assumptions of UTAUT2 but also exposed its limitations. Performance expectancy, hedonic motivation, and facilitating conditions aligned with the model's predictions, yet the insignificance of effort expectancy, price value, and social influence raised questions about the model's sensitivity to market maturity and brand-mediated adoption pathways. These results reaffirmed the need for theoretical flexibility, especially when studying behavioural outcomes in environments shaped by rapid digitalisation, institutional ambiguity and branding dynamics. The integration of branding constructs provided explanatory depth, especially in capturing the moderating and mediating effects of trust and fit, dimensions that the UTAUT2 does not originally account for.

In retrospect, the theoretical choice allowed for a more grounded analysis of how consumer decision-making unfolds in real-world service ecosystems. By embedding branding variables within a technology adoption framework, the study advanced a more holistic understanding of digital payment behaviour and reflects emotional anchoring and reputational inference. This theoretical hybridisation proved particularly relevant in the Ghanaian context, where long-standing consumer-brand relationships often influence technology acceptance more than system features alone. The study thus contributes to ongoing efforts to adapt mainstream behavioural models to account for the branding realities of competitive, innovation-driven product categories like digital payments.

8.3.2 Reflection on conceptual framework

While the foundation of the conceptual framework drew from UTAUT2, it expanded the model by incorporating brand extension fit and parent brand trust as potential moderators and mediators. This framework was theoretically motivated and was also conceptually responsive to the unique realities of digital payment services operating under established brand umbrellas in emerging markets. Its structure acknowledged that consumer decisions in such environments are influenced by perceptions of brand coherence and institutional trust.

Developing this hybrid framework created space to empirically test assumptions that were implied in the existing literature. The decision to position brand extension fit as both a moderator and mediator allowed the study to capture different points of influence - at the stage of adoption (intention-to-behaviour) and during sustained engagement (behaviour-to-continuance). Similarly, situating parent brand trust in dual roles helped to reveal its complex function: not just as a gateway to usage, but also as a mechanism for loyalty formation. The structure made it possible to distinguish between constructs that catalyse

initial adoption and those that sustain long-term usage. The study considers this as an important conceptual distinction in digital service contexts where novelty and retention often diverge.

While some hypothesised pathways were not supported, such as the mediating role of brand extension fit, these outcomes still offered conceptual value. The strength of a conceptual framework lies not in its predictive success alone, but in its ability to generate meaningful interpretations when expected links fail to hold. Overall, the framework enabled the study to interrogate brand–technology dynamics in a layered and context-sensitive way. It makes a valuable contribution to the literature on digital financial services and the evolving conversation on branding in technology-mediated markets.

8.3.3 Reflection on Methodology

The use of a cross-sectional approach in the study presents a methodological limitation that constrain the explanatory depth of the findings. Cross-sectional data may not account for temporal variation in consumer behaviour. This is particularly significant in the case of MTN MoMo, a digital payment service that has progressed well beyond the early adoption phase and now occupies a mature position within Ghana’s digital financial services ecosystem. The dynamics of brand trust accumulation, habitual use, and behavioural reinforcement are inherently longitudinal phenomena, and their evolution cannot be fully understood through a single snapshot. As such, the analysis may have understated the influence of constructs like habit, whose impact may vary at different stages of consumer engagement.

Additionally, the use of self-reported data raises concerns about common method variance (CMV), where shared measurement sources may inflate correlations between variables.

Although the study applied standard design controls (e.g., reverse-coded items and survey sequencing), the potential for CMV remains a threat to internal validity. Moreover, self-selection bias may have influenced the results, as respondents who were already active users of mobile money services may have been more inclined to participate, skewing the findings towards more engaged or digitally literate consumers. These biases could limit the generalisability of the conclusions, particularly in a context where digital financial exclusion still exists among certain demographic segments.

For future research, several methodological strategies should be considered. A longitudinal design would allow for tracking behavioural changes over time and provide stronger evidence of causal relationships, particularly regarding habit formation and use continuance. Experimental studies could also be employed to manipulate brand-related cues such as varying the strength of brand fit or trust indicators to test their direct impact on intention and behaviour. Furthermore, extending the analysis to include line extensions (e.g., transitions from traditional banking services to digital platforms) would allow for a comparative understanding of how consumers respond to different forms of brand-related innovation. Finally, conducting similar studies in other emerging markets beyond Ghana would offer cross-country validation and help uncover structural or cultural differences in how brand and technology adoption interact.

In sum, while the chosen methodology provided a valuable foundation for examining adoption behaviour in a mature digital payment environment given the limited resources available to a PhD thesis, it also imposed important constraints. The study recognises this limitation and suggests that a post-PhD publication strategy can follow through on the recommended redress.

8.4 Contributions and Implications of findings

8.4.1 Contributions to research

Building upon the foundational work of technology acceptance models (Venkatesh et al., 2012), this study reveals several critical findings that challenge the existing understanding of digital payment technology adoption in emerging markets. Contrary to the findings of previous theoretical models (Davis, 1989; Ajzen, 1991), the investigation found that performance expectancy, facilitating conditions, and hedonic motivation were the primary drivers of use intention, whereas traditional factors such as effort expectancy, social influence, price value, and habit made insignificant contributions. The research makes several substantial theoretical contributions that advance knowledge in technology acceptance and brand management. Primarily, the study represents a pioneering attempt to bridge the fragmented literature between information systems and marketing disciplines by integrating brand extension fit and parent brand trust into the UTAUT-2 model (Venkatesh et al., 2012). This cross-disciplinary approach offers a more comprehensive framework for understanding digital payment technology adoption, addressing a significant gap in existing academic literature (Dwivedi et al., 2019).

A significant theoretical contribution lies in challenging traditional perspectives on brand management. Unlike previous studies (Aaker & Keller, 1990), the research reveals that brand extension fit and parent brand trust operate more dynamically. The findings suggest that while brand extension fit is crucial for initial adoption, long-term usage is more significantly influenced by service quality, perceived value, and the strength of consumer-brand relationships. This insight proposes a paradigm shift in understanding how consumers interact with digital services, in which emotional connections and functional benefits may supersede cognitive assessments of brand coherence.

The study's methodological approach further contributes to theoretical development by adopting a positivist methodology in the context of an emerging market, specifically Ghana. By focusing on a market often marginalised in global technology adoption research, the study provides valuable insights into how technological innovations are perceived and adopted in developing economic environments. The research effectively demonstrates that consumers in emerging markets prioritise personal experiences and perceived benefits over social influences, a nuanced understanding that enriches existing theories of technology acceptance.

Another significant theoretical contribution emerges from the investigation of path dependency in technology adoption. The research highlights that initial user experiences profoundly shape future technological engagement, particularly in emerging economies with rapidly evolving digital payment ecosystems. This insight extends beyond mere technological acceptance, offering a more complex understanding of how consumers develop sustained relationships with digital innovations. The study also makes a critical contribution by emphasising the primacy of trust in emerging markets, where consumer confidence in digital financial technologies remains relatively nascent.

From a broader perspective, the research contributes to reducing fragmentation in technology acceptance literature by proposing a more holistic, market-oriented framework. By integrating brand-related constructs into the technological adoption model, the study offers a more comprehensive lens for understanding consumer technology adoption, moving beyond production-oriented perspectives that have traditionally dominated the field. These theoretical contributions not only advance academic understanding but also provide practical implications for digital service providers, particularly in emerging markets. The research offers a sophisticated, multidimensional approach to understanding

technology adoption that transcends traditional disciplinary boundaries, making it a significant milestone in the academic exploration of the acceptance of digital innovation.

8.4.2 Managerial/Practical Implications

The findings of this study offer several actionable insights for managers operating in the digital financial services sector, particularly in contexts like Ghana's rapidly evolving digital payment ecosystem. One of the most critical implications concerns the role of brand trust in both adoption and continued use of digital payment platforms. For dominant players such as MTN MoMo, recent structural decisions to devolve operations away from the parent telecom brand must be undertaken cautiously. The evidence from this study suggests that parent brand trust acts not just as an initial catalyst for adoption but also as a reinforcing mechanism for sustained user engagement. Therefore, any functional separation between MTN and MTN MoMo should occur strictly at the operational or regulatory level, without diluting the brand association that underpins user confidence and loyalty.

This insight has direct implications for ongoing and future partnerships. Collaborations with global financial entities such as Mastercard should be approached with sensitivity to existing brand architecture. While such alliances may enhance technical capability or global reach, they should not be allowed to disrupt or overshadow the core brand identity that has been carefully built in the local market. The strength of MTN MoMo lies in its local relevance, trust capital, and embeddedness within consumer routines. Introducing new brand cues without strategic alignment risks confusing users and weakening the consistency needed for long-term engagement. A well-managed branded house strategy, rather than a fragmented house-of-brands model, remains critical in consolidating market leadership.

For new entrants and challengers in the digital payments space, the findings highlight the scale of the brand-based advantage that incumbents such as MTN MoMo possess. Entrants seeking to gain market share must either leverage existing brand extension platforms through co-branding or interoperability agreements or prepare to make significant investments in brand building. Given the high levels of consumer trust and behavioural reinforcement associated with MTN MoMo, simply matching technical features is unlikely to shift user behaviour. Brand salience, familiarity, and emotional connection remain strong barriers to switching. Entrants must therefore think strategically about how to anchor their offerings in credible, trusted brand narratives. This may be done through alliances, endorsements or visible investment in trust-building initiatives.

In summary, digital payment providers must treat branding not as a secondary concern but as a core strategic asset. As the market matures and product features become increasingly commoditised, competitive advantage will rest less on platform functionality and more on brand coherence and institutional trust. Both incumbents and challengers must align their operational strategies with this reality if they are to sustain usage and compete effectively in trust-sensitive markets.

8.4.3 Policy Implications

This study found that price value was not a significant predictor of use intention for digital payment services, suggesting that cost considerations are no longer central to consumer decision-making in Ghana's maturing digital ecosystem. While transaction fees and levies are often assumed to deter adoption, the results challenge this assumption. In particular, the widespread concern that Ghana's Electronic Transfer Levy (e-levy) would suppress mobile money usage appears overstated. Recent data from the Bank of Ghana shows that after an initial dip following the levy's introduction in May 2022, mobile money transactions

rebounded strongly, with ecosystem activity rising by 186% between November 2022 and March 2024. Merchant payment volumes increased significantly over the same period, underscoring growing transactional engagement despite the tax. These patterns support the study's finding that users weigh functional value and brand trust more heavily than marginal transaction costs when deciding whether to adopt or continue using digital payment platforms.

This has important implications for how policymakers approach digital taxation. Rather than treating transaction levies as inherently regressive or exclusionary, the evidence suggests that taxation, if designed with fairness and communicated transparently, does not necessarily derail adoption. For example, exemptions for low-income users or low-value transfers, clear user education, and visible reinvestment of proceeds into digital infrastructure could all help offset negative perceptions. In contexts where strong brand trust and system reliability already exist, the behavioural impact of digital levies may be further muted. Policymakers should therefore reframe digital taxation as a revenue tool compatible with inclusion, especially when paired with strategies that enhance trust.

The Government of Ghana's attempts to participate in the mobile money market via E-Zwich, G-Money, and G-Pay have yielded limited success compared to MTN MoMo. This disparity likely stems from branding, not just functionality. The study shows that consumers prioritize brand trust and association when choosing digital payment platforms. Public-sector initiatives lack the deep brand equity that MTN has built over years of telecom service delivery. In digital services, especially those involving financial risk, brand credibility matters.

To enhance uptake of government-backed digital services, policymakers should shift focus from technology delivery to brand strategy. This may include co-branding with trusted

private firms or deploying targeted marketing campaigns that link public platforms to familiar and credible institutions. Effective branding can lower perceived risk and build institutional trust without sacrificing operational integrity. Additionally, partnerships should be structured to preserve brand clarity. State-backed platforms should complement rather than compete with dominant private brands. Interoperability and fair-market participation must be embedded in regulation. Government platforms need not displace market leaders, but they should offer distinct value in niche domains such as direct subsidy payments, health disbursements, or rural finance. Such focused use cases, paired with clear brand positioning, can build trust and usage over time.

8.6 Conclusion

The research makes an appreciable contribution to understanding digital payment technology adoption in emerging markets, particularly through its innovative integration of technology acceptance and brand management perspectives. By bridging the fragmented literature between information systems and marketing domains, the study provides a comprehensive framework that challenges existing theoretical assumptions about technology adoption. The investigation reveals a complex, multifaceted landscape of digital payment technology adoption that extends far beyond traditional technological determinism. Contrary to prevailing technological acceptance models, the research demonstrates that consumer adoption is not merely a function of technological features, but a nuanced interplay of performance expectations, user experience, brand perception, and trust dynamics. This finding fundamentally reshapes our understanding of technological innovation diffusion in emerging market contexts.

The study's most profound contribution lies in its demonstration of the critical roles of brand extension fit and parent brand trust in technological adoption. While previous research predominantly focused on technological push factors, this investigation

illuminates how emotional connections, perceived brand reliability, and consumer-brand relationships profoundly influence technology acceptance. The research reveals that consumers in emerging markets prioritise personal experiences, perceived benefits, and brand trustworthiness over traditional technological evaluation metrics.

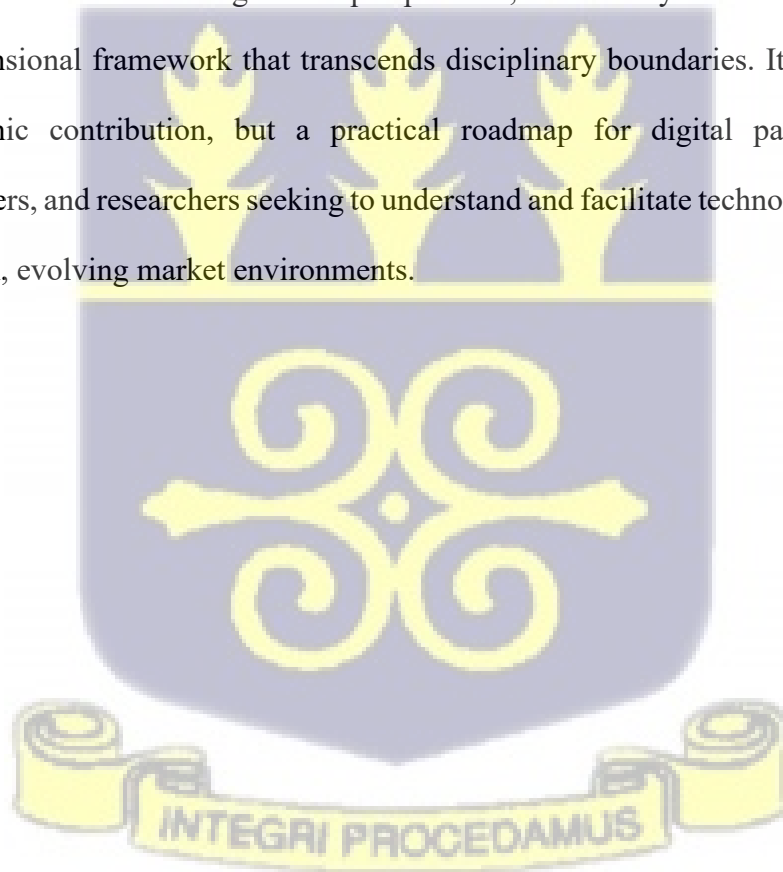
Methodologically, the research provides a robust positivist approach to examining digital payment technology adoption, offering a replicable framework for future investigations. By utilizing the UTAUT-2 model and integrating brand-related constructs, the study presents a more holistic methodology for understanding technological diffusion in complex market environments. This approach not only addresses existing research gaps but also provides a versatile template for future cross-disciplinary technological adoption studies.

The findings carry significant implications for multiple stakeholders, including digital payment providers, brand managers, policymakers, and academic researchers. For practitioners, the research offers strategic insights into developing user-centric digital payment solutions that transcend mere technological functionality. It emphasises the importance of creating enjoyable user experiences, building robust trust mechanisms, and developing emotional connections that drive long-term technological engagement.

From a theoretical perspective, the study challenges and expands existing technology acceptance models by demonstrating the critical role of branding and trust in technological adoption. It highlights the evolving nature of consumer decision-making in digital services, where emotional and practical motivations increasingly drive technology adoption and continued use. This perspective represents a paradigm shift in understanding technological diffusion, particularly in emerging market contexts. The research also underscores the significance of path dependency in technological adoption, revealing that initial user experiences substantially shape future technological engagement. This insight is particularly crucial in emerging economies with rapidly evolving digital payment

ecosystems, suggesting that digital service providers must prioritise creating positive, seamless initial interactions. While the study provides comprehensive insights, it also acknowledges its limitations and suggests avenues for future research. The research recognizes that the identified variables, while significant, are not exhaustive. Future investigations could explore additional factors such as user characteristics, personality traits, and more nuanced cultural influences that might further enhance our understanding of digital payment technology adoption.

In conclusion, this research represents a critical advancement in comprehending technological adoption in emerging markets. By integrating technological acceptance theories with brand management perspectives, the study offers a sophisticated, multidimensional framework that transcends disciplinary boundaries. It provides not just an academic contribution, but a practical roadmap for digital payment providers, policymakers, and researchers seeking to understand and facilitate technological innovation in complex, evolving market environments.



REFERENCES

- Aaker, D. A., & Keller, K. L. (1990). Consumer evaluations of brand extensions. *Journal of Marketing*, 54(1), 27-41.
- Acquah-Sam, & E. (2021). Cybersecurity and electronic payment systems in Ghana: Stakeholders' perspective. *Journal of Payments Strategy & Systems*, 15.0(1.0), 86–103.
- Acquah-Sam, E., Salami, &, & K. (2020). Digital financial services: A panacea for inclusion in emerging markets. *International Journal of Business and Economic Development*, 8.0(1.0), Unknown.
- Adaba, G. B., & Ayoung, D. A. (2017). The development of a mobile money service: an exploratory actor-network study. *Information Technology for Development*, 23(4), 668–686. <https://doi.org/10.1080/02681102.2017.1357525>
- Adobe. (2021). Digital Economy index. *Unknown Journal*, Unknown (Unknown), Unknown. <https://doi.org/https://www.adobe.com/digital-economy-index.html>
- Agyekum, F., Locke, S., & Hewa-Wellalage, N. (2020). Financial inclusion and digital financial services: Empirical evidence from Ghana. *African Journal of Science, Technology, Innovation and Development*, 12(5), 587–597. <https://mpr.aub.uni-muenchen.de/82885/>
- Agyekum, S., Opoku, A., Kwarteng, &, & K. (2022). Understanding the cost barriers to digital. *Unknown Journal*, Unknown(Unknown), Unknown.
- Ahmad, H., A., Green, C., Jiang, &, & F. (2020). Mobile money, financial inclusion and development: A review with reference to African experience. *Journal of Economic Surveys*, 34.0(4.0), 753–792.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Akanferi, A., A., Asampana, I., Matey, H., A., Tanye, &, & A., H. (2022). Adoption of mobile. *Unknown Journal*, Unknown(Unknown), Unknown.
- Aklin, M., Bayer, P., Harish, P., S., Urpelainen, &, & J. (2018). Economics of household technology adoption in developing countries: Evidence from solar technology adoption in rural India. *Energy Economics*, 72(Unknown), 35–46.
- Akomea-Frimpong, I., Andoh, C., Akomea-Frimpong, A., & Dwomoh-Okudzeto, Y. (2019). Control of fraud on mobile money services in Ghana: An exploratory study. *Journal of Money Laundering Control*, 22(2), 300–317. <https://doi.org/10.1108/JMLC-03-2018-0023>.

- Al-Nuaimi, M. N., & Al-Emran, M. (2021). Learning management systems and technology acceptance models: A systematic review. *Education and Information Technologies*, 26(5), 5499–5533. <https://doi.org/10.1007/s10639-021-10513-3>
- AL-Nuaimi, M. N., Sawafi, O. S. al, Malik, S. I., & Al-Marroof, R. S. (2022). Extending the unified theory of acceptance and use of technology to investigate determinants of acceptance and adoption of learning management systems in the post-pandemic era: a structural equation modeling approach. *Interactive Learning Environments*, 32(5), 1–27. <https://doi.org/10.1080/10494820.2022.2127777>.
- Al-Okaily, M., Lutfi, A., Alsaad, A., Taamneh, A., & Alsyof, A. (2020). The determinants of digital payment systems' acceptance under cultural orientation differences: The case of uncertainty avoidance. *Technology in Society*, 63, 101367. <https://doi.org/10.1016/j.techsoc.2020.101367>
- Alaeddin, O., Altounjy, R., Zainudin, Z., & Kamarudin, F. (2018). From physical to digital: Investigating consumer behaviour of switching to mobile wallet. *Polish Journal of Management Studies*, 17(2), 18–30. <https://doi.org/10.17512/pjms.2018.17.2.02>
- Alalwan, A. A., Baabdullah, A. M., Rana, N. P., Tamilmani, K., & Dwivedi, Y. K. (2018). Examining adoption of mobile internet in Saudi Arabia: Extending TAM with perceived enjoyment, innovativeness and trust. *Technology in Society*, 55(Unknown), 100–110. <https://doi.org/10.1016/j.techsoc.2018.06.007>.
- Alalwan, A. A., Dwivedi, Y. K., & Williams, M. D. (2016). Customers' Intention and Adoption of Telebanking in Jordan. *Information Systems Management*, 33(2), 154–178. <https://doi.org/10.1080/10580530.2016.1155950>.
- Alalwan, A., A., Dwivedi, K., Y., Rana, &, & P., N. (2017). Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust. *International Journal of Information Management*, 37.0(3.0), 99–110.
- Alalwan, A., A., Dwivedi, K., Y., Rana, P., N., Algharabat, &, & R. (2018). Examining factors influencing Jordanian customers' intentions and adoption of internet banking: Extending UTAUT2 with risk. *Journal of Retailing and Consumer Services*, 40.0(Unknown), 125–138.
- Alalwan, A., A., Dwivedi, K., Y., Rana, P., N., Lal, B., Williams, &, & D., M. (2015). Consumer adoption of internet banking in Jordan: Examining the role of hedonic motivation, habit, self-efficacy and trust. *Journal of Financial Services Marketing*, 20.0(Unknown), 145–157.

- Alalwan, A., A., Dwivedi, K., Y., Williams, &, & D., M. (2016). Customers' Intention and Adoption of Telebanking in Jordan. *Information Systems Management*, 2(33), 154-178. <https://doi.org/10.1080/10580530.2016.1155950>.
- Alghazi, S. S., Kamsin, A., Almaiah, M. A., Wong, S. Y., & Shuib, L. (2021). For sustainable application of mobile learning: An extended utaut model to examine the effect of technical factors on the usage of mobile devices as a learning tool. *Sustainability (Switzerland)*, 13(4), 1-23. <https://doi.org/10.3390/SU13041856>.
- Alkadi, R. S., & Abed, S. S. (2023). Consumer Acceptance of Fintech App Payment Services: A Systematic Literature Review and Future Research Agenda. *Journal of Theoretical and Applied Electronic Commerce Research*, 18(4), 1838-1860. <https://doi.org/10.3390/jtaer18040093>
- Alkhowaiter, W. A. (2020). Digital payment and banking adoption research in Gulf countries: A systematic literature review. *International Journal of Information Management*, 53, 102102. <https://doi.org/10.1016/J.IJINFOMGT.2020.102102>
- Alkhowaiter, W. A. (2022). Use and behavioural intention of m-payment in GCC countries: Extending meta-UTAUT with trust and Islamic religiosity. *Journal of Innovation & Knowledge*, 7(4), 100240. <https://doi.org/10.1016/J.JIK.2022.100240>
- Allen, F., Gu, X., & Jagtiani, J. (2021). A Survey of Fintech Research and Policy Discussion. *Review of Corporate Finance*, 1(3-4), 259-339. <https://doi.org/10.1561/114.000000007>.
- Alrawad, M., Lutfi, A., Almaiah, M. A., & Elshaer, I. A. (2023). Examining the influence of trust and perceived risk on customers intention to use NFC mobile payment system. *Journal of Open Innovation: Technology, Market, and Complexity*, 9(2), 100070. <https://doi.org/10.1016/j.joitmc.2023.100070>
- Amankwah-Amoah, J., Khan, Z., Wood, G., & Knight, G. (2021). COVID-19 and digitalization: The great acceleration. *Journal of Business Research*, 136, 602-611. <https://doi.org/10.1016/j.jbusres.2021.08.011>
- Amoah, A., Kwablah, E., Amoah, B., & Adjei-Mantey, K. (2023). Willingness to pay for electronic transaction levy: empirical evidence from Ghana. *African Journal of Economic and Management Studies*, 14(4), 663-679. <https://doi.org/10.1108/AJEMS-09-2022-0359>.
- Amofah, O., Alex, O. A., Kwarteng, C. K., Bright, A., & Avorgah, S. K. M. (2023). Factors influencing the adoption of digital wallet: Evidence from Ghana. *European*

- Business & Management*, 9(5), 101–111. <https://doi.org/10.11648/j.ebm.20230905.13>
- Anderson, J. and Gerbing, D. (1988) Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach. *Psychological Bulletin*, 103, 411-423. <http://dx.doi.org/10.1037/0033-2909.103.3.411>
- Ansong, E., & Boateng, R. (2019). Surviving in the digital era – business models of digital enterprises in a developing economy. *Digital Policy, Regulation and Governance*, 21(2), 164–178. <https://doi.org/10.1108/DPRG-08-2018-0046>
- Antwi, F., & Kong, Y. (2023). Investigating the impacts of digital finance technology on financial stability of the banking sector: New insights from developing market economies. *Cogent Business & Management*, 10(3). <https://doi.org/10.1080/23311975.2023.2284738>
- Appiah-Otoo, I., & Song, N. (2021). The impact of ICT on economic growth-Comparing rich and poor countries. *Telecommunications Policy*, 45(2), 102082. <https://doi.org/10.1016/J.TELPOL.2020.102082>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.
- Armah, G. K., Awonekai, E. A., Owagu, U. F., & Wiredu, J. K. (2023). Customer preference for electronic payment systems for goods: A case study of some selected shopping malls, Bolgatanga. *Asian Journal of Research in Computer Science*, 16(4), 257–270. <https://doi.org/hal-04669626>
- Armstrong, J.S. and Overton, T.S. (1977) Estimating Nonresponse Bias in Mail Surveys. *Journal of Marketing Research*, 14, 396-402. <http://dx.doi.org/10.2307/3150783>
- Aron, J., & Muellbauer, J. (2019). The economics of mobile money: Harnessing the transformative power of technology to benefit the global poor. *Oxford Martin School Policy Paper Series*. <https://oms-www.files.svdcdn.com/production/downloads/May-19-OMS-Policy-Paper-Mobile-Money-Aron-Muellbauer.pdf>
- Arvidsson, N. (2019). Building a Cashless Society. In *Springer Nature*. Springer International Publishing. <https://doi.org/10.1007/978-3-030-10689-8>
- Asongu, S. A., & Odhiambo, N. M. (2021). Enhancing governance for environmental sustainability in sub-Saharan Africa. *Energy Exploration & Exploitation*, 39(1), 444–463. <https://doi.org/10.1177/0144598719900657>
- Athanasopoulou, P., Giovanis, A. N., & Avlonitis, G. J. (2015). Marketing strategy decisions for brand extension success. *Journal of Brand Management*, 22, 487-514.

- Auer, R., Cornelli, G., & Frost, J. (2020). Covid-19, cash, and the future of payments. *Bank for International Settlements*, No. 3-No. 3. <https://www.bis.org/publ/bisbull03.pdf>
- Aysan, A. F., Ozturk, O., & Selim, N. H. (2025). Local power, global reach: the rise and impact of domestic payment networks in the financial landscape. *Journal of Science and Technology Policy Management*, 16(1), 143–162. <https://doi.org/10.1108/JSTPM-12-2023-0227>
- Bagozzi, P. R., & Yi, Y. (2012). Specification, Evaluation, and Interpretation of Structural Equation Models. *Academy of Marketing Science*, 40, 8-34. <http://dx.doi.org/10.1007/s11747-011-0278-x>
- Baklouti, F., & Boukamcha, F. (2024). Consumer resistance to internet banking services: implications for the innovation resistance theory. *Journal of Financial Services Marketing*, 29(2), 364-376.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bank of Ghana. (2020). *Payment System Statistics I. Ghana Interbank Settlement (RTGS)*. <https://www.bog.gov.gh/news/payment-systems-strategy-2019-to-2024/>
- Bank of Ghana. (2022). *Payment Systems Oversight Annual Report: 2022*. <https://www.bog.gov.gh/wp-content/uploads/2023/11/Payment-Systems-Oversight-Annual-Report-2022-public.pdf>
- Bank of Ghana. (2024). *Ghana Payment Systems Strategy (2019 - 2024)*.
- Bansal, S. (2021). *Fintech and financial inclusion in India: Examining the role of regulatory*. Bapat, D., & Khandelwal, R. (2022). Antecedents and consequences of consumer hope for digital payment apps services. *Journal of Services Marketing*, 37(1), 110–127. <https://doi.org/10.1108/jsm-12-2021-0456>
- Baptista, G., & Oliveira, T. (2015). Understanding mobile banking: The unified theory of acceptance and use of technology combined with cultural moderators. *Computers in Human Behavior*, 50, 418–430. <https://doi.org/10.1016/j.chb.2015.04.024>
- Barnett, M. L., & Salomon, R. M. (2006). Beyond dichotomy: The curvilinear relationship between social responsibility and financial performance. *Strategic Management Journal*, 27(11), 1101-1122.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182. <https://doi.org/10.1037/0022-3514.51.6.1173>

- Bedia, D., & Malik, S. (2016). An assessment of customer satisfaction and electronic fund transfer services in selected banks. *Anwesh; Roorkee*, 1(1), 19.
- Bell, E., Harley, B., & Bryman, A. (2022). *Business research methods*. Oxford University Press.
- Bezovski, Z. (2016). The future of the mobile payment as electronic payment system. *European Journal of Business and Management*, 8(8), 127–132. https://www.researchgate.net/publication/354381393_The_Future_of_the_Mobile_Payment_as_Electronic_Payment_System.
- Bhatia, S., Singh, N., & Liébana-Cabanillas, F. (2023). Intermittent Continued Adoption of Digital Payment Services During the COVID-19 Induced Pandemic. *International Journal of Human-Computer Interaction*, 39(14), 2905–2919. <https://doi.org/10.1080/10447318.2022.2087671>
- Bhattacharjee, A. (2001). Understanding information systems continuance: An expectation-confirmation model. *MIS Quarterly*, 351-370.
- Blaikie, N. (2020). *Designing social research: The logic of anticipation* (3rd ed.). Polity Press.
- Blunch, N. J. (2008). *Introduction to Structural Equation Modelling Using SPSS and AMOS*. California: SAGE Publications
- Boateng, K. A., Coffie, R. B., & Boateng, M. A. (2024). Mobile Money Transactions for Financial Inclusion in Socioeconomic Development: An Interpretative Account of Two Ghanaian Rural Communities. In *Financial Inclusion: In Pursuit of UN Sustainable Development Goal 8.10* (pp. 217-228). Cham: Springer Nature Switzerland.
- Boateng, R., & Sarpong, M. Y. P. (2019). A literature review of mobile payments in Sub-Saharan Africa. In *International Working Conference on Transfer and Diffusion of IT* (pp. 128-146). Cham: Springer International Publishing.
- Boateng, R., Yeboah, E. A., & Afful-Dadzie, E. (2009). Adoption of mobile payments in Ghana: a merchant perspective. *Twenty-Fifth Americas Conference on Information Systems*. <https://scholar.archive.org/work/daqzy7pen5ajllu3ozsaskbjem/access/wayback/https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1291&context=amcis2019>
- Böhme, R., Christin, N., Edelman, B., & Moore, T. (2015). Bitcoin: Economics, and Governance. *Journal of Economic Perspectives*, 29(2), 213–238. <https://doi.org/10.1257/jep.29.2.213>

- Bollen, K.A. (1989). *Structural Equations with Latent Variables*. John Wiley and Sons, Inc., New York. <https://doi.org/10.1002/9781118619179>
- Bottomley, P. A., & Holden, S. J. (2001). Do we really know how consumers evaluate brand extensions? Empirical generalizations based on secondary analysis of eight studies. *Journal Of Marketing Research*, 38(4), 494-500.
- Broniarczyk, S. M., & Alba, J. W. (1994). The importance of the brand in brand extension. *Journal Of Marketing Research*, 31(2), 214-228.
- Brown, T. A. (2015). *Confirmatory Factor Analysis for Applied Research (2nd ed.)*. New York: The Guilford Press.
- Buchanan, D., Boddy, D., & McCalman, J. (2013). Getting in, getting on, getting out, and getting back. In *Doing Research in Organizations (RLE: Organizations)* (pp. 53-67). Routledge.
- Buku, M. W., & Mazer, R. (2017). Fraud in Mobile Financial Services: Protecting Consumers, Providers, and the System. *CGAP Brief*. chrome-extension://efaidnbmnnnibpcajpcgclefindmkaj/<https://www.cgap.org/sites/default/files/Brief-Fraud-in-Mobile-Financial-Services-April-2017.pdf>
- Byrne, B. M. (2013). *Structural Equation Modeling with AMOS: Basic Concepts, Applications, and Programming*. Routledge. <https://doi.org/10.4324/9781410600219>
- Cao, X., Yu, L., Liu, Z., Gong, M., & Adeel, L. (2018). Understanding mobile payment users' continuance intention: a trust transfer perspective. *Internet Research*, 28(2), 456-476.
- Carter, R. E., & Curry, D. J. (2013). Perceptions versus performance when managing extensions: new evidence about the role of fit between a parent brand and an extension. *Journal of the Academy of Marketing Science*, 41(2), 253-269.
- Chandra, S., Srivastava, S. C., & Theng, Y.-L. (2010). Evaluating the Role of Trust in Consumer Adoption of Mobile Payment Systems: An Empirical Analysis. *Communications of the Association for Information Systems*, 27(2). <https://doi.org/10.17705/1CAIS.02729>
- Chang, A., Gunawan, T., & Sumarwan, U. (2023). A Conceptual Framework of Mobile Payment System Adoption and Use in Southeast Asia. *JAS (Journal of ASEAN Studies)*, 11(2). <https://doi.org/10.21512/jas.v11i2.8815>

- Chaudhuri, A., & Holbrook, M. B. (2001). The chain of effects from brand trust and brand affect to brand performance: the role of brand loyalty. *Journal of Marketing*, 65(2), 81-93.
- Chauhan, S., Akhtar, A., & Gupta, A. (2022). Customer experience in digital banking: a review and future research directions. *International Journal of Quality and Service Sciences*, 14(2), 311-348.
- Chen, C.-N., & Huang, Y.-S. (2023). Exploring consumers' intention to use mobile payment apps based on Technology Acceptance Models—Taking LINE Pay as an example. *Proceedings of International Conference on Artificial Life and Robotics*. <https://doi.org/10.5954/icarob.2023.os5-3>
- Chen, X., Li, S., Su, L., & Huang, T. (2021). Why do micro and small merchants use mobile payment systems? A grounded theory study in China. *Nankai Business Review International*, 12(2), 157–172. <https://doi.org/10.1108/nbri-11-2020-0061>
- Cheng, J. M.-S., Blankson, C., Wang, E. S.-T., & Chen, L. S.-L. (2009). Consumer attitudes and interactive digital advertising. *International Journal of Advertising*, 28(3), 501–525. <https://doi.org/10.2501/S0265048709200710>
- Cheng, L. K., Huang, H.-L., & Lai, C.-C. (2022). Continuance intention in running apps: moderating effect of relationship norms. *International Journal of Sports Marketing and Sponsorship*, 23(1), 132–154. <https://doi.org/10.1108/IJSMS-08-2020-0143>
- Churchill, G. A. (2019). *Marketing research: Methodological foundations* (12th ed.). Cengage Learning.
- Cobla, G. M., & Osei-Assibey, E. (2018). Mobile money adoption and spending behaviour: The case of students in Ghana. *International Journal of Social Economics*, 45(1), 29–42. <https://doi.org/10.1108/IJSE-11-2016-0302>.
- Cohen, J. (1992). Statistical power analysis. *Current directions in psychological science*, 1(3), 98-101.
- Cohen, L., Manion, L. and Morrison, K. (2013) *Research Methods in Education*. Routledge. <https://doi.org/10.4324/9780203720967>
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications
- Creswell, J. W. (2021). A concise introduction to mixed methods research. *SAGE publications*.

- Crossan, F. (2003). Research philosophy: towards an understanding. *Nurse Researcher (through 2013)*, 11(1), 46.
- Dahlberg, T., Guo, J., & Ondrus, J. (2015). A critical review of mobile payment research. *Electronic Commerce Research and Applications*, 14(5), 265–284. <https://doi.org/10.1016/j.elerap.2015.07.006>
- Daragmeh, A., Saleem, A., Bárczi, J., & Sagi, J. (2022). Drivers of post-adoption of e- among academics in Palestine: An extension of the expectation confirmation model. *Frontiers in Psychology*. <https://doi.org/10.3389/fpsyg.2022.984931>
- David-West, O., Iheanachor, N., & Umukoro, I. O. (2019). Mobile money as a frugal innovation for the bottom of the pyramid – Cases of selected African countries. *Africa Journal of Management*, 5(3), 274–302. <https://doi.org/10.1080/23322373.2019.1652023>
- Demirgüç-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2021). Financial inclusion, digital payments, and resilience in the age of COVID-19. *World Bank Report*. <https://doi.org/10.1596/978-1-4648-1898-1>
- Demirguc-Kunt, A., Klapper, L., Singer, D., Ansar, S., & Hess, J. (2018). The Global Database 2017: Measuring financial inclusion and the fintech revolution. *World Bank Publications*. <https://thedocs.worldbank.org/en/doc/651311527022104694-0050022018/original/FindexPolicyResearchTalkMay2018.pdf>
- Deng, Q. (Claire), & Messinger, P. R. (2022). Dimensions of brand-extension fit. *International Journal of Research in Marketing*, 39(3), 764–787. <https://doi.org/10.1016/j.ijresmar.2021.09.013>
- DeVellis, R. F., & Thorpe, C. T. (2021). Scale development: Theory and applications. *Sage publications*.
- di Pietro, L., Guglielmetti Mugion, R., Mattia, G., Renzi, M. F., & Toni, M. (2015). The Integrated Model on Mobile Payment Acceptance (IMMPA): An empirical application to public transport. *Transportation Research Part C: Emerging Technologies*, 56, 463–479. <https://doi.org/10.1016/j.trc.2015.05.001>
- Dillman, D. A. (2022). Fifty years of survey innovation. *Bulletin of Sociological Methodology/Bulletin de Méthodologie Sociologique*, 154(1), 9-38.
- Dlodlo, N. (2014). *The Relationships among Service Quality, Trust, User Satisfaction and Post-adoption Intentions in M-payment Services*. <https://doi.org/10.5901/MJSS.2014.V5N23P165>

- Donal, D., Randy Prayogi, Hisam Fauzi, Nur Huda Ananda Prijuliantoro, Nurfa Sepiyani, Stevani Kristin, Dewi Chytia Lumban Tobing, Anisha Rahmania, Nadila Rose, & Bening Embun Diniari. (2023). Sosialisasi Pembayaran Digital (QRIS) Dan Branding Umkm Di Desa Kuala Tolam. *J-ABDI: Jurnal Pengabdian Kepada Masyarakat*, 3(5), 945–950. <https://doi.org/10.53625/jabdi.v3i5.6607>
- Doney, P. M., & Cannon, J. P. (1997). An examination of the nature of trust in buyer–seller relationships. *Journal of Marketing*, 61(2), 35-51.
- Dwivedi, A., & Merrilees, B. (2013). Brand extension feedback effects: towards a mediated framework. *Journal of Consumer Marketing*, 30(5), 450–461. <https://doi.org/10.110/JCM-01-2013-0414>.
- Dwivedi, Y. K., Rana, N. P., Jeyaraj, A., Clement, M., & Williams, M. D. (2019). Re-examining the Unified Theory of Acceptance and Use of Technology (UTAUT): Towards a Revised Theoretical Model. *Information Systems Frontiers*, 21(3), 719–734.
- Dzokoto, V. A., & Appiah, E. (2014). Making sense of mobile money in urban Ghana: Personal, business, social and financial inclusion prospects. *Institute for Money, Technology and Financial Inclusion (IMTFI) Working*, 7.
- Easterby-Smith, M., Valizade, D., Thorpe, R., & Jaspersen, L. J. (2021). *Management and Business Research*.
- Echambadi, R., Arroniz, I., Reinartz, W., & Lee, J. (2006). Empirical generalizations from brand extension research: How sure are we?. *International Journal of Research in Marketing*, 23(3), 253-261.
- Edinger-Schons, L. M., & Thöne, P. (2017). Identification and stereotypes as determinants of brand extension potential. *Innovative Marketing: IM*, 13(1), 33-54.
- Evans, D. S., & Pirchio, A. (2014). An Empirical Examination of Why Mobile Money Schemes Ignite in Some Developing Countries but Flounder in Most. *Review of Network Economics*, 13(4). <https://doi.org/10.1515/rne-2015-0020>
- Evans, D. S., & Schmalensee, R. (2008). Innovation in payments. Moving money: The of consumer payments. In Robert E. Litan & Martin Neil Bailly (Eds.), *Moving Money: The Future of Consumer Payments*. <https://ssrn.com/abstract=1277275>
- Faqih, K. M. (2016). An empirical analysis of factors predicting the behavioral intention to adopt Internet shopping technology among non-shoppers in a developing country context: Does gender matter?. *Journal of retailing and consumer services*, 30, 140-164.

- Farzin, M., Sadeghi, M., Kharkeshi, F. Y., Ruholahpur, H., & Fattahi, M. (2021). Extending UTAUT2 in M-banking adoption and actual use behavior: Does WOM communication matter? *Asian Journal of Economics and Banking*, 5(2), 136–157. <https://doi.org/10.1108/AJEB-10-2020-0085>
- Field, A. (2013) *Discovering Statistics Using IBM SPSS Statistics: And Sex and Drugs and Rock “N” Roll*, 4th Edition, Sage.
- Florea, D. L. (2015). The relationship between branding and diffusion of innovation: A systematic review. *Procedia Economics and Finance*, 23, 1527-1534.
- Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1), 39–50. <https://doi.org/10.1177/002224378101800104>
- Gai, K., Qiu, M., & Sun, X. (2018). A survey on FinTech. *Journal of Network and Applications*, 103, 262–273. <https://doi.org/10.1016/j.jnca.2017.10.011>
- Gangadharan, S. P. (2017). The downside of digital inclusion: Expectations and of privacy and surveillance among marginal Internet users. *New Media & Society*, 19(4), 597–615. <https://doi.org/10.1177/1461444815614053>
- Gao, L., & Waechter, K. A. (2017). Examining the role of initial trust in user adoption of mobile payment services: an empirical investigation. *Information Systems Frontiers*, 19(3), 525–548. <https://doi.org/10.1007/s10796-015-9611-0>
- George, D., & Mallery, P. (2019). *IBM SPSS Statistics 26 Step by Step: A Simple Guide and Reference*. Routledge. <https://doi.org/10.4324/9780429056765>
- Gill, J., & Johnson, P. (2010). *Research methods for managers*. Sage.
- Girancourt, F. J. de, Kuyoro, M., Ofosu-Amaah, N. A., Seshie, E., & Twum, F. (2020). How the COVID-19 crisis may affect electronic payments in Africa. *McKinsey & Company*, 8, 2021, Retrieved.
- Glavee-Geo, R., Shaikh, A. A., & Karjaluoto, H. (2017). Mobile banking services adoption Pakistan: are there gender differences? *International Journal of Bank Marketing*, 35(7), 1090–1114. <https://doi.org/10.1108/IJBM-09-2015-0142>
- Gomber, P., Koch, J.-A., & Siering, M. (2017). Digital Finance and FinTech: current and future research directions. *Journal of Business Economics*, 87(5), 537–580. <https://doi.org/10.1007/s11573-017-0852-x>
- Gong, X., Cheung, C. M. K., Zhang, K. Z. K., Chen, C., & Lee, M. K. O. (2020). Cross-Network Effects, Brand Equity, and Consumer Loyalty: Evidence from Mobile

- Payment Market. *International Journal of Electronic Commerce*, 24(3), 279–304. <https://doi.org/10.1080/10864415.2020.1767427>
- Gong, X., Zhang, K. Z., Chen, C., Cheung, C. M., & Lee, M. K. (2020). What drives trust transfer from web to mobile payment services? The dual effects of perceived entitativity. *Information & Management*, 57(7), 103250.
- Graf-Vlachy, L., Buhtz, K., & König, A. (2018). Social influence in technology adoption: taking stock and moving forward. *Management Review Quarterly*, 68(1), 37-76.
- Gravetter, F. J., & Wallnau, L. B. (2016). *Statistics for the Behavioral Sciences (10th ed.)*. Cengage Learning.
- GSMA. (2020). *The state of mobile internet connectivity 2020*. <https://www.gsma.com/r/somic-2020/>
- Guo, Y., Zhu, Y., Barnes, S. J., Bao, Y., Li, X., & Le-Nguyen, K. (2018). Understanding cross-product purchase intention in an IT brand extension context. *Psychology & Marketing*, 35(6), 392–411. <https://doi.org/10.1002/mar.21094>
- Gupta, A., Yousaf, A., & Mishra, A. (2020). How pre-adoption expectancies shape postadoption continuance intentions: An extended expectation-confirmation model. *International Journal of Information Management*, 52, 102094. <https://doi.org/10.1016/j.ijinfomgt.2020.102094>
- Gupta, K., & Arora, N. (2019). Investigating consumer intention to accept mobile payment systems through unified theory of acceptance model. *South Asian Journal of Business Studies*, 9(1), 88–114. <https://doi.org/10.1108/SAJBS-03-2019-0037>
- Gupta, S., Yun, H., Xu, H., & Kim, H.-W. (2017). An exploratory study on mobile banking adoption in Indian metropolitan and urban areas: a scenario-based experiment. *Information Technology for Development*, 23(1), 127–152. <https://doi.org/10.1080/02681102.2016.1233855>
- Gupta, U., & Agarwal, B. (2022). Adoption of Cashless Transactions by MSME Sector of India. *Pacific Business Review International*, 15(No.6).
- Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012). An assessment of the use of partial least squares structural equation modelling in marketing research. *Journal of the Academy of Marketing Science*, 40(3), 414–433. <https://doi.org/10.1007/S11747-011-0261-6>
- Hair, J., & Alamer, A. (2022). Partial Least Squares Structural Equation Modelling (PLS-SEM) in second language and education research: *Guidelines using an applied example*. *Research Methods in Applied Linguistics*, 1(3), 100027.

- Hamzah, M. I., Ramli, F. A. A., & Shaw, N. (2023). The moderating influence of brand image on consumers' adoption of QR-code e-wallets. *Journal of Retailing and Consumer Services*, 71, 103326. <https://doi.org/10.1016/j.jretconser.2023.103326>
- Handoko, I. (2022). Customers continuance usage of mobile payment during the COVID-pandemic. *Spanish Journal of Marketing - ESIC*. <https://doi.org/10.1108/sjme-02-2022-0016>
- Harper, I., Simes, R., & Malam, C. (2006). *The Development of Electronic Payments* (pp. 25–40). https://doi.org/10.1007/3-7908-1707-4_3
- Harrington, D. (2009). *Confirmatory Factor Analysis*. New York: Oxford University Press.
- Hayes, A. F. (2021). Introduction to mediation, moderation, and conditional process A regression-based approach (3rd ed.). *Guilford Press*.
- Hedman, J., & Henningsson, S. (2015). The new normal: Market cooperation in the mobile payments ecosystem. *Electronic Commerce Research and Applications*, 14(5), 305–318. <https://doi.org/10.1016/j.elerap.2015.03.005>
- Heinze, J., & Matt, C. (2018). Reducing the service deficit in M-commerce: how service-technology fit can support digital sales of complex products. *International Journal of Electronic Commerce*, 22(3), 386-418.
- Hem, L. E., Iversen, N. M., & Olsen, L. E. (2014). Category characteristics' effects on extension attitudes: A research note. *Journal of Business Research*, 67(8), 1589–1594. <https://doi.org/10.1016/j.jbusres.2013.10.002>
- Herhausen, D., Kleinlercher, K., Verhoef, P. C., Emrich, O., & Rudolph, T. (2019). Loyalty formation for different customer journey segments. *Journal of Retailing*, 95(3), 9-29.
- Hijazi, R. (2022). Mobile banking service quality and customer value co-creation intention: a moderated mediated model. *International Journal of Bank Marketing*, 40(7), 1501–1525. <https://doi.org/10.1108/IJBM-01-2022-0004>
- Hinson, R., Lensink, R., & Mueller, A. (2019). Transforming agribusiness in developing countries: SDGs and the role of FinTech. *Current Opinion in Environmental Sustainability*, 41, 1–9. <https://doi.org/10.1016/j.cosust.2019.07.002>
- Homburg, C., Jozić, D., & Kuehnl, C. (2017). Customer experience management: Toward implementing an evolving marketing concept. *Journal of the Academy of Marketing Science*, 45, 377–401. <https://doi.org/10.1007/s11747-015-0460-7>

- Hornbæk, K., & Hertzum, M. (2017). Technology acceptance and user experience: A review of the experiential component in HCI. *ACM Transactions on Computer-Human Interaction (TOCHI)*, 24(5), 1-30.
- Hsiao, C.-H., & Tang, K.-Y. (2014). Explaining undergraduates' behavior intention of e textbook adoption: Empirical assessment of five theoretical models. *Library Hi Tech*, 32(1), 139–163.
- Hsu, C. L., & Lin, J. C. C. (2018). Exploring factors affecting the adoption of internet of things services. *Journal of Computer Information Systems*, 58(1), 49-57.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- Huang, D., Jin, X., & Coghlan, A. (2021). Advances in consumer innovation resistance research: A review and research agenda. *Technological Forecasting and Social Change*, 166, 120594. *Technological Forecasting and Social Change*, 166, 120594.
- Humbani, M., & Wiese, M. (2019). An integrated framework for the adoption and continuance intention to use mobile payment apps. *International Journal of Bank Marketing*, 37(2), 646–664. <https://doi.org/10.1108/ijbm-03-2018-0072>
- Idoko, E. C., Ukenna, S. I., & Obeta, C. E. (2019). Determinants of shopping mall patronage frequency in a developing economy: Evidence from Nigerian mall shoppers. *Journal of Retailing and Consumer Services*, 48, 186–201. <https://doi.org/10.1016/j.jretconser.2019.02.001>
- Islam SM, Ferrer MA. Unlocking the Cashless Shift: Retailers' Adoption of Digital Payment Systems in Emerging Markets. *Journal of Theoretical and Applied Electronic Commerce Research*. 2025; 20(4):359. <https://doi.org/10.3390/jtaer20040359>
- Jenik, I., & Lauer, K. (2017). *Regulatory sandboxes and financial inclusion*.
- Jiang, X. (2022). Analysis of WeChat Pay based on Technology Acceptance Model. *Proceedings of the 2022 7th International Conference on Social Sciences and Economic Development (ICSSSED 2022)*. <https://doi.org/10.2991/aebmr.k.220405.110>
- John, J., & Thakur, R. (2021). Long term effects of service adaptations made under pandemic conditions: The new “post COVID-19” normal. *European Journal of Marketing*, 55(6), 1679-1700.

- Jöreskog, K.G. (1969) A General Approach to Confirmatory Maximum Likelihood Factor Analysis. *Psychometrika*, 34, 183-202. <https://doi.org/10.1002/9781118619179>
- Joreskog, K. G., & Sorbom, D. (1996). *LISREL8: User's reference guide*. Mooresville: Scientific Software.
- Kalenzi, C., & Youngsun, K. (2018). *Digital finance revolution in E. Africa: Retail bank's adaption to a changing marketplace*.
- Karjaluoto, H., Shaikha, A. A., Saarijärvi, H., & Saraniemi, S. (2019). How perceived value drives the use of mobile financial services apps. *International Journal of Information Management*, 47, 252–261.
- Ke, X., & Wagner, C. (2022). Global pandemic compels sport to move to esports: understanding from brand extension perspective. *Managing Sport and Leisure*, 27(1–2), 152–157. <https://doi.org/10.1080/23750472.2020.1792801>
- Keller, K. L., & Aaker, D. A. (1992). The effects of sequential introduction of brand extensions. *Journal of Marketing Research*, 29 (1), 35-50.
- Khalilzadeh, J., Ozturk, A. B., & Bilgihan, A. (2017). Security-related factors in extended UTAUT model for NFC based mobile payment in the restaurant industry. *Computers in Human Behavior*, 70, 460–474. <https://doi.org/10.1016/j.chb.2017.01.001>
- Khando, K., Islam, M. S., & Gao, S. (2023). The Emerging Technologies of Digital Payments and Associated Challenges: A Systematic Literature Review. *Future Internet*, 15(1), 21. <https://doi.org/10.3390/fi15010021>
- Khayer, A., & Bao, Y. (2019). The continuance usage intention of Alipay. *Bottom Line*. <https://doi.org/10.1108/bl-07-2019-0097>
- Kim, C., Mirusmonov, M., & Lee, I. (2015). An empirical examination of factors influencing the intention to use mobile payment. *Computers in Human Behavior*, 26(3), 310–322. <https://doi.org/10.1016/j.chb.2009.10.013>
- Kim, Y., & Peterson, R. A. (2017). A Meta-analysis of Online Trust Relationships in E commerce. *Journal of Interactive Marketing*, 38(1), 44–54. <https://doi.org/10.1016/j.intmar.2017.01.001>
- Kim, Y., Wang, Q., & Roh, T. (2021). Do information and service quality affect perceived privacy protection, satisfaction, and loyalty? Evidence from a Chinese O2O-based mobile shopping application. *Telematics and Informatics*, 56, 101483. <https://doi.org/10.1016/j.tele.2020.101483>

- Klapper, L., & Singer, D. (2017). The Opportunities and Challenges of Digitizing Government-to-Person Payments. *The World Bank Research Observer*, 32(2), 211–226. <https://doi.org/10.1093/wbro/lkx003>
- Kline, R. B. (2015). Principles and Practice of Structural Equation Modeling. *Guildford Press*.
- Knoerzer, K., & Millemann, J. A. (2021). Investigating determinants of brand extension success in a fit and a non-fit scenario. *International Journal of Technology Marketing*, 15(4), 379-398.
- Kodom, M. (2019). Financial inclusion via mobile money services in Ghana: drivers and the role of regulation. *Doctoral Dissertation, University of Ghana*.
- Koenig-Lewis, N., Marquet, M., Palmer, A., & Zhao, A. L. (2015). Enjoyment and social influence: predicting mobile payment adoption. *The Service Industries Journal*, 35(10), 537–554. <https://doi.org/10.1080/02642069.2015.1043278>
- Köster, A., Matt, C., & Hess, T. (2016). Carefully choose your (payment) partner: How payment provider reputation influences m-commerce transactions. *Electronic Commerce Research and Applications*, 15, 26-37.
- Krejcie, R. v., & Morgan, D. W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*, 30(3), 607–610. <https://doi.org/10.1177/001316447003000308>
- Kshetri, N., & Acharya, S. (2012). Mobile payments in emerging markets. *IT Professional*, 14(4), 9-13.
- Kshetri, N. (2017). Blockchain's roles in strengthening cybersecurity and protecting privacy. *Telecommunications Policy*, 41(10), 1027–1038. <https://doi.org/10.1016/j.telpol.2017.09.003>
- Kshetri, N. (2017). Will blockchain emerge as a tool to break the poverty chain in the Global South? *Third World Quarterly*, 38(8), 1710–1732. <https://doi.org/10.1080/01436597.2017.1298438>
- Kuhn, T. S. (1970). Logic of Discovery or Psychology of Research? In Imre Lakatos & Alan Musgrave, *Criticism and the growth of knowledge*. Cambridge [Eng.]: *Cambridge University Press*. pp. 22.
- Kwateng, K. O., Atiemo, K. A. O., & Appiah, C. (2019). Acceptance and use of mobile banking: An application of UTAUT2. *Journal of Enterprise Information Management*, 32(1), 118–151.
- Maroofi, F., Kahrarian, F., & Dehghani, M. (2017).

- An investigation of initial trust in mobile banking. *International Journal of Research in Business Studies and Management*, 4(1), 1–12.
- Kwon, D. H., & Cho, E. (2025). Trust-building factors of service quality and the impact of trust on commitment and referral intentions for B2B IT service vendors. *Journal of Global Scholars of Marketing Science*, 1-18.
- Lai, P. C. (2017). Security as an Extension to TAM Model: Consumers Intention to Use a Single Platform E-Payment. *Asia-Pacific Journal of Management Research and Innovation*, 13(3–4), 110–119. <https://doi.org/10.1177/2319510x18776405>
- Lashitew, A., van Tulder, R., & Liasse, Y. (2019). Mobile Phones for Financial Inclusion: What Explains the Diffusion of Mobile Money Innovations? *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3460813>
- Lee, J.-M., Lee, B., & Rha, J.-Y. (2019). Determinants Of Mobile Payment Usage And The Moderating Effect Of Gender: Extending The Utaut Model With Privacy RISK. *International Journal of Electronic Commerce Studies*, 10(1), 43–64. <https://doi.org/10.7903/ijecs.1644>
- Lee, J.-S., & Cho, J. (2021). Determinants of continuance intention for over-the-top services. *Social Behavior and Personality: An International Journal*, 49(12), 1–13. <https://doi.org/10.2224/sbp.10566>
- Lee, S. S., Lin, H. B., Kim, K. Y., Yu, J. C., & Lee, Y. H. (2017). Effects of Consumer Propensity and Brand Attitude on Brand Extension Assessment: Focused on Easy Mobile Payment Services. *Family and Environment Research*, 55(4), 399–417. <https://doi.org/10.6115/fer.2017.029>
- Lee, S. W., Sung, H. J., & Jeon, H. M. (2019). Determinants of Continuous Intention on Food Delivery Apps: Extending UTAUT2 with Information Quality. *Sustainability*, 11(11), 3141. <https://doi.org/10.3390/su11113141>
- Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. *Journal of Marketing*, 80(6), 69–96. <https://doi.org/10.1509/jm.15.0420>
- Lepoutre, J., & Oguntoye, A. (2018). The (non-)emergence of mobile money systems in Sub Saharan Africa: A comparative multilevel perspective of Kenya and Nigeria. *Technological Forecasting and Social Change*, 131, 262–275. <https://doi.org/10.1016/J.TECHFORE.2017.11.010>
- Liébana-Cabanillas, F., Molinillo, S., & Ruiz-Montañez, M. (2019). To use or not to use, that is the question: Analysis of the determining factors for using NFC mobile

- payment systems in public transportation. *Technological Forecasting and Social Change*, 139, 266–276. <https://doi.org/10.1016/j.techfore.2018.11.012>
- Lin, L.-H., Lin, F.-C., Lien, C.-K., Yang, T.-C., Chuang, Y.-K., & Hsu, Y.-W. (2023). Electronic Payment Behaviors of Consumers under Digital Transformation in Finance—A Case Study of Third-Party Payments. *Journal of Risk and Financial Management*, 16(8), 346. <https://doi.org/10.3390/jrfm16080346>
- Lindgreen, A., Di Benedetto, C. A., & Beverland, M. B. (2021). How to write up case-study methodology sections. *Industrial Marketing Management*, 96, A7-A10.
- Lowe, B., Dwivedi, Y. K., & d'Alessandro, S. (2019). Consumers and technology in a changing world. *European Journal of Marketing*, 53(6), 1038-1050.
- Lu, J., Wei, J., Yu, C., & Liu, C. (2017). How do post-usage factors and espoused cultural values impact mobile payment continuation? *Behaviour & Information Technology*, 36(2), 140–164. <https://doi.org/10.1080/0144929X.2016.1208773>
- MacKenzie, S. B., Podsakoff, P. M., & Podsakoff, N. P. (2021b). Construct measurement and validation procedures in MIS and behavioral research: Integrating new and existing techniques. *MIS Quarterly*, 45(1), 261–304. <https://ssrn.com/abstract=2411111>
- Malaquias, R. F., & Hwang, Y. (2016). An empirical study on trust in mobile banking: A developing country perspective. *Computers in human behavior*, 54, 453-461.
- Maleh, Y., Zhang, J., & Hansali, A. (Eds.). (2024). *Advances in emerging financial technology and digital money*. CRC Press. <https://doi.org/10.1201/9781032667478>
- Malhotra, N., Nunan, D., & Birks, D. (2021). *Marketing research: An applied approach* (5th ed.). Pearson Education.
- Manoharan, S., Saravanan, M. P., & Paneerselvam, S. (2021). Digital payment and its growth in the time of COVID–19. *Transnational Marketing Journal*, 9(2), 315–328. <https://doi.org/10.33182/tmj.v9i2.1599>
- Mansfield-Devine, S. (2016). Open banking: opportunity and danger. *Computer Fraud & Security*, 2016(10), 8–13. [https://doi.org/10.1016/S1361-3723\(16\)30080-X](https://doi.org/10.1016/S1361-3723(16)30080-X)
- Manyika, J., Lund, S., Singer, M., White, O., & Berry, C. (2016). Digital finance for all: Powering inclusive growth in emerging economies. *McKinsey Global Institute*, 124. <chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/%20growth/how%20digital%20finance%20could%20boost%20growth%20in%20emerging%20economies/mg-digital-finance-for-all-full-report-september-2016.pdf>

- Mao, H., Mariadoss, B. J., Echambadi, R., & Chennamaneni, P. R. (2012). Brand extensions via complements or substitutes: The moderating role of manufacturing transferability. *Marketing Letters*, 23(1), 279–292. <https://doi.org/10.1007/s11002-011-9153-2>
- Marinkovic, V., & Kalinic, Z. (2017). Antecedents of customer satisfaction in mobile commerce. *Online Information Review*, 41(2), 138–154. <https://doi.org/10.1108/OIR-11-2015-0364>
- Martínez, E., & Pina, J. M. (2010). Consumer responses to brand extensions: a comprehensive model. *European Journal of Marketing*, 44(7/8), 1182–1205. <https://doi.org/10.1108/03090561011047580>
- Matthew, S. (2024). Consumer Inertia to Continued use of Mobile Payment Services for Retail Transactions: A Grounded Theory Study. *International Journal of Mathematical, Engineering and Management Sciences*. <https://doi.org/10.33889/ijmems.2024.9.6.076>.
- Maurer, B. (2012). Mobile Money: Communication, Consumption and Change in the Payments Space. *Journal of Development Studies*, 48(5), 589–604. <https://doi.org/10.1080/00220388.2011.621944>
- Mbiti, I., & Weil, D. (2011). Mobile Banking: The Impact of M-Pesa in Kenya. In *African Successes, Volume III: Modernization and Development*. <https://doi.org/10.3386/w17129>
- Megadewandanu, S., Suyoto, & Pranowo. (2016). Exploring mobile wallet adoption in Indonesia using UTAUT2: An approach from consumer perspective. *International Conference on Information Control Systems & Technologies (ICSTC)*, 46–50. <https://doi.org/10.1109/ICSTC.2016.7877340>
- Mejia, P. S. M., & Lemarroy, P. M. (2022). Financial technologies in the emerging markets. *In Data Analytics Applications in Emerging Markets* (pp. 1-22). Singapore: Springer Nature Singapore.
- Mensah, I. K., Zeng, G., & Luo, C. (2020). E-Government Services Adoption: An Extension of the Unified Model of Electronic Government Adoption. *Sage Open*, 10(2). <https://doi.org/10.1177/2158244020933593>
- Michel, G., & Donthu, N. (2014). Why negative brand extension evaluations do not always negatively affect the brand: The role of central and peripheral brand associations. *Journal of Business Research*, 67(12), 2611-2619.

- Migliore, G., Wagner, R., Cechella, F. S., & Liébana-Cabanillas, F. (2022). Antecedents to the Adoption of Mobile Payment in China and Italy: an Integration of UTAUT2 and Innovation Resistance Theory. *Information Systems Frontiers*, 24(6), 2099–2122. <https://doi.org/10.1007/s10796-021-10237-2>
- Miller, L.E. and Smith, K.L. (1983) Handling Non Response Issues. *Journal of Extension*, 21, 45-50.
- Ministry of Finance of Ghana. (2020). *Toward a Cash-Lite Ghana - Building an Inclusive Digital Payments Ecosystem (Digital Payments Ecosystem)*. https://mofep.gov.gh/sites/default/files/acts/Ghana_Cashlite_Roadmap.pdf
- Ministry of Finance. (2020). Digital financial services policy framework. *Acts and Policies*. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://mofep.gov.gh/sites/default/files/acts/Ghana_DFS_Policy.pdf
- Mogaji, E., & Nguyen, N. P. (2024). Evaluating the emergence of contactless digital payment technology for transportation. *Technological Forecasting and Social Change*, 203, 123378. <https://doi.org/10.1016/j.techfore.2024.123378>
- Moghavvemi, S., Mei, T. X., Phoong, S. W., & Phoong, S. Y. (2021). Drivers and barriers of mobile payment adoption: Malaysian merchants' perspective. *Journal of Retailing and Consumer Services*, 59, 102364. <https://doi.org/10.1016/j.jretconser.2020.102364>
- Monga, A. B., & John, D. R. (2010). What makes brands elastic? The influence of brand concept and styles of thinking on brand extension evaluation. *Journal of Marketing*, 74(3), 80-92.
- Montes, F., & Appaya, S. (2021). Digital ID to Enhance Financial Inclusion. *World Bank Group*, 62. <chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://documents1.worldbank.org/curated/en/099650005162214653/pdf/P16477001277440f10b8080dc6f51daf2dc.pdf>
- Moore, G. A. (2007). Dealing with Darwin: How Great Companies Innovate at Every Phase of their Evolution. *Strategic Direction*, 23(9). <https://doi.org/10.1108/sd.2007.05623iae.001>
- Morwitz, V. G., & Munz, K. P. (2021). Intentions. *Consumer psychology review*, 4(1), 26-41.
- Mortimer, G., Neale, L., Hasan, S. F. E., & Dunphy, B. (2015). Investigating the factors influencing the adoption of m-banking: a cross-cultural study. *International Journal of bank marketing*, 33(4), 545-570.

- Mothobi, O., & Grzybowski, L. (2017). Infrastructure deficiencies and adoption of mobile money in Sub-Saharan Africa. *Information Economics and Policy*, 40, 71-79.
- Muna, N., & Sukresna, M. (2024). Post-adoption model of mobile payment in Indonesia: Integration of UTAUT2 and the dedication-constraint perspective. *International Journal of Data and Network Science*. <https://doi.org/10.5267/j.ijdns.2023.12.010>
- Munyegera, G. K., & Matsumoto, T. (2016). Mobile Money, Remittances, and Household Welfare: Panel Evidence from Rural Uganda. *World Development*, 79, 127–137. <https://doi.org/10.1016/J.WORLDDEV.2015.11.006>
- Murendo, C., Wollni, M., de Brauw, A., & Mugabi, N. (2018). Social Network Effects on Mobile Money Adoption in Uganda. *The Journal of Development Studies*, 54(2), 327–342. <https://doi.org/10.1080/00220388.2017.1296569>
- Muthiora, B. (2015). Enabling mobile money policies in Kenya: Fostering a digital financial revolution. *GSMA Mobile Money for the Unbanked*, 1–27. <chrome-extension://efaidnbnmnibpcjpcglclefindmkaj/https://t1.daumcdn.net/brunch/service/user/P5W/file/mxAyGPsEeNdS1FAkt9vWxBJVHsg.pdf>
- Nandru, P., Chendragiri, M., & SA, S. (2025). Factors affecting the adoption of mobile payment services during the COVID-19 pandemic: an application of extended UTAUT2 model. *Journal of Science and Technology Policy Management*, 16(3), 405-431.
- Ndung'u, N. (2018). The M-Pesa Technological Revolution for Financial Services in Kenya: A Platform for Financial Inclusion. *Handbook of Blockchain, Digital Finance, and Inclusion, Volume 1: Cryptocurrency, FinTech, InsurTech, and Regulation*, 37–56. <https://doi.org/10.1016/B978-0-12-810441-5.00003-8>
- Obidat, A., Almahameed, M., & Alalwan, M. (2022). An empirical examination of factors affecting the post-adoption stage of mobile wallets by consumers: A perspective from a developing country. *Decision Science Letters*. <https://doi.org/10.5267/j.dsl.2022.2.005>
- Odoom, R., & Kosiba, J. P. (2020). Mobile money usage and continuance intention among micro enterprises in an emerging market—the mediating role of agent credibility. *Journal of Systems and Information Technology*, 22(1), 97-117.
- OECD. (2020). OECD Digital Economy Outlook 2020. In *OECD Publishing*. OECD. <https://doi.org/10.1787/bb167041-en>
- of Commerce in Hong Kong, E. C. (2017). EUBIP Position Paper: Financial Services Business Council (FSBC) of the European Chamber of Commerce in Hong Kong. <https://Charltonsquantum>.

Com/European-Chamber-of-Commerce-Publishes-Position-Paper-on-Hong-Kong-Fintech/.chrome-

extension:/efaidnbmnnnibpcajpcglclefindmkaj/https://a9d48d80-78bd-4513-9e3c-33c460d0e72f.usrfiles.com/ugd/a9d48d_a41b1108d16e451394c87e12e47cbc36.pdf

- Olaekan, O. O., Adeleye, D. O., & Srivastava, V. K. (2024). The surge of cross-border payment firms in Africa: Implications for entrepreneurship and SMES. *International Journal of Science and Research Archive*, 13(1), 684-696.. <https://doi.org/10.30574/ijrsra.2024.13.1.1728>
- Oliveira, T., Thomas, M., Baptista, G., & Campos, F. (2016). Mobile payment: Understanding the determinants of customer adoption and intention to recommend the technology. *Computers in Human Behavior*, 61, 404–414. <https://doi.org/10.1016/j.chb.2016.03.030>
- Osafo-Kwaako, P., Singer, M., White, O., & Zouaoui, Y. (2018). Mobile money in emerging markets: The business case for financial inclusion. *McKinsey Quarterly*.
- Osei-Assibey, E. (2015). What drives behavioral intention of mobile money adoption? The case of ancient susu saving operations in Ghana. *International Journal of Social Economics*, 42(11), 962–979. <https://doi.org/10.1108/IJSE-09-2013-0198>
- Owusu Kwateng, K., Osei Atiemo, K. A., & Appiah, C. (2019). Acceptance and use of mobile banking: an application of UTAUT2. *Journal of Enterprise Information Management*, 32(1), 118–151. <https://doi.org/10.1108/JEIM-03-2018-0055>
- Owusu, T. N. (2017). Factors influencing the usage of mobile money services in Ghana. *University of Turku*, 22, 2018, Retrieved September.
- Ozili, P. K. (2023). Central bank digital currency research around the world: a review of literature. *Journal of Money Laundering Control*, 26(2), 215–226. <https://doi.org/10.1108/JMLC-11-2021-0126>
- Pal, A., Herath, T., De', R., & Rao, H. R. (2020). Contextual facilitators and barriers influencing the continued use of mobile payment services in a developing country: insights from adopters in India. *Information Technology for Development*, 26(2), 394–420. <https://doi.org/10.1080/02681102.2019.1701969>
- Pal, D., Vanijja, V., & Papasratorn, B. (2015). An Empirical Analysis towards the Adoption of NFC Mobile Payment System by the End User. *Procedia Computer Science*, 69, 13–25. <https://doi.org/10.1016/j.procs.2015.10.002>

- Pal, J., Chandra, P., Kameswaran, V., Parameshwar, A., Joshi, S., & Johri, A. (2018). Digital Payment and Its Discontents. *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*, 1–13. <https://doi.org/10.1145/3173574.3173803>
- Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS*. Routledge.
- Palmié, M., Wincent, J., Parida, V., & Caglar, U. (2020). The evolution of the financial technology ecosystem: An introduction and agenda for future research on disruptive innovations in ecosystems. *Technological Forecasting and Social Change*, 151, 119779. <https://doi.org/10.1016/j.techfore.2019.119779>
- Pang, C., Collin Wang, Z., McGrenere, J., Leung, R., Dai, J., & Moffatt, K. (2021, May). Technology adoption and learning preferences for older adults: evolving perceptions, ongoing challenges, and emerging design opportunities. *In Proceedings of the 2021 CHI conference on human factors in computing systems* (pp. 1-13).
- Passacantando, F. (2021). The digital euro: Challenges and opportunities. *The (Near) Future*.
- Pather, S., Remenyi, D., & Erwin, G. (2004). E-commerce success: the quest for IS effectiveness measurement: a conceptual framework for the e-commerce environment. *South African Computer Journal*, 2004(32), 34-43.
- Patil, P., Tamilmani, K., Rana, N. P., & Raghavan, V. (2020). Understanding consumer adoption of mobile payment in India: Extending Meta-UTAUT model with personal innovativeness, anxiety, trust, and grievance redressal. *International Journal of Information Management*, 54, 102144. <https://doi.org/10.1016/j.ijinfomgt.2020.102144>
- Peng, C., Bijmolt, T. H., Völckner, F., & Zhao, H. (2023). A meta-analysis of brand extension success: The effects of parent brand equity and extension fit. *Journal of Marketing*, 87(6), 906-927. <https://doi.org/10.1177/00222429231164654>
- Phillips, D. C., & Burbules, N. C. (2001). Postpositivism and educational research. *British Journal of Educational Studies*, 49(1).
- Pina, J. M., Martinez, E., de Chernatony, L., & Drury, S. (2006). The effect of service brand extensions on corporate image. *European Journal of Marketing*, 40(1/2), 174–197. <https://doi.org/10.1108/03090560610637374>

- Pisoni, G., Molnár, B., & Tarcsi, Á. (2022). *Comparison of Two Technologies for Digital Payments: Challenges and Future Directions* (pp. 478–484). https://doi.org/10.1007/978-3-030-82529-4_46
- Preacher, K. J., & Hayes, A. F. (2008). Contemporary Approaches to Assessing Mediation in Communication Research. In *The SAGE Sourcebook of Advanced Data Analysis Methods for Communication Research* (pp. 13–54). Sage Publications, Inc. <https://doi.org/10.4135/9781452272054.n2>
- Püschel, J., Afonso Mazzon, J., and Mauro C. Hernandez, J. (2010). Mobile banking: proposition of an integrated adoption intention framework. *International Journal of Bank Marketing*, 28(5), 389-409.
- Putrevu, J., & Mertzanis, C. (2024). The adoption of digital payments in emerging economies: challenges and policy responses. *Digital Policy, Regulation and Governance*, 26(5), 476-500.
- Ramadan, R., & Aita, J. (2018). A model of mobile payment usage among Arab consumers. *International Journal of Bank Marketing*, 36(7), 1213–1234. <https://doi.org/10.1108/ijbm-05-2017-0080>
- Ramli, F. A. A., Hamzah, M. I., Wahab, S. N., & Shekhar, R. (2023). Modeling the Brand Equity and Usage Intention of QR-Code E-Wallets. *FinTech*, 2(2), 205–220. <https://doi.org/10.3390/fintech2020013>
- Riley, F. D., Pina, J. M., & Bravo, R. (2015). The role of perceived value in vertical brand extensions of luxury and premium brands. *Journal of Marketing Management*, 31(7–8), 881–913. <https://doi.org/10.1080/0267257X.2014.995692>
- Rogers, E. M. (2003). *Diffusion of innovations* (4th ed.). New York: Free Press
- Rogelberg, S. G., & Stanton, J. M. (2007). Introduction: Understanding and dealing with organizational survey nonresponse. *Organizational Research Methods*, 10(2), 195–209.
- Rogers, E. M., Singhal, A., & Quinlan, M. M. (2014). Diffusion of innovations. In *An integrated approach to communication theory and research* (pp. 432–448). Routledge.
- Sahi, A. M., Khalid, H., & Abbas, A. F. (2021). Digital payment adoption: A review (2015–2020). *Journal of Management Information and Decision Sciences*, 24, 1–9. https://www.researchgate.net/publication/361630935_DIGITAL_PAYMENT_AD_OPTION_A_REVIEW_2015-2020?enrichId=rgreq-b3e7cdb08452a598b6c1578b59e32567-XXX&enrichSource=Y292ZXJQYW

dIOzM2MTYzMDkzNTtBUzoxMTcyNTMwMzgzNTkzNDcyQDE2NTY1NjQ0
MzYwNzQ%3D&el=1_x_2&_esc=publicationCoverPdf

- Sahin, F., & Soylemez, C. (Eds.). (2024). Globalized Consumer Insights in the Digital Era. *IGI Global*.
- Sakyi-Nyarko, C., Ahmad, A. H., & Green, C. J. (2022). Investigating the well-being implications of mobile money access and usage from a multidimensional perspective. *Review of Development Economics*, 26(2), 985–1009. <https://doi.org/10.1111/rode.12848>.
- Salam, M. A., Rayun, S. N., & Leong, V. S. (2023). Examining Critical Factors Influencing Generation Z's Acceptance of Mobile Payment Systems in Bangladesh: A UTAUT Model Analysis. *Journal of Business & Economic Analysis*, 6(3).
- Sam, J. S., Ray, R., & Chakraborty, A. (2023). Digital Payments on the Agenda: How Supply-side Actors Framed Cash and Digital Payments during the COVID-19 Pandemic in India. *Asian Studies Review*, 47(2), 336–354. <https://doi.org/10.1080/10357823.2022.2063253>
- Sari, N. P. W. P., Duong, M. P. T., Li, D., Nguyen, M. H., & Vuong, Q. H. (2024). Rethinking the effects of performance expectancy and effort expectancy on new technology adoption: Evidence from Moroccan nursing students. *Teaching and Learning in Nursing*, 19(3), e557-e565.
- Schierz, P. G., Schilke, O., & Wirtz, B. W. (2010). Understanding consumer acceptance of mobile payment services: An empirical analysis. *Electronic Commerce Research and Applications*, 9(3), 209–216. <https://doi.org/10.1016/j.elerap.2009.07.005>
- Schumacker, R. E., & Lomax, R. G. (2016). A Beginner's Guide to Structural Equation Modelling (4th Ed.). *New York: Routledge*.
- Sekaran, U., & Bougie, R. (2010). Research methods for business: A skill-building approach (5th ed.). *Haddington: John Wiley & Sons*.
- Senyo, P., & Osabutey, E. L. C. (2020). Unearthing antecedents to financial inclusion through FinTech innovations. *Technovation*, 98, 102155. <https://doi.org/10.1016/j.technovation.2020.102155>
- Sharma, S. K., & Sharma, M. (2019). Examining the role of trust and quality dimensions in the actual usage of mobile banking services: An empirical investigation. *International Journal of Information Management*, 44, 65-75.

- Sheth, J. (2020). Impact of Covid-19 on consumer behavior: Will the old habits return or die?. *Journal of business research*, 117, 280-283.
- Sha'ban, M., Girardone, C., & Sarkisyan, A. (2019). *Financial Inclusion: Trends and Determinants* (pp. 119–136). https://doi.org/10.1007/978-3-030-16295-5_5
- Sheeran, P., & Webb, T. L. (2016). The intention–behaviour gap. *Social and Personality Psychology Compass*, 10(9), 503-518.
- Sichtmann, C., & Diamantopoulos, A. (2013). The impact of perceived brand globalness, brand origin image, and brand origin–extension fit on brand extension success. *Journal of the Academy of Marketing Science*, 41, 567-585.
- Sichtmann, C., Schoefer, K., Blut, M., & Kemp, C. J. (2017). Extending service brands into products versus services. *European Journal of Marketing*, 51(1), 200–218. <https://doi.org/10.1108/ejm-08-2013-0460>
- Siddiqui, M. K., & Goyal, K. K. (2023). A Study the Use of E-Payment Systems Based on Artificial Intelligence. *Artificial Intelligence and Communication Technologies*, 1063-1076.
- Simon, M. K. (2011). *Dissertation and scholarly research: Recipes for success* (2013 Ed.). Dissertation Success, LLC.
- Singh, S., & Srivastava, R. K. (2018). Predicting the intention to use mobile banking in India. *International Journal of Bank Marketing*, 36(2), 357-378.
- Slade, E. L., Dwivedi, Y. K., Piercy, N. C., & Williams, M. D. (2015). Modelling Consumers' Adoption Intentions of Remote Mobile Payments in the United Kingdom: Extending UTAUT with Innovativeness, Risk, and Trust. *Psychology & Marketing*, 32(8), 860–873. <https://doi.org/10.1002/mar.20823>
- Song, P., Zhang, C., & Zhang, P. (2013). Online information product design: The influence of product integration on brand extension. *Decision Support Systems*, 54(2), 826–837. <https://doi.org/10.1016/j.dss.2012.09.008>
- Straub, D., Boudreau, M. C., & Gefen, D. (2004). Validation guidelines for IS positivist research. *Communications of the Association for Information systems*, 13(1), 24.
- Su, K., Wu, J., & Lu, Y. (2022). With trust we innovate: Evidence from corporate R&D expenditure. *Technological Forecasting and Social Change*, 182, 121834.
- Suri, T., & Jack, W. (2016). The long-run poverty and gender impacts of mobile money. *Science*, 354(6317), 1288–1292. <https://doi.org/10.1126/science.aah5309>

- Susanto, A., Chang, Y., & Ha, Y. (2016). Determinants of continuance intention to use the smartphone banking services: An extension to the expectation-confirmation model. *Industrial Management & Data Systems*, 116(3), 508-525.
- Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2018). Using Multivariate Statistics (7th ed.). *Pearson*.
- Taylor, S., & Todd, P. A. (1995). Understanding information technology usage: A test of competing models. *Information Systems Research*, 6(2), 144-176. <https://doi.org/10.1287/isre.6.2.144>.
- Thompson, R. L., Higgins, C. A., & Howell, J. M. (1991). Personal computing: Toward a conceptual model of utilization. *MIS Quarterly*, 15(1), 125-143. <https://doi.org/10.2307/249443>
- Trautman, L. J. (2015). E-Commerce, cyber, and electronic payment system risks: lessons from PayPal. *UC Davis Bus.* , 16(261).
- Ullman, J. B. (2006). Structural Equation Modeling: Reviewing the Basics and Moving Forward. *Journal of Personality Assessment*, 87, 35-50. http://dx.doi.org/10.1207/s15327752jpa8701_03
- Utami, R. A., & Irwansyah, I. (2022). Faktor-Faktor yang Mempengaruhi Penggunaan Aplikasi E-Wallet Dana di Kota Samarinda. *Jurnal Bisnis dan Pembangunan*, 11(2), 91-97. <https://doi.org/10.20527/jbp.v11i2.14994>
- Vargo, S. L., & Lusch, R. F. (2020). Service-dominant logic 2020. *AMS Review*, 10, 1-17. <https://doi.org/10.1007/s13162-019-00149-3>
- Velu, R., & Naidu, G. M. (2009). Survey sampling methods in marketing research: A review of telephone, mall intercept, panel, and web surveys. *Handbook of statistics*, 29, 513-538.
- Venkatesh, Morris, Davis, & Davis. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27(3), 425. <https://doi.org/10.2307/30036540>
- Venkatesh, Thong, & Xu. (2012). Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology. *MIS Quarterly*, 36(1), 157. <https://doi.org/10.2307/41410412>
- Venkatesh, V., & Davis, F. D. (2000). A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies. *Management Science*, 46(2), 186-204. <https://doi.org/10.1287/mnsc.46.2.186.11926>

- Völckner, F., & Sattler, H. (2006). Drivers of Brand Extension Success. *Journal of Marketing*, 70(2), 18–34. <https://doi.org/10.1509/jmkg.70.2.018>
- Walsh, P., & Williams, A. (2017). To extend or not extend a human brand: An analysis of perceived fit and attitudes toward athlete brand extensions. *Journal of Sport Management*, 31(1), 44-60.
- Widodo, M., Irawan, M. I., & Sukmono, R. A. (2019). Extending UTAUT2 to explore digital wallet adoption in Indonesia. *2019 International Conference on Information and Communications Technology (ICOIACT)*, 878–883. <https://doi.org/10.1109/ICOIACT46704.2019.8938415>
- Williams, R.-St. M., Facey-Shaw, L., & Wade, T. (2024). Understanding QR Code Mobile Payment Adoption in Jamaica: A University Community Perspective. *Proceedings of the 4th LACCEI International Multiconference on Entrepreneurship, Innovation and Regional Development (LEIRD 2024): "Creating Solutions for a Sustainable Future: Technology-Based Entrepreneurship."* <https://doi.org/10.18687/leird2024.1.1.890>
- Winanti, W., & Fernando, E. (2024). The Role of Brand Image and Trust in the Adoption of FinTech Digital Payment for Online Transportation. *Journal of Information Systems Engineering and Business Intelligence*, 10(1), 126–138. <https://doi.org/10.20473/jisebi.10.1.126-138>.
- World Bank Group. (2019). *Ghana Digital Economy Diagnostic*. <https://doi.org/http://hdl.handle.net/10986/34366License:CCBY3.0IGO>.
- Yan, Hong and Pan, KaiLing, "Examine User Adoption of Mobile Payment Using the TAM: A Trust Transfer Perspective" (2014). *WHICEB 2014 Proceedings*. 55. <https://aisel.aisnet.org/whiceb2014/55>
- Yang, S., Lu, Y., Gupta, S., Cao, Y., & Zhang, R. (2012). Mobile payment services adoption across time: An empirical study of the effects of behavioral beliefs, social influences, and personal traits. *Computers in Human Behavior*, 28(1), 129-142.
- Yoo, Y., Boland, R. J., Lyytinen, K., & Majchrzak, A. (2022). Organizing for digital innovation: New theories and modes of organizing. *MIS Quarterly Executive*, 21(1), 1–20.
- Zachariadis, M., & Ozcan, P. (2017). The API Economy and Digital Transformation in Financial Services: The case of Open Banking. *SWIFT INSTITUTE WORKING PAPER*, 2016(001).

- Zarifis, A., Efthymiou, L., Cheng, X., & Demetriou, S. (2014). Consumer trust in digital currency enabled transactions. *In Business Information Systems Workshops: BIS 2014 International Workshops, Larnaca, Cyprus, May 22-23, 2014, Revised Papers 17* (pp. 241-254). Springer International Publishing
- Zhang, K. Z. K., Gong, X., Chen, C., Zhao, S. J., & Lee, M. K. O. (2019). Spillover effects from web to mobile payment services. *Internet Research*, 29(6), 1297–1320. <https://doi.org/10.1108/INTR-11-2017-0457>
- Zhang, Y., Guo, X., & Qu, Y. (2025). Brand extension or co-branding: The consumer's attribution of responsibility to the crossover strategies of heritage brands. *Journal of Retailing and Consumer Services*, 82, 104133.
- Zhu, Y.-Q., Fang, Y.-H., & Lim, S.-Y. (2023). Investigating drivers of service extension success for a super app. *Computers in Human Behavior*, 139, 107928. <https://doi.org/10.1016/j.chb.2023.107928>



APPENDIX: RESEARCH QUESTIONNAIRE

EXAMINING CONSUMERS ADOPTION OF DIGITAL PAYMENTS AS BRAND EXTENSIONS – EVIDENCE FROM EMERGING MARKETS

Introduction

Hello (Sir/ Madam), and thank you for considering participating in this research study. I wish to introduce you to my research project which seeks to explore and better understand the factors influencing consumers' acceptance and use of digital payments. This research's main objective is to investigate consumers' perceptions, attitudes, and behaviours towards digital payment solutions and how they make decisions towards them. I do not expect this interview to take more than 25 minutes. For the most part, I will read out the questions, then I may show you some answer options in some cases, and you just tell me your answer. Kindly answer the questions as accurately as possible and do not hesitate to point out to me if any question is difficult to understand or to answer. If you have any questions or concerns or need more information about the study later, you can contact me at 0264413493 or igwumah@st.ug.edu.gh. If you have any concerns about the ethical aspects of this research or your rights as a participant, you may also contact the Research Ethics Committee at the Graduate School, University of Ghana at ech@ug.edu.gh or 00233- 303-933866.

Notes to Interviewer: Allow respondents to read and sign the consent form before proceeding with the interview. Remember that this interview is to be admitted face-to-face to the respondent using a tablet (electronic device). You have to read out the questions and where likert scales apply you need to show the screen of your tablet to the respondent so he or she provides her answer.

Q1. Do you consent to participating in this survey? (Yes – 1 ; No – 0)

Q2. Interviewer: select date of the interview.

Q3. Interviewer: Select location of the survey from the list provided below

Q4a. Record sex of the respondent: Male – 1; Female - 2

Q4b. How old will you be when you celebrate your birthday this year? (Enter respondent's age as given)

Q5. What is the highest educational qualification you have attained? (select from list provided)

Postgraduate - 1

First degree - 2

Secondary School - 3

Technical/ Vocational Institute – 4

Other occupation – 5

Not employed - 99

Q5b. Which of the following would you describe as your main occupation currently? (select one from the list)

High-level Professional - 1

Middle-level White Collar - 2

Skilled Services and Trades - 3

Skilled Primary Sector Workers - 4

Low-Skilled and Manual Workers - 5

Q5c. Have you ever made an electronic payment before using a digital payment BRAND registered in your name? (Yes – 1 ; No – 0)

(Script terminates if respondent selects No)

Q6. From which of the following organisations have you obtained a digital payment solution from?

Q6. From which of the following organisations have you obtained a digital payment solution from? /Telecom company

Q6. From which of the following organisations have you obtained a digital payment solution from? /Commercial bank

Q6. From which of the following organisations have you obtained a digital payment solution from? /Other financial institution

Q7a. Which digital payment BRAND from a telecom company have you ever tried before?

Q7a. Which digital payment BRAND from a telecom company have you ever tried before?/
MTN MoMo

(Script terminates if respondent has not used MTN MoMo before)

Q7a. Which digital payment BRAND from a telecom company have you ever tried before?
/Vodafone Cash

Q7a. Which digital payment BRAND from a telecom company have you ever tried before?
/AT Money

Q7b. Which digital payment BRAND from a telecom company would you say you use the most now?

Q8a. Which commercial bank's digital payment BRAND have you ever tried?

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Absa Bank Ghana Limited

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Access Bank Ghana Plc

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Agricultural Development Bank of Ghana

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Bank of Africa Ghana Limited

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/CalBank Limited

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Consolidated Bank Ghana Limited

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Ecobank Ghana Limited

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/FBN Bank Ghana Limited

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Fidelity Bank Ghana Limited

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/First Atlantic Bank Limited

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/First National Bank Ghana

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/GCB Bank Limited

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Guaranty Trust Bank Ghana Limited

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/National Investment Bank Limited

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/OmniBSIC Bank Ghana Limited



Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Prudential Bank Limited

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Republic Bank Ghana Limited

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Société Générale Ghana Limited

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Stanbic Bank Ghana Limited

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Standard Chartered Bank Ghana Limited

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/United Bank for Africa Ghana Limited

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Universal Merchant Bank Limited

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Zenith Bank Ghana Limited.

Q8b. Which commercial bank's digital payment BRAND would you say you use the most now?

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/I use one, but can't remember company name or company name not listed

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Zeepay Ghana Limited

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/AppsNmobile Solutions Limited

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Bsystems Limited

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Cellulant Ghana Limited

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Dreamoval Limited

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Emergent Payments Ghana Limited

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Etranzact Limited

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/ExpressPay Ghana Limited

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Fast Pace Transfer Limited

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Global Accelerex Ghana Ltd

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Halges Financial Technologies Limited

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Hubtel Limited

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/IT Consortium Limited

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/MFS Ghana Limited

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Moolre Limited

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Nfortics Ghana Limited

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Nsano Limited

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/PaySwitch Ghana Limited

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Transnet Payments Ghana Limited

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Techfin Innovations Ltd

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/ZappGhana Limited

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Titan Payment Systems

Q7a. Which digital payment BRAND from a telecom company have you ever tried before?2

Q7a. Which digital payment BRAND from a telecom company have you ever tried before?/MTN MoMo3

Q7a. Which digital payment BRAND from a telecom company have you ever tried before?/Vodafone Cash4

Q7a. Which digital payment BRAND from a telecom company have you ever tried before?/AT Money5

Q7b. Which digital payment BRAND from a telecom company would you say you use the most now?6

- Q8a. Which commercial bank's digital payment BRAND have you ever tried?7
- Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Absa Bank Ghana Limited8
- Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Access Bank Ghana Plc9
- Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Agricultural Development Bank of Ghana10
- Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Bank of Africa Ghana Limited11
- Q8a. Which commercial bank's digital payment BRAND have you ever tried?/CalBank Limited12
- Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Consolidated Bank Ghana Limited13
- Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Ecobank Ghana Limited14
- Q8a. Which commercial bank's digital payment BRAND have you ever tried?/FBN Bank Ghana Limited15
- Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Fidelity Bank Ghana Limited16
- Q8a. Which commercial bank's digital payment BRAND have you ever tried?/First Atlantic Bank Limited17
- Q8a. Which commercial bank's digital payment BRAND have you ever tried?/First National Bank Ghana18
- Q8a. Which commercial bank's digital payment BRAND have you ever tried?/GCB Bank Limited19
- Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Guaranty Trust Bank Ghana Limited20
- Q8a. Which commercial bank's digital payment BRAND have you ever tried?/National Investment Bank Limited21
- Q8a. Which commercial bank's digital payment BRAND have you ever tried?/OmniBSIC Bank Ghana Limited22
- Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Prudential Bank Limited23

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Republic Bank Ghana Limited24

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Société Générale Ghana Limited25

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Stanbic Bank Ghana Limited26

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Standard Chartered Bank Ghana Limited27

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/United Bank for Africa Ghana Limited28

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Universal Merchant Bank Limited29

Q8a. Which commercial bank's digital payment BRAND have you ever tried?/Zenith Bank Ghana Limited.30

Q8b. Which commercial bank's digital payment BRAND would you say you use the most now?31

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?32

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/I use one, but can't remember company name or company name not listed33

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/ZeePay Ghana Limited34

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/AppsNmobile Solutions Limited35

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Bsystems Limited36

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Cellulant Ghana Limited37

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Dreamoval Limited38

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Emergent Payments Ghana Limited39

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Etranzact Limited40

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/ExpressPay Ghana Limited41

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Fast Pace Transfer Limited42

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Global Accelerex Ghana Ltd43

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Halges Financial Technologies Limited44

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Hubtel Limited45

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/IT Consortium Limited46

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/MFS Ghana Limited47

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Moolre Limited48

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Nfortics Ghana Limited49

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Nsano Limited50

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/PaySwitch Ghana Limited51

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Transnet Payments Ghana Limited52

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Techfin Innovations Ltd53

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/ZappGhana Limited54

Q8c. Aside the digital payment solutions from the telecom companies and banks, which of the following companies have you subscribed to for a personal digital payment solution?/Titan Payment Systems55

Q9. Which of the digital payment solution you have ever used would you describe as YOUR MOST OFTEN USED digital payments brand?

Q10. Which of the following would you say best describes when you started using digital payments?

There are a number of questions that follow from here that I will like you to answer using an agreement scale of 1 to 7 where 1=strongly disagree, 2=disagree, 3=disagree somewhat, 4=neither agree nor disagree, 5= agree somewhat, 6=agree and 7=strongly agree

A.1. Using a digital payment solution from \$ {Q9} increases my productivity.

A.2. Using a digital payment solution from \$ {Q9} helps me accomplish payments more quickly.

A.3. I can save time when I use \$ {Q9} in the payment process.

A.4. I find \$ {Q9} useful in my daily life

A.5. Learning how to use \$ {Q9} was easy for me.

- A.6. It does not take a long time to learn how to use new features of $\{Q9\}$
- A.7. Overall, I find $\{Q9\}$ easy to use.
- A.8. It is easy for me to become skillful at using $\{Q9\}$
- A.9. People who are important have suggested that I use $\{Q9\}$
- A.10. People who influence my behavior think that I should use $\{Q9\}$
- A.11. People whose opinions I value suggest that I use $\{Q9\}$
- A.12. Most of the people around me are using $\{Q9\}$
- A.13. I have the resources necessary to use $\{Q9\}$
- A.14. I have the knowledge necessary to use $\{Q9\}$
- A.15. $\{Q9\}$ is compatible with other digital tools and services that I use
- A.16. I can get help from others when I have difficulties using $\{Q9\}$
- A.17. It is fun for me to use $\{Q9\}$
- A.18. I find the use of $\{Q9\}$ enjoyable
- A.19. I feel excited when using $\{Q9\}$
- A.20. I can save money by using $\{Q9\}$
- A.21. I like to search for cheap deals in $\{Q9\}$ services
- A.22. $\{Q9\}$ offers better value for money
- A.23. $\{Q9\}$ offers valuable promotions for me
- A.24. Using $\{Q9\}$ has become a habit for me
- A.25. Using $\{Q9\}$ is something that I do without thinking
- A.26. Using $\{Q9\}$ is a part of my daily routine
- A.27. I am addicted to using $\{Q9\}$
- A.28. I believe that $\{Q9\}$ is trustworthy
- A.29. I trust $\{Q9\}$
- A.30. I do not doubt the honesty of $\{Q9\}$.
- A.31. Even if not monitored, I would trust $\{Q9\}$ to do the job right.
- B.1. Looking at $\{Q9\}$ and the company brand it originates from, the two are similar in terms of their specific features and attributes.
- B.2. Looking at $\{Q9\}$ and the company brand it originates from, the two are similar in terms of their basic functions and benefits.
- B.3. Looking at $\{Q9\}$ and the company brand it originates from, the two are similar in terms of the resources required to develop the products (e.g., people, facilities, skills, strategy, knowledge, expertise).

B.4. Looking at $\{Q9\}$ and the company brand it originates from, the two are similar in terms of their abstract images and concepts (i.e., associations, concepts or images that come to you mind when you think about the brand/product).

B.5. Looking at $\{Q9\}$ and the company brand (telecom brand or bank brand) it originates from, the two are similar in terms of the occasions you use them (i.e., where or when to use them).

B.6. Looking at $\{Q9\}$ and the company brand it originates from, you consider yourself and other users of $\{Q9\}$ as the same target group of the company brand.

C.1 I expect my use of digital payments to increase in the future

C.2. I intend to use digital payments in the future

C.3. Where there is an opportunity to make payments to other parties, I will use digital payments

C.4. I will always try to use digital payments if I need to make a payment to someone

C.5. I plan to use digital payments frequently

D.1. I intend to continue using $\{Q9\}$

D.2. I will keep using $\{Q9\}$ as regularly as I do now.

D.3. My intention is to continue using $\{Q9\}$ than use any alternative means

D.4. I will strongly recommend $\{Q9\}$ to others.

E.1 I usually use my $\{Q9\}$ repetitively over a given month.

E.2 I use my $\{Q9\}$ for a large portion of my financial transactions In a given month.

E.3 I take advantage of most of the available uses of $\{Q9\}$

Q3b. Interviewer: Select gender of respondent.

Q9. Which of the digital payment solution you have ever used would you describe as YOUR MOST OFTEN USED digital payments brand?⁵⁶

Q10. Which of the following would you say best describes when you started using digital payments?⁵⁷

