Digital Financial Inclusion and Household Welfare in Developing Economies: A Narrative Review of Mobile Money, Digital Banking, and Financial Access

PhD Dissertation

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Abstract

Research Problem and Approach: Digital financial inclusion has been widely promoted as a pathway to improving welfare in developing economies, yet the evidence base remains fragmented, methodologically heterogeneous, and unable to specify the conditions under which digital financial services deliver their reported effects. This thesis addresses the absence of a structured synthesis that can organise existing evidence and clarify what is known, what remains contested, and under what circumstances digital finance produces developmental benefits.

Methodology and Findings: Through a systematic review and structured synthesis of the empirical and theoretical literature spanning randomised controlled trials, quasi-experimental designs, panel regressions, and qualitative studies, this research examines the relationship between digital financial inclusion and outcomes including poverty reduction, income inequality, financial stability, and women's economic empowerment. The synthesis reveals that reported effects range from transformative to negligible, with outcomes contingent on digital literacy, gender norms, market structure, regulatory quality, and the specific type of digital financial service examined.

Key Contributions: This thesis makes three primary contributions: a conceptual clarification that distinguishes between functionally distinct digital financial services – mobile money transfers, digital savings, credit, and insurance – that the literature frequently conflates, a systematic assessment of methodological strengths and limitations across study designs, identifying where causal claims are warranted and where they are not, and an integrated explanatory framework specifying the boundary conditions and intermediate mechanisms through which digital financial inclusion affects development outcomes.

Implications: The findings indicate that uniform policy prescriptions for digital financial inclusion are unlikely to succeed, as benefits depend critically on contextual and institutional factors. This research provides guidance for policymakers, regulators, and development practitioners seeking to design targeted interventions that account for local conditions, complement digital delivery with digital literacy initiatives, and strengthen consumer protection frameworks to ensure that digital financial services fulfil their developmental promise equitably.

Keywords: Digital Financial Inclusion, Mobile Money, Developing Economies, Financial Inclusion, Poverty Reduction, Fintech, Digital Banking, Economic Development, Financial Literacy, Consumer Protection, Income Inequality, M-PESA, Regulatory Frameworks, Women's Empowerment, Sustainable Development

1. Introduction

1.1 Background and Motivation

The global financial system has expanded dramatically over the past three decades, yet a substantial share of the world's adult population remains outside its reach. Many poor people around the world still lack formal financial services such as bank accounts and digital payments, relying instead on cash (Demirgüç-Kunt et al., 2020). This persistence of exclusion is not merely a statistical artefact; it shapes how households manage risk, how small enterprises finance growth, and how governments deliver social protection. Financial services, when accessible and affordable, allow people to smooth consumption, invest in education and health, and absorb shocks that would otherwise push families into destitution (Demirgüç-Kunt et al., 2020). Their absence, by contrast, locks households into informal arrangements that are costly, insecure, and often exploitative.

What makes the contemporary moment distinctive is that the traditional barriers to inclusion – physical branch networks, documentary requirements, minimum balance thresholds – have been partially circumvented by digital technologies. Mobile money, in particular, has demonstrated that a basic handset and a network of local agents can deliver payment, storage, and transfer services to populations in the developing world (Donovan, 2012; Jack & Suri, 2011). M-PESA in Kenya has seen perhaps the most rapid and widespread growth of a mobile money product in the developing world, with adoption increasing from 43 to 70 percent in the panel sample (Jack & Suri, 2011; Jack & Suri, 2014).

This argument has since been generalised and extended. Digital banking – encompassing mobile applications, agent networks, and increasingly platform-based models – has been positioned as a central instrument of development policy, endorsed by multilateral institutions, national regulators, and a growing fintech sector (Gabor & Brooks, 2016). The World Bank's Universal Financial Access initiative and the G20's financial inclusion agenda both treat digital delivery as the primary pathway to reaching the remaining unbanked population (Bull & Klapper, 2023). The enthusiasm is not confined to policy circles. A substantial academic literature has emerged that documents associations between digital financial inclusion and outcomes ranging from income inequality and women's economic empowerment to vulnerability to poverty (Demir et al., 2020; Behera, 2026; Wang & Fu, 2021).

The motivation for this thesis arises from a tension within that literature. On one hand, the accumulated evidence points to genuine and sometimes substantial benefits from digital financial services in developing economies. On the other, the evidence base is fragmented, methodologically heterogeneous, and frequently unable to disentangle the effects of digital financial inclusion from the broader economic and institutional changes with which it co-evolves. Studies report effects that range from transformative to negligible, and the conditions under which digital finance delivers on its promise remain poorly specified (Atinyo et al., 2026; Ahmad et al., 2020). The result is a field that is rich in individual findings but comparatively weak in synthesis, and it is this gap that the present thesis addresses.

The stakes are considerable. If digital financial inclusion reliably improves welfare, then the case for public investment in digital infrastructure, regulatory reform, and consumer protection is strong. If, however, the benefits are contingent on factors such as digital literacy, gender norms, market structure, or the quality of regulatory oversight, then a uniform policy prescription is likely to disappoint. Distinguishing between these possibilities requires careful attention to the mechanisms and boundary conditions that the existing literature has identified but not yet systematically assembled.

1.2 Problem Statement

The central problem this thesis confronts is that the relationship between digital financial inclusion and development outcomes in developing economies is both widely asserted and insufficiently understood. Despite a rapidly expanding body of research, the field lacks a coherent synthesis that can specify what is known, what remains contested, and what the conditions are under which digital financial services produce their reported effects.

Several features of the existing literature contribute to this problem. The first is conceptual imprecision. ”Digital financial inclusion” is used to refer to mobile money transfers, which differ in their functionality, their user base, and their implications for welfare (Donovan, 2012). When these distinct services are treated as a single construct, the resulting findings are difficult to interpret and even harder to compare across studies.

The second feature is methodological heterogeneity. The literature encompasses randomised controlled trials, quasi-experimental designs, panel regressions, and qualitative ethnographic work, each with different assumptions and different limits on what can be inferred (Dalton et al., 2024; Jack & Suri, 2014; Morawczynski & Pickens, 2009). Some studies exploit the staggered rollout of mobile money services to identify causal effects; others rely on cross-country variation in adoption rates that is plausibly confounded with unobserved institutional differences. The result is a body of evidence in which the strength of causal claims varies considerably, yet this variation is not always reflected in how findings are summarised or cited.

The third feature is geographic and contextual unevenness. The most influential evidence comes from a small number of settings in sub-Saharan Africa and Asia, while other regions of the developing world remain comparatively understudied (Ahmad et al., 2020; Atinyo et al., 2026). Whether findings from East African mobile money markets generalise to Latin American or South-east Asian contexts, where banking sectors are more developed and mobile money has followed different trajectories, is an open question that the literature has not resolved (Endress, 2025).

A fourth and perhaps more fundamental problem concerns the mechanisms through which digital financial inclusion is supposed to operate. The theoretical case for digital finance rests on the reduction of transaction costs, the relaxation of information asymmetries, and the expansion of access to savings and credit instruments (Demir et al., 2020; Ozili, 2018). Yet the empirical literature often reports outcome-level associations without testing the intermediate mechanisms that would establish why those outcomes occur. When studies do examine mechanisms – for instance, the role of digital savings in mediating the link between mobile money and entrepreneurship (Koomson et al., 2022), or the mediating effect of consumer protection on the relationship between mobile money adoption and financial inclusion (Okello Candiya Bongomin & Ntayi, 2020) – they tend to do so in isolation, without integrating their findings into a broader explanatory framework.

These four problems – conceptual, methodological, geographic, and mechanistic – are not independent. They reinforce one another and collectively produce a literature that is difficult to navigate and even more difficult to translate into policy. The problem this thesis addresses, therefore, is the absence of a structured synthesis that can organise the existing evidence, identify the conditions under which digital financial inclusion delivers its reported benefits, and specify the gaps that future research must close.

1.3 Research Questions

The thesis is organised around a set of research questions that follow directly from the problem statement. These questions are deliberately framed at a level of abstraction that permits synthesis across heterogeneous studies while remaining specific enough to guide the analysis.

The first question concerns the conceptual foundations of the field. How has digital financial inclusion been defined and operationalised in the literature on developing economies, and what are the consequences of the conceptual choices that researchers have made? This question requires attention to the distinction between access, usage, and quality of financial services, and to the ways in which mobile money and digital banking have been positioned relative to conventional financial inclusion (Demirgüç-Kunt & Klapper, 2013).

The second question addresses the mechanisms through which digital financial inclusion is theorised to produce development outcomes. What are the principal causal channels identified in the literature – transaction cost reduction, information asymmetry mitigation, risk sharing, commitment devices, and access to formal credit – and how well supported are these channels by the available evidence (Jack & Suri, 2014; Ozili, 2018; Riley, 2024)? Answering this question involves assessing both the theoretical coherence of the proposed mechanisms and the empirical strategies that have been used to test them.

The third question concerns outcomes. What does the literature report about the effects of digital financial inclusion on poverty, income inequality, women's economic empowerment, entrepreneurship, and household resilience in developing economies (Demir et al., 2020; Behera, 2026; Wang & Fu, 2021; Koomson et al., 2022)? This question requires careful attention to the heterogeneity of reported effects and to the conditions under which positive outcomes are observed.

The fourth question examines the moderating and mediating factors that shape these outcomes. Under what conditions does digital financial inclusion deliver its reported benefits, and what factors – digital literacy, gender norms, regulatory quality, market structure, and consumer protection – either amplify or attenuate its effects (Adel, 2024; Okello Candiya Bongomin & Ntayi, 2020; Ferilli et al., 2024)? This question is central to the thesis because it determines whether the literature supports a general prescription or a conditional one.

The fifth question concerns the limitations and gaps in the existing evidence. What are the methodological, geographic, and conceptual limitations of the current literature, and what research priorities follow from them (Atinyo et al., 2026; Ahmad et al., 2020; Winarti, 2026)? This question provides the basis for the thesis's contribution to future research agendas.

Taken together, these five questions define the scope of the review and synthesis that the thesis undertakes. They are not independent; the answers to the mechanistic and moderating questions inform the interpretation of the outcome evidence, and the identification of gaps depends on a clear understanding of what the literature has and has not established.

1.4 Scope and Boundaries

The scope of this thesis is defined by three boundaries: a thematic boundary, a geographic boundary, and a methodological boundary. Each is a deliberate choice that shapes what the thesis can and cannot claim.

The thematic boundary is set by the focus on digital financial inclusion, understood as the delivery of financial services through digital channels – principally mobile money and digital banking – to populations that have historically been excluded from formal financial systems. This focus excludes several adjacent topics, including the broader literature on financial development and economic growth, the literature on digital payments in advanced economies, and the literature on cryptocurrencies and central bank digital currencies except where these intersect directly with financial inclusion in developing economies. These exclusions are not judgements about the importance of those topics; they are necessary to keep the review tractable and to allow sustained attention to the mechanisms that are specific to digital financial inclusion in low- and middle-income settings.

The geographic boundary is defined by the focus on developing economies. This reflects both the concentration of the financial inclusion challenge in those settings and the fact that the most influential evidence on mobile money comes from them (Donovan, 2012; Jack & Suri, 2011). The thesis does not attempt to cover high-income economies, where the financial inclusion problem takes a different form and where digital banking has evolved along a distinct trajectory. Within the developing world, the review draws on evidence from Latin America, where digital financial inclusion has been studied in relation to renewable energy consumption (Said, 2026).

The methodological boundary is set by the decision to conduct a narrative review with structured search procedures rather than a systematic review following PRISMA protocols. This choice reflects the heterogeneity of the literature, which spans experimental, quasi-experimental, and qualitative traditions, and the difficulty of applying uniform inclusion criteria across such diverse work. The review is structured and transparent in its search procedures, but it does not claim the comprehensiveness or the procedural rigidity of a systematic review. This distinction is important for interpreting the thesis's findings: the synthesis is intended to be representative and analytically rigorous, not exhaustive.

A further boundary concerns the nature of the claims the thesis makes. Because the evidence mode is literature-only, the thesis does not present original empirical findings. It synthesises, compares, and critiques existing research; it identifies patterns and gaps; and it develops conceptual arguments about the conditions under which digital financial inclusion is likely to deliver its reported benefits. It does not test hypotheses with new data, and it does not claim to have resolved empirical questions that the existing literature has left open.

1.5 Significance and Contribution

The significance of this thesis rests on three claims: that the existing literature on digital financial inclusion is sufficiently mature to warrant synthesis, that the synthesis it offers fills a genuine gap, and that the resulting analysis has implications for both research and policy.

The maturity of the literature is evident in its scale and diversity. The field now encompasses experimental work on the causal effects of mobile money (Jack & Suri, 2014; Riley, 2024), quasi-experimental studies of digital finance and inequality (Demir et al., 2020), cross-country analyses of digital financial inclusion and growth (Yaqin & Safuan, 2023), and a growing body of work on consumer protection, taxation, and regulation (Okello Candiya Bongomin & Ntayi, 2020; Lotto, 2025; Mavhuru & Chitimira, 2025). Reviews of specific sub-literatures exist – for example, on mobile money and development in Africa (Ahmad et al., 2020), on digital financial inclusion and poverty reduction (Winarti, 2026), and on mobile money in Africa and Asia (Atinyo et al., 2026) – but these tend to focus on particular regions or particular outcome domains. What is missing is a synthesis that spans the full range of outcomes, mechanisms, and moderating factors and that is explicit about the conditions under which the reported benefits are likely to obtain.

The contribution of the thesis is therefore fourfold. First, it provides a structured synthesis of the evidence on digital financial inclusion and development outcomes in developing economies, organised around the mechanisms and moderating factors that the literature has identified. Second, it develops a conceptual framework that distinguishes between different forms of digital financial inclusion and specifies the conditions under which each is likely to produce particular outcomes. Third, it identifies the principal gaps in the existing evidence – methodological, geographic, and conceptual – and articulates a research agenda that addresses them. Fourth, it draws out the policy implications of the synthesis, with attention to the design of regulatory and consumer protection frameworks that can support inclusive digital finance without exposing users to new forms of risk.

The policy significance of the thesis is heightened by the fact that digital financial inclusion is now a central pillar of development strategy in many countries. Governments and international organisations have invested heavily in digital infrastructure and regulatory reform on the premise that digital financial services will expand access and improve welfare (Gabor & Brooks, 2016). If that premise holds only under specific conditions, then the design of those investments matters enormously. A synthesis that clarifies those conditions can help policymakers avoid the mistake of assuming that adoption alone will deliver inclusion, and can direct attention to the complementary factors – digital literacy and consumer protection – that the evidence suggests are necessary for digital finance to fulfil its promise (Adel, 2024; Okello Candiya Bongomin & Ntayi, 2020).

The thesis also contributes to academic debate by challenging some of the more expansive claims made on behalf of digital finance. The literature contains a countervailing strand that emphasises the risks of algorithmic exclusion, over-indebtedness, and the commodification of poverty (Flores, 2026). The synthesis developed here takes this strand seriously and argues that the evidence supports a conditional rather than a categorical conclusion: digital financial inclusion can improve welfare, but its effects depend on the institutional and individual conditions under which it is deployed.

1.6 Structure of the Thesis

The thesis is organised into three principal chapters, followed by appendices and references. Chapter 2, Review and Synthesis, contains the substantive analysis. It comprises four sections. Section 2.1, the Literature Review, surveys the conceptual and empirical foundations of digital financial inclusion, covering its definitions, its theoretical underpinnings, and the principal strands of empirical research on mobile money and digital banking in developing economies. Section 2.2, Review Methodology, sets out the procedures used to identify and select the literature, describes the databases and search terms employed, and explains the rationale for the narrative approach adopted. Section 2.3, Synthesis of Findings, integrates the evidence reviewed in Section 2.1, organising it around the mechanisms, outcomes, and moderating factors identified in the research questions. Section 2.4, Discussion, interprets the synthesis, considers its implications for theory and policy, and identifies the limitations of the review and the gaps that future research should address.

Chapter 3, the Conclusion, summarises the principal findings of the thesis, restates its contribution, and offers closing reflections on the prospects for digital financial inclusion as a development strategy. The appendices provide supporting material, including the search strategy and a summary of the sources reviewed. The references list the works cited in the thesis.

Dimension	Focus of This Thesis	Adjacent Literature Excluded
Financial services	Mobile money, digital banking, agent networks	Cryptocurrencies, CBDC (except inclusion intersections)
Geography	Developing economies (SSA, South Asia, LatAm, SEA)	High-income economies
Review type	Narrative review with structured search	Systematic review (PRISMA)
Evidence mode	Literature synthesis and conceptual analysis	Original empirical testing

Table 1: Scope boundaries of the thesis.

The boundaries summarised in Table 1 reflect the analytical choices discussed in Section 1.4. The thematic boundary keeps the review focused on the forms of digital finance that are most directly relevant to the inclusion challenge in developing economies, while the geographic boundary reflects the distribution of the existing evidence. The methodological boundary acknowledges that the heterogeneity of the literature makes a narrative synthesis more appropriate than a systematic review, and the evidence-mode boundary clarifies that the thesis contributes through synthesis and conceptual development rather than through new empirical work.

The introduction has set out the background and motivation for the thesis, stated the problem it addresses, articulated the research questions that guide the analysis, defined the scope and boundaries of the review, and explained its significance and contribution. The chapters that follow develop the synthesis in detail, beginning with the literature review in Section 2.1.

2. Review and Synthesis

2.1 Literature Review

2.1.1 Introduction to the Literature Review

The literature on digital financial inclusion has expanded dramatically over the past fifteen years, driven by the recognition that access to formal financial services constitutes a foundational element of economic development. This expansion reflects both the rapid diffusion of mobile technologies across developing economies and a growing body of empirical evidence linking financial access to poverty reduction, entrepreneurship, and household resilience. The present review synthesises this literature with the aim of establishing the theoretical foundations, empirical patterns, and unresolved questions that motivate this thesis.

The review is organised thematically rather than chronologically, reflecting the multidimensional nature of digital financial inclusion as a field of inquiry. Four broad domains structure the analysis. First, the review examines the conceptual foundations of financial inclusion and its digital transformation, tracing how scholarship has moved from a binary conception of ”banked” versus ”unbanked” toward more nuanced frameworks that account for usage, quality, and sustainability of access. Second, it surveys the empirical evidence on mobile money as a mechanism for expanding inclusion, drawing on studies from Sub-Saharan Africa, Asia, and Latin America. Third, it considers the determinants and barriers that shape adoption and usage patterns, including digital literacy, gender dynamics, regulatory frameworks, and consumer protection. Fourth, it examines the relationship between digital financial inclusion and broader development outcomes, including poverty reduction, inequality, entrepreneurship, and economic growth.

A recurring theme across these domains concerns the gap between access and meaningful use. The literature increasingly recognises that expanding the availability of digital financial services does not automatically translate into improved financial well-being, and that the mechanisms connecting access to outcomes remain contested. This tension between access expansion and capability enhancement constitutes a central concern of this thesis, which seeks to synthesise existing evidence while identifying the conceptual and empirical gaps that warrant further investigation.

2.1.2 Conceptual Foundations of Financial Inclusion

2.1.2.1 Defining Financial Inclusion Financial inclusion refers to the process by which individuals and enterprises gain access to appropriate, affordable, and timely financial products and services. The concept encompasses not merely the presence of a bank account but the effective use of financial services for saving, borrowing, making payments, and managing risk. Demirgüç-Kunt and Klapper (2013) provided one of the earliest systematic attempts to measure financial inclusion across countries, developing a user-side dataset covering 148 economies that captured how adults save, borrow, make payments, and manage risk. Their work established that financial inclusion varies substantially both across and within countries, with income level, education, and geographic location emerging as consistent correlates of formal financial service use.

The conceptualisation of financial inclusion has evolved considerably since these foundational measurement efforts. Early frameworks treated inclusion primarily as a binary state – individuals were either included in or excluded from the formal financial system. More recent scholarship recognises gradations in inclusion, distinguishing between access (the availability of financial services), usage (the actual utilisation of those services), and quality (the extent to which services meet user needs). This multidimensional view acknowledges that having a bank account differs meaningfully from actively using financial services, and that usage patterns vary in intensity and purpose.

Demirgüç-Kunt et al. (2020) advanced this multidimensional perspective through the Global Findex Database, which measured how adults in over 140 economies save, borrow, make payments, and manage risks. Their analysis provided updated measures of financial inclusion across economies, underscoring the importance of measurement for understanding financial inclusion and identifying opportunities to expand it.

2.1.2.2 The Digital Transformation of Financial Inclusion The emergence of digital technologies has fundamentally altered the environment of financial inclusion. Gabor and Brooks (2016) examined the growing importance of digital-based financial inclusion as a form of organising development interventions, highlighting how networks of state institutions, international development organisations, philanthropic investors, and fintech companies have coalesced around digital financial inclusion as a development strategy. Their analysis situates digital financial inclusion within broader political economy dynamics, arguing that the fintech-philanthropy-development complex represents a distinctive mode of governing financial access.

Ozili (2018) provided an early detailed discussion of the issues associated with digital finance, noting that digital finance and financial inclusion offer benefits to financial services users, digital finance providers, governments, and the economy. However, Ozili also cautioned that these benefits are not automatic and that digital finance introduces new risks, including cybersecurity concerns, consumer protection challenges, and the potential for digital exclusion of populations lacking technological access or literacy. This balanced assessment anticipated subsequent research examining both the promise and pitfalls of digital financial inclusion.

The shift from traditional banking to digital platforms has been characterised by Verhoef et al. (2021) as part of a broader digital transformation affecting multiple industries. Their framework identifies three stages of digital transformation – digitisation, digitalisation, and digital transformation – that have parallels in the financial sector. In the financial context, digitisation refers to the conversion of analogue financial records to digital form; digitalisation involves the use of digital technologies to alter how financial services are delivered; and digital transformation entails fundamental changes to business models and value creation processes. This staged framework helps explain why digital financial inclusion has proceeded unevenly across developing economies, with some countries achieving rapid transformation while others remain at earlier stages.

2.1.2.3 Mobile Money as a Distinctive Form of Digital Finance Mobile money occupies a distinctive position within the digital financial inclusion environment. Shaikh et al. (2023) observed that many consider mobile money services a separate domain within the banking and payment sector, distinct from its siblings such as automated teller machines, net banking, and point-of-sale banking. This distinctiveness derives from mobile money's origins in telecommunications rather than banking, its reliance on agent networks rather than branch infrastructure, and its particular suitability for populations lacking traditional banking relationships.

Donovan (2012) evaluated the benefits and potential impact of mobile money for promoting financial inclusion in the developing world, providing an overview of the key factors driving the growth of services while considering barriers and obstacles hindering deployment. Donovan's analysis identified several factors contributing to mobile money's success, including the ubiquity of mobile phones, the development of agent networks that extended financial touchpoints into underserved communities, and regulatory frameworks that permitted non-bank entities to offer payment services. These factors distinguished mobile money from earlier attempts to extend financial access through traditional banking channels.

The relationship between mobile money and conventional banking has evolved over time. Initially viewed as a substitute for banking services in areas where banks had limited presence, mobile money increasingly functions as a complement to formal financial services, with interoperability initiatives enabling transfers between mobile money accounts and bank accounts. Brunnermeier et al. (2023) examined the relationship between mobile money, interoperability, and financial inclusion, suggesting that the capacity to move funds smoothly between different platforms enhances the utility of mobile money and may accelerate financial inclusion. However, the authors also note that interoperability introduces complexities in terms of competition, pricing, and regulatory oversight that require careful management.

2.1.3 Empirical Evidence on Mobile Money and Financial Inclusion

2.1.3.1 Evidence from Sub-Saharan Africa Sub-Saharan Africa has served as the primary laboratory for mobile money research, reflecting the region's early adoption of services such as M-PESA in Kenya and the subsequent diffusion of similar platforms across the continent. Jack and

Suri (2011) conducted foundational research on M-PESA, reporting initial results from two rounds of a large survey of Kenyan households. Their work documented the rapid growth of mobile money adoption and provided early evidence on usage patterns, including the frequency of transactions, the purposes for which mobile money was used, and the demographic characteristics of users.

The most influential finding from Jack and Suri's research concerned the impact of mobile money on risk sharing. In a subsequent study, Jack and Suri (2014) estimated the effects of mobile money on consumption, finding that while shocks reduced consumption by 7 percent for non-users, the consumption of mobile money users was largely unaffected. This finding suggested that mobile money enabled more effective risk sharing by reducing the transaction costs associated with transferring funds to individuals experiencing negative shocks. The magnitude of this effect – the complete mitigation of consumption reduction for users – was striking and contributed to the perception of mobile money as a transformative technology for financial inclusion.

Replication studies have generally confirmed the robustness of these findings. Alinaghi and Reed (2019) conducted a replication study of the evidence from Kenya's mobile money revolution, examining whether the original findings on risk sharing and transaction costs held up under different analytical approaches. Their replication supported the core conclusion that mobile money reduces transaction costs and enables risk sharing, though they noted some sensitivity to model specification. This replication contributes to the credibility of the original findings while highlighting the importance of methodological transparency in mobile money research.

Riley (2024) extended the investigation of mobile money's effects to Uganda, examining whether changing the form of disbursement of a microfinance loan could enable female borrowers to overcome intra-household sharing pressure and grow their businesses. Using a field experiment with 3,000 borrowers, Riley compared the disbursement of loans as cash to disbursement via mobile money. The findings suggested that mobile money disbursement allowed women to maintain greater control over loan proceeds, reducing the pressure to share funds with household members and enabling greater investment in their enterprises. This study illustrates how mobile money can affect not only access to financial services but also the intra-household dynamics that shape how financial resources are used.

The relationship between mobile money and entrepreneurship has attracted considerable research attention. Koomson et al. (2022) examined the comparative link between mobile money and entrepreneurship in East Africa, analysing locational, gender, and age heterogeneities in the mobile money-entrepreneurship nexus. Their study explored the potential mediating roles of digital savings and access to digital credit, finding that mobile money's effects on entrepreneurship operate partly through these intermediate mechanisms. The authors documented variation in effects across location, gender, and age, suggesting that mobile money's impact on entrepreneurship is contingent on contextual factors.

Dalton et al. (2024) conducted a randomised controlled trial with small- and medium-sized enterprises in Kenya to estimate the causal impact of electronic payment technology on business finance. Using an encouragement design to exogenously increase e-payment usage among a random subset of firms, they found that adoption of e-payment technology was associated with changes in business finance outcomes. This experimental evidence complements observational studies by providing stronger causal identification, though the specific mechanisms and magnitudes of effects continue to be debated.

Aker et al. (2016) examined the use of mobile money for cash transfer programmes in Niger, comparing the effects of electronic transfers to traditional cash transfers. Their study found that mobile money transfers were associated with higher household diet diversity and time savings for recipients. These findings have implications for social protection policy, suggesting that electronic transfers may address logistical challenges in implementing cash transfer programmes, though sufficient investment in payments infrastructure is needed.

Atinyo et al. (2026) conducted a systematic review of empirical evidence on the role of mobile money in advancing financial inclusion across Africa and Asia, synthesising findings from 47 peer-reviewed studies published between 2010 and 2024. Their review documented consistent evidence that mobile money expands access to financial services, particularly among populations that were previously unbanked. However, the review also identified heterogeneity in outcomes across contexts and noted that the quality and sustainability of financial inclusion achieved through mobile money remain under-examined.

2.1.3.2 Evidence from Asia Research on mobile money and digital financial inclusion in Asia has grown substantially, though the region's experience differs from Sub-Saharan Africa in important respects. Many Asian countries entered the mobile money era with more developed banking infrastructure than African countries, and the trajectory of digital financial inclusion has been shaped by different regulatory and market conditions.

Nahwan (2025) examined the role of financial technology adoption on financial inclusion among unbanked populations in Indonesia, documenting that while financial inclusion levels continued to increase, gaps persisted between urban and rural areas. The study identified unbanked groups – including informal entrepreneurs and women in suburban areas – as facing particular barriers to accessing formal financial services. Despite rapid growth in financial technology, these populations remained underserved, suggesting that technology adoption alone is insufficient to achieve universal financial inclusion.

Khan (2025) examined mobile money and financial inclusion using international evidence from informal sector enterprises in Asia and Africa. The study's focus on informal sector enterprises is significant because these businesses represent a substantial share of economic activity in developing economies yet often operate outside formal financial systems. Khan's research contributes to understanding how mobile money can extend financial services to enterprises that traditional banks have been reluctant to serve.

The experience of Southeast Asia has attracted attention as a region where digital financial inclusion has advanced rapidly. Endress (2025) examined challenges and progress in financial inclusion in Southeast Asia, documenting both achievements and persistent obstacles. The region's diversity – encompassing high-income Singapore, middle-income Malaysia and Thailand, and lower-income Cambodia, Laos, and Myanmar – means that financial inclusion challenges vary substantially across countries. Endress's analysis highlights the importance of context-specific approaches to financial inclusion policy.

Research from China has provided insights into the relationship between digital financial inclusion and poverty reduction. Wang and Fu (2021) examined the mitigating effects of digital financial inclusion on vulnerability to poverty in rural Chinese households. Their study found that digital financial inclusion was associated with reduced vulnerability to poverty, though the mechanisms and magnitudes of effects varied across household characteristics. This research extends the analysis of digital financial inclusion beyond access and usage to consider impacts on economic security and resilience.

2.1.3.3 Evidence from Latin America Latin America represents a region where digital financial inclusion has advanced significantly, though from different starting points than Africa or Asia. Said (2026) conducted an empirical analysis of the impact of digital financial inclusion on renewable energy consumption using panel data from 21 Latin American countries over the period 2004-2021. While the study's primary focus is on energy outcomes rather than financial inclusion per se, it demonstrates the application of digital financial inclusion measures to broader development questions. The study employed several estimation techniques, including dynamic ordinary least squares and fully modified ordinary least squares, reflecting the methodological sophistication of recent research in this area.

The Latin American experience also illustrates the importance of regulatory frameworks in shaping digital financial inclusion outcomes. Countries such as Brazil and Mexico have developed regulatory approaches that encourage fintech innovation while maintaining consumer protections, while others have been slower to adapt regulatory frameworks to new technologies. This variation provides opportunities for comparative research examining how regulatory choices affect financial inclusion outcomes.

2.1.4 Determinants of Digital Financial Inclusion

2.1.4.1 Digital Literacy and Financial Literacy The relationship between literacy – both digital and financial – and financial inclusion has attracted substantial research attention. Lusardi (2019) examined financial literacy and the need for financial education, documenting widespread deficiencies in financial knowledge across both developed and developing countries. This research established that financial literacy is not merely a correlate of financial inclusion but a potentially causal factor: individuals with greater financial knowledge are better equipped to navigate financial systems, evaluate financial products, and make informed decisions about saving, borrowing, and investing.

Adel (2024) investigated the impact of digital literacy and technology adoption on financial inclusion in Africa, Asia, and Latin America, addressing gaps in understanding how digital literacy mediates the relationship between technology adoption and financial inclusion. The study found that while previous research had emphasised the role of digital infrastructure and technology adoption, digital literacy emerged as a critical determinant of whether individuals could effectively use digital financial services. This finding has important implications for policy, suggesting that investments in digital literacy may be necessary complements to investments in digital infrastructure.

Ferilli et al. (2024) examined the relationship between FinTech innovation and the digital financial divide in Europe, investigating how financial, social, and infrastructural factors relate to the level of digital financial divide among customers. Their study, conducted in the context of the COVID-19 pandemic, found that innovation in financial services correlates with a reduced digital financial divide, reinforced by improved digital infrastructure and social progress, while the post-Covid environment widened the gap in financially illiterate regions of the EU. This finding highlights the importance of considering how shocks and disruptions affect the digital financial divide, potentially reducing it while widening gaps in financially illiterate regions.

Goyal and Kumar (2020) conducted a systematic review and bibliometric analysis of financial literacy research, providing a wide-ranging overview of the field's development and current state. Their analysis documented the growth of financial literacy research, identified key themes and influential works, and mapped the intellectual structure of the field. This review provides a useful foundation for understanding how financial literacy research has evolved and where gaps remain, particularly concerning the relationship between financial literacy and digital financial inclusion.

2.1.4.2 Gender Dynamics Gender disparities in financial inclusion have been documented consistently across developing economies, and the literature has increasingly examined how digital technologies may either ameliorate or exacerbate these disparities. Behera (2026) examined financial inclusion and women's economic empowerment in developing economies, focusing on evidence from digital banking and microfinance. The study documented persistent gender disparities in access to formal financial systems, with a majority of women in many developing economies remaining outside formal financial systems despite global progress toward financial inclusion. Behera's analysis suggests that digital banking platforms have potential to reduce gender disparities by lowering barriers to access, but that this potential is not automatically realised and requires deliberate policy attention.

Natile (2020) theorised gender and financial inclusion, examining how gender shapes the experience of financial inclusion and exclusion. This theoretical work is important because it moves beyond documenting gender disparities to examining the mechanisms that produce them and the assumptions about gender embedded in financial inclusion initiatives. Natile's analysis suggests that financial inclusion programmes often operate with implicit assumptions about household dynamics and women's roles that may not reflect the realities of women's lives, potentially limiting the effectiveness of interventions designed to promote women's financial inclusion.

Zakuan and Hassan (2019) examined women's economic empowerment in developing countries, establishing that women's empowerment is primary to socio-economic and political development. Their analysis noted that it would be meaningless if women, who constitute half of the global population, do not have access to education, healthcare, employment, and political decision-making bodies. This perspective situates financial inclusion within broader efforts to promote gender equality and women's empowerment, suggesting that financial inclusion should be understood as one component of a complex development agenda.

Riley (2024) experimental evidence from Uganda, discussed above, provides important insights into how mobile money can affect gender dynamics within households. By enabling women to maintain greater control over loan proceeds, mobile money disbursement reduced intra-household sharing pressure and enabled greater business investment. This finding suggests that the form in which financial resources are delivered can affect gendered patterns of resource control within households, with implications for women's economic empowerment.

2.1.4.3 Socioeconomic and Demographic Factors The literature has consistently identified socioeconomic and demographic factors as important determinants of digital financial inclusion. Nyoka (2019) examined the relationship between education level, income disparities, and financial inclusion through mobile money adoption in South Africa. The study found that education and income were significant predictors of mobile money adoption, with higher levels of education and income associated with greater likelihood of adoption. This finding suggests that mobile money, despite its potential to expand financial inclusion, may not automatically reach the most disadvantaged populations, who may lack the education and income necessary to adopt and use digital financial services effectively.

Ikart (2022) examined mobile money adoption behaviour in Sub-Saharan Africa, focusing on socioeconomic, cultural, and political factors. The study noted that while considerable research had examined innovation adoption and diffusion in the context of mobile money's rapid growth, fewer studies had investigated active engagement with the technology using established reference theories. Ikart's analysis suggests that adoption and usage are distinct phenomena shaped by different factors, and that understanding why some adopters become active users while others do not requires attention to the full range of socioeconomic, cultural, and political factors that shape behaviour.

Lashitew et al. (2019) examined what explains the diffusion of mobile money innovations, investigating the factors that account for variation in mobile money diffusion across countries. Their research contributes to understanding why mobile money has achieved rapid diffusion in some contexts while remaining marginal in others, with implications for policy and practice. The study's focus on diffusion rather than individual adoption highlights the importance of macro-level factors – including regulatory frameworks, telecommunications infrastructure, and market structure – in shaping the trajectory of mobile money development.

2.1.4.4 Regulatory and Institutional Factors Regulatory and institutional factors play a important role in shaping digital financial inclusion outcomes. Mpofu and Mhlanga (2022) examined digital financial inclusion, digital financial services tax, and financial inclusion in the Fourth Industrial Revolution era in Africa. Their analysis noted that the digital economy had grown dramatically in the global environment, with many African countries experiencing a spike in digital activity. However, the study also examined how taxation of digital financial services might affect financial inclusion, raising concerns that taxes on mobile money transactions could deter usage and undermine financial inclusion objectives.

Lotto (2025) examined mobile money taxation and the financial inclusion agenda in East Africa, posing the question of whether taxation is ”killing the goose that laid the golden egg.” This critical review assessed the consequences of mobile money taxation on financial inclusion in selected East African countries, finding that taxation could reduce transaction volumes and deter adoption, particularly among low-income users for whom even small taxes represent meaningful costs. The study highlights the tension between revenue mobilisation objectives and financial inclusion goals, suggesting that policymakers must carefully balance these considerations.

Consumer protection represents another important regulatory dimension. Okello Candiya Bongomin and Ntayi (2020) examined mobile money adoption and usage and financial inclusion, focusing on the mediating effect of digital consumer protection. Their study drew on the observation that while mobile money services have significant potential to provide affordable, convenient, and secure financial services, frauds on consumers of financial products over digital financial platforms have been rampant. The study found that digital consumer protection mediates the relationship between mobile money adoption and financial inclusion, suggesting that consumer protection is not merely a regulatory afterthought but a factor that shapes whether mobile money achieves its financial inclusion potential.

Mavhuru and Chitimira (2025) conducted an exploratory analysis of the protection of mobile money consumers under South African financial consumer protection laws. Their analysis examined the legal and regulatory framework governing mobile money in South Africa, identifying gaps and shortcomings in consumer protection. This research contributes to understanding how legal frameworks shape the experience of mobile money users and the extent to which existing protections are adequate for the distinctive features of mobile money services.

The relationship between financial inclusion and financial stability has also attracted regulatory attention. Hannig and Jansen (2010) examined financial inclusion and financial stability, identifying current policy issues at the intersection of these two objectives. Their analysis considered how expanding financial inclusion might affect financial stability, and how regulatory frameworks might be designed to promote inclusion while safeguarding stability. This research is relevant to digital financial inclusion because digital technologies may alter the risk profile of financial inclusion, introducing new sources of risk while also creating new tools for risk management.

Oyoo (2020) examined the impact of mobile money on financial crime, money laundering, and terrorism financing, arguing that although mobile money has led to greater financial inclusion, the rate of reported financial crimes raises the need to stay abreast of developments in this space. This research highlights the importance of anti-money laundering and counter-terrorism financing frameworks for digital financial inclusion, suggesting that the expansion of digital financial services must be accompanied by appropriate safeguards against misuse. The challenge for policymakers is to design regulatory frameworks that address these risks without imposing burdens that deter legitimate use of digital financial services.

2.1.5 Digital Financial Inclusion and Development Outcomes

2.1.5.1 Poverty Reduction The relationship between digital financial inclusion and poverty reduction has been a central concern of the literature. Winarti (2026) conducted a structured literature review synthesising conceptual mechanisms and empirical evidence linking digital financial inclusion to poverty reduction. The review identified multiple mechanisms through which digital financial inclusion may reduce poverty, including supporting savings, enabling investment, improving risk management, and reducing transaction costs. However, the review also noted that the evidence base remains uneven, with more studies examining access than usage, and more studies from some regions than others.

Niu (2026) revisited the finance-poverty nexus from a multidimensional perspective, distinguishing between financial depth, physical access, financial fragility, and operating efficiency while explicitly accounting for the role of mobile-money penetration. Using instrumental variable specifications, the study found that different dimensions of financial development have different relationships with poverty reduction, and that mobile money penetration moderates these relationships. This multidimensional approach represents an advance over studies that treat financial development as a unidimensional construct, suggesting that the composition of financial development matters for poverty outcomes.

Wang and Fu (2021) examined digital financial inclusion and vulnerability to poverty in rural Chinese households, finding that digital financial inclusion was associated with reduced vulnerability to poverty. The study's focus on vulnerability – the probability that a household will fall into poverty in the future – rather than current poverty status is significant because it captures the role of financial inclusion in helping households manage risk and avoid future deprivation. This dynamic perspective complements static analyses of poverty status.

Liu and Guo (2023) examined digital financial inclusion, income inequality, and vulnerability to relative poverty, contributing to understanding of how digital financial inclusion relates to distributional outcomes. The study's focus on relative poverty is important because it recognises that poverty is not merely absolute deprivation but also relative disadvantage. Digital financial inclusion may affect relative poverty by altering the distribution of opportunities and resources, with implications for social cohesion and inequality.

2.1.5.2 Inequality The relationship between digital financial inclusion and inequality has attracted growing attention. Demir et al. (2020) examined fintech, financial inclusion, and income inequality using a quantile regression approach. Their study noted that although theory suggests financial market imperfections – mainly information asymmetries, market segmentation, and transaction costs – prevent poor people from escaping poverty by limiting their access to formal financial services, new financial technologies are seen as key enablers of financial inclusion. Using quantile regression, the authors examined how the relationship between fintech, financial inclusion, and inequality varies across the income distribution, finding evidence of heterogeneous effects.

Nichelatti (2025) examined the impact of mobile money on inequality using panel data analysis. While this study is a preprint and its findings should be treated with appropriate caution, it contributes to understanding of how mobile money affects distributional outcomes. The relationship between mobile money and inequality is theoretically ambiguous: mobile money could reduce inequality by expanding access to financial services for disadvantaged populations, or it could increase inequality if adoption is concentrated among relatively advantaged groups who are better positioned to benefit from financial access.

The concept of the ”algorithmic inclusion paradox” introduced by Flores (2026) offers a distinctive perspective on the relationship between digital financial inclusion and inequality. Flores examined how algorithmic decision systems in retail banking have expanded access to formal financial services, particularly among previously underserved populations, while also noting that expanded access does not uniformly translate into improved financial well-being. This paradox – that access expansion may coexist with capability erosion and financial precarity – suggests that the relationship between digital financial inclusion and inequality is more complex than simple access metrics would suggest.

2.1.5.3 Entrepreneurship and Enterprise Development The relationship between digital financial inclusion and entrepreneurship has been examined extensively. Koomson et al. (2022) found that mobile money was associated with entrepreneurship in East Africa, with effects mediated by digital savings and access to digital credit. This finding suggests that mobile money supports entrepreneurship not merely by providing payment services but by enabling the accumulation of savings and access to credit that are essential for business investment.

Dalton et al. (2024) provided experimental evidence on the impact of electronic payment technology on business finance, finding that adoption of e-payment technology was associated with changes in business finance outcomes among small- and medium-sized enterprises in Kenya. This experimental evidence complements observational studies and provides stronger causal identification, though questions remain about the mechanisms through which e-payment affects business finance.

The literature has also examined how digital financial inclusion affects different types of enterprises. Khan (2025) focused specifically on informal sector enterprises, examining mobile money and financial inclusion using evidence from Asia and Africa. Informal enterprises represent a substantial share of economic activity in developing economies yet often operate outside formal financial systems. Understanding how digital financial services can reach these enterprises is important for realising the full potential of digital financial inclusion for enterprise development.

2.1.5.4 Economic Growth At the macro level, the relationship between digital financial inclusion and economic growth has been examined using cross-country data. Yaqin and Safuan (2023) developed a model to measure financial inclusion incorporating the evolution of digital finance and identifying its relationship with GDP growth in emerging nations. Using data from 51 developing countries, the study employed principal component analysis to create a digital financial inclusion index and examined its relationship with economic growth. The findings suggested a positive relationship between digital financial inclusion and growth, though the study acknowledged limitations in establishing causality.

The relationship between financial inclusion and growth operates through multiple channels. Financial inclusion can promote growth by mobilising savings, enabling investment, improving resource allocation, and enabling risk management. Digital technologies may amplify these effects by reducing transaction costs, expanding the reach of financial services, and enabling new business models. However, the literature also recognises that financial inclusion can have costs as well as benefits, and that the relationship between financial inclusion and growth may be contingent on the quality of financial institutions and the regulatory environment.

Murinde et al. (2022) reviewed the burgeoning literature on FinTech and FinTech-enabled services, focusing on the opportunities and risks for banks. Using high-quality bank-level data from 115 countries, they examined how the FinTech revolution is affecting the banking sector and, by extension, the financial system's contribution to economic growth. Their analysis suggests that while FinTech creates opportunities for expanding financial services and improving efficiency, it also poses risks to traditional banks and may require regulatory adaptation.

2.1.6 Comparison of Approaches and Methodologies

Study	Method	Context	Key Finding
Jack & Suri (2014)	Panel survey	Kenya	Mobile money users maintained consumption during shocks; non-users experienced 7% reduction
Riley (2024)	Field experiment	Uganda	Mobile money disbursement increased female borrowers' business capital and profits
Dalton et al. (2024)	RCT	Kenya	E-payment adoption increased access to mobile loans
Aker et al. (2016)	Randomized experiment	Niger	Mobile money transfers improved diet diversity and saved recipient time
Demir et al. (2020)	Quantile regression	Cross-country	Heterogeneous effects of fintech on inequality across income distribution

Study	Method	Context	Key Finding
Niu (2026)	Instrumental variables	Cross-country	Different dimensions of financial development have distinct poverty relationships

Table 2: Comparison of key empirical studies on mobile money and financial inclusion.

The methodological approaches employed in the literature vary substantially, reflecting both the evolution of the field and the different questions that researchers have sought to address. Early studies relied primarily on observational data, using survey methods to document patterns of adoption and usage. Jack and Suri's (Jack & Suri, 2011) initial work on M-PESA exemplified this approach, providing rich descriptive evidence on who was using mobile money and for what purposes.

Subsequent research has increasingly employed more sophisticated methods for causal identification. Randomised controlled trials, exemplified by the work of Riley (2024) and Dalton et al. (2024), estimate causal effects of mobile money on microenterprise and business finance outcomes. Instrumental variable approaches, employed by Niu (2026), enable causal inference using observational data but depend on the validity of instruments. Quantile regression, used by Demir et al. (2020), allows examination of heterogeneous effects across the distribution of outcomes but does not by itself establish causality.

The diversity of methodological approaches reflects the multidimensional nature of digital financial inclusion and the different questions that researchers have sought to answer. No single method is appropriate for all questions, and the accumulation of evidence from multiple methods with different strengths and limitations provides the most robust basis for understanding the effects of digital financial inclusion.

2.1.7 Regional Perspectives

Region	Key Studies	Primary Focus
Sub-Saharan Africa	(Jack & Suri, 2014; Riley, 2024; Jack & Suri, 2011; Aker et al., 2016; Koomson et al., 2022)	Risk sharing, entrepreneurship, cash transfers
Asia	(Nahwan, 2025; Endress, 2025; Khan, 2025; Wang & Fu, 2021)	Urban-rural gaps, informal enterprises, poverty
Latin America	(Said, 2026)	Broader development outcomes
Cross-regional	(Demir et al., 2020; Niu, 2026; Atinyo et al., 2026; Yaqin & Safuan, 2023)	Financial inclusion, inequality, poverty, and growth

Table 3: Regional distribution of key studies on digital financial inclusion.

The literature on digital financial inclusion is unevenly distributed across regions, with Sub-Saharan Africa receiving the most attention. This concentration reflects the region's early and rapid adoption of mobile money, particularly M-PESA in Kenya, which provided a natural laboratory for studying the effects of digital financial services. The depth of research on Sub-Saharan Africa has produced rich insights into the mechanisms through which mobile money affects financial inclusion and development outcomes, but it also raises questions about the generalisability of findings to other contexts.

Research on Asia has grown substantially, addressing questions about digital financial inclusion in countries with different starting conditions and different trajectories of financial development. The Asian experience is particularly relevant for understanding how digital financial inclusion operates in contexts with more developed banking infrastructure and different regulatory frameworks. Studies from Indonesia (Nahwan, 2025), China (Wang & Fu, 2021), and cross-country analyses (Khan, 2025) have contributed to understanding of how digital financial inclusion affects different populations and outcomes.

Latin America remains relatively under-researched compared to Africa and Asia, despite significant advances in digital financial inclusion in countries such as Brazil and Mexico. The study by Said (2026) on digital financial inclusion and renewable energy consumption in Latin America represents one of the few empirical analyses focused on the region, though its primary focus is on energy outcomes rather than financial inclusion per se. The relative scarcity of research on Latin America represents a gap in the literature that future research might address.

Cross-regional studies have sought to identify patterns that hold across contexts while also examining how effects vary with contextual factors. The systematic review by Atinyo et al. (2026) synthesised evidence from Africa and Asia, providing a comparative perspective on mobile money and financial inclusion. Studies by Demir et al. (2020), Niu (2026), and Yaqin and Safuan (2023) have used cross-country data to examine relationships between digital financial inclusion and development outcomes, enabling comparisons across regions and identification of contextual factors that shape outcomes.

2.1.8 Theoretical Frameworks

2.1.8.1 Transaction Cost Theory Transaction cost theory provides a foundational framework for understanding how digital financial services affect financial inclusion. The theory posits that financial exclusion results partly from the transaction costs – both monetary and non-monetary – associated with accessing and using formal financial services. For poor households in developing economies, these costs may be prohibitive: travelling to distant bank branches, meeting documentation requirements, and paying fees for account maintenance and transactions can make formal financial services inaccessible even when they are nominally available.

Mobile money reduces transaction costs in several ways. By enabling transactions through mobile phones, it eliminates the need for physical travel to bank branches or agents. By simplifying account opening requirements, it reduces the documentation burden that excludes many potential users. By enabling small-value transactions at low cost, it makes formal financial services viable for populations that traditional banks have considered unprofitable to serve. Jack and Suri's (Jack

& Suri, 2014) finding that mobile money users maintained consumption during shocks while non-users experienced consumption reductions is consistent with transaction cost theory: by reducing the cost of transferring funds, mobile money enabled more effective risk sharing.

2.1.8.2 Financial Development Theory Financial development theory examines how the development of financial systems affects economic growth and development. The theory distinguishes between different dimensions of financial development – depth, access, efficiency, and stability – and examines how these dimensions relate to development outcomes. Niu's (2026) multidimensional analysis of the finance-poverty nexus exemplifies the application of financial development theory to digital financial inclusion, distinguishing between financial depth, physical access, financial fragility, and operating efficiency while accounting for mobile money penetration.

The application of financial development theory to digital financial inclusion raises questions about how digital technologies alter the relationship between financial development and development outcomes. Digital technologies may change the trade-offs between different dimensions of financial development – for example, enabling greater access without proportional increases in depth – and may introduce new dimensions, such as digital connectivity, that are relevant for financial development. Understanding these relationships requires theoretical frameworks that can accommodate the distinctive features of digital financial services.

2.1.8.3 Capability Approach The capability approach, developed by Amartya Sen and others, provides a framework for understanding development that emphasises the expansion of human capabilities – the freedoms that people have to achieve the lives they value. Applied to financial inclusion, the capability approach suggests that financial inclusion should be evaluated not merely by access to financial services but by the extent to which financial services expand people's capabilities to achieve their goals.

Flores (2026) concept of the ”algorithmic inclusion paradox” can be understood through a capability lens. Flores observed that expanded access to financial services through algorithmic decision systems does not uniformly translate into improved financial well-being, and may coexist with capability erosion and financial precarity. This observation suggests that access to financial services is not sufficient for financial inclusion in the capability sense; what matters is whether financial services enable people to achieve valued outcomes, which depends on factors beyond access alone.

The capability approach also highlights the importance of considering how digital financial inclusion affects different capabilities and different populations. The literature on gender and financial inclusion (Behera, 2026; Natile, 2020) suggests that digital financial services may affect men and women differently, with implications for gender equality as a development outcome. Similarly, research on digital literacy (Adel, 2024) suggests that the capability to use digital financial services effectively is unevenly distributed, with implications for who benefits from digital financial inclusion.

2.1.8.4 Political Economy Perspectives Political economy perspectives examine how power relations, institutional arrangements, and political dynamics shape digital financial inclusion. Gabor and Brooks (2016) situated digital financial inclusion within broader political economy dynamics, examining how networks of state institutions, international development organisations, philanthropic investors, and fintech companies have coalesced around digital financial inclusion as a development strategy. Their analysis raises questions about whose interests are served by digital financial inclusion initiatives and how the benefits and costs of digital financial services are distributed.

The political economy perspective also draws attention to the role of regulation in shaping digital financial inclusion outcomes. The literature on mobile money taxation (Lotto, 2025; Mpofu & Mhlanga, 2022) illustrates how fiscal policy decisions affect financial inclusion, with implications for the distribution of costs and benefits. Similarly, research on consumer protection (Mavhuru & Chitimira, 2025; Okello Candiya Bongomin & Ntayi, 2020) examines how regulatory frameworks shape the experience of digital financial service users, with implications for who bears the risks of digital financial innovation.

2.1.9 Research Gaps and Future Directions

2.1.9.1 Conceptual Gaps Despite substantial progress in understanding digital financial inclusion, significant conceptual gaps remain. One gap concerns the relationship between access and usage. Much of the literature treats access as the primary outcome of interest, with usage examined as a secondary consideration. However, the distinction between access and usage is fundamental: having a mobile money account differs meaningfully from actively using mobile money services, and the determinants of usage may differ from the determinants of access. The literature would benefit from more systematic examination of usage patterns, including the frequency, purpose, and intensity of digital financial service use.

A second conceptual gap concerns the relationship between digital financial inclusion and financial well-being. While the literature has documented associations between digital financial inclusion and outcomes such as poverty reduction and entrepreneurship, the mechanisms through which digital financial services affect well-being remain incompletely understood. The concept of the algorithmic inclusion paradox (Flores, 2026) suggests that access expansion may not translate into improved well-being, and that digital financial services may introduce new forms of vulnerability even as they expand access. Understanding these dynamics requires conceptual frameworks that can accommodate both the benefits and risks of digital financial inclusion.

A third conceptual gap concerns the temporal dimension of digital financial inclusion. Most studies examine digital financial inclusion at a single point in time, providing snapshots of access and usage patterns. However, financial inclusion is a dynamic process: individuals may enter and exit the formal financial system, usage patterns may change over time, and the effects of financial inclusion may accumulate or dissipate. Longitudinal research that tracks individuals and households over time would provide insights into the dynamics of digital financial inclusion that cross-sectional studies cannot capture.

2.1.9.2 Methodological Gaps Methodological gaps also limit understanding of digital financial inclusion. One gap concerns the measurement of digital financial inclusion. While significant progress has been made in developing indicators of financial inclusion (Demirgüç-Kunt & Klapper, 2013; Demirgüç-Kunt et al., 2020), the measurement of digital financial inclusion remains challenging. Digital financial services are diverse and rapidly evolving, making it difficult to develop indicators that capture the full range of digital financial inclusion while remaining comparable across contexts and over time. The development of better measures of digital financial inclusion would enhance the quality of research in this area.

A second methodological gap concerns causal identification. While randomised controlled trials provide strong evidence on causal effects, they are limited in scope and may not capture the full range of effects of digital financial inclusion. Observational studies using instrumental variables or other quasi-experimental methods can examine effects in larger populations but depend on assumptions that may not hold. The accumulation of evidence from multiple methods with different strengths and limitations provides the most robust basis for understanding causal effects, but the literature would benefit from more studies that combine different methodological approaches.

A third methodological gap concerns the examination of heterogeneity. The effects of digital financial inclusion may vary substantially across individuals, households, and contexts, but much of the literature reports average effects that may mask important variation. The literature on gender and financial inclusion (Behera, 2026; Natile, 2020) suggests that effects may differ by gender, while research on digital literacy (Adel, 2024) suggests that effects may differ by skill level. More systematic examination of heterogeneity would enhance understanding of who benefits from digital financial inclusion and under what conditions.

2.1.9.3 Empirical Gaps Empirical gaps in the literature include the relative scarcity of research on certain regions and populations. Latin America remains under-researched compared to Africa and Asia, despite significant advances in digital financial inclusion in countries such as Brazil and Mexico. Research on digital financial inclusion among particularly disadvantaged populations – including refugees, displaced persons, and populations in conflict-affected areas – remains limited. The literature would benefit from more research on these under-studied regions and populations.

A second empirical gap concerns the long-term effects of digital financial inclusion. Most studies examine short-term effects, with follow-up periods of months or a few years. However, the effects of financial inclusion may accumulate over time, and short-term studies may not capture the full range of effects. Longitudinal research that tracks outcomes over longer periods would provide insights into the long-term effects of digital financial inclusion.

A third empirical gap concerns the interaction between digital financial inclusion and other development interventions. Digital financial inclusion does not occur in isolation but interacts with other interventions, including social protection programmes, education initiatives, and infrastructure investments. Understanding how digital financial inclusion interacts with other interventions would inform the design of integrated development strategies that leverage the complementarities between different interventions.

2.1.9.4 Policy Gaps Policy gaps in the literature include the need for more research on the design and implementation of digital financial inclusion policies. While the literature has identified factors associated with digital financial inclusion, translating these findings into effective policies requires understanding how policies can affect these factors. Research on policy design and implementation – including the design of regulatory frameworks, the structure of incentives for financial service providers, and the targeting of interventions to reach disadvantaged populations – would enhance the policy relevance of digital financial inclusion research.

A second policy gap concerns the balance between financial inclusion and other policy objectives. The literature on mobile money taxation (Lotto, 2025; Mpofu & Mhlanga, 2022) illustrates the tension between revenue mobilisation and financial inclusion, while research on consumer protection (Mavhuru & Chitimira, 2025; Okello Candiya Bongomin & Ntayi, 2020) illustrates the tension between expanding access and protecting consumers. Understanding how to balance these objectives requires research that examines the trade-offs involved and identifies approaches that can achieve multiple objectives simultaneously.

A third policy gap concerns the role of international cooperation in promoting digital financial inclusion. Digital financial services often cross national borders, and the development of digital financial inclusion in one country may be affected by policies and practices in other countries. Research on international cooperation – including the harmonisation of regulatory frameworks, the sharing of best practices, and the coordination of development assistance – would inform efforts to promote digital financial inclusion at the global level.

2.1.10 Synthesis and Implications for This Thesis

The literature reviewed in this section establishes that digital financial inclusion – particularly through mobile money and digital banking – has expanded access to formal financial services across developing economies, with documented effects on risk sharing, entrepreneurship, poverty reduction, and other development outcomes. However, the literature also reveals that access expansion does not automatically translate into improved financial well-being, and that the mechanisms connecting digital financial services to development outcomes remain incompletely understood.

Several themes emerge from this review that inform the approach of this thesis. First, the distinction between access and usage is fundamental: understanding digital financial inclusion requires attention not only to whether individuals have access to digital financial services but also to how they use those services and what they achieve through that use. Second, the effects of digital financial inclusion are heterogeneous, varying across individuals, households, and contexts. Understanding this heterogeneity requires research that examines who benefits from digital financial inclusion and under what conditions. Third, digital financial inclusion operates within broader political, economic, and institutional contexts that shape its effects. Understanding these contexts is essential for interpreting research findings and for designing effective policies.

This thesis builds on these insights by synthesising the literature on digital financial inclusion with attention to the mechanisms through which mobile money and digital banking affect financial inclusion and development outcomes. The review has identified conceptual, methodological, empirical, and policy gaps that motivate the thesis's approach. By addressing these gaps, the thesis aims to contribute to understanding of how digital financial technologies can be used to promote financial inclusion and development in developing economies, while also recognising the limitations and risks of digital financial inclusion.

The literature reviewed here also establishes the empirical foundation for the thesis's analysis. Studies from Sub-Saharan Africa, Asia, and Latin America have documented patterns of adoption and usage, identified determinants of digital financial inclusion, and examined relationships between digital financial inclusion and development outcomes. This thesis draws on these studies to develop a thorough synthesis of the evidence on digital financial inclusion, identifying patterns that hold across contexts while also examining how effects vary with contextual factors. The review methodology, described in the following section, provides the framework for this synthesis.

2.2 Review Methodology

This section sets out how the literature underpinning this thesis was identified, selected, and analysed. Because the study is a narrative literature review rather than a systematic review, the procedures described here are structured and transparent but do not follow PRISMA protocols, and no claim to exhaustive or reproducible screening is made. The aim is instead to document the search logic, inclusion criteria, and analytical strategy closely enough that readers can judge how the evidence base was assembled and where its boundaries lie.

2.2.1 Research Design and Review Approach

2.2.1.1 Rationale for a Narrative Review The decision to adopt a narrative review design follows directly from the character of the field. Research on digital financial inclusion is dispersed across development economics, information systems, banking and finance, and public policy, and it employs markedly different methodological traditions. Experimental studies of mobile money adoption (Jack & Suri, 2014; Riley, 2024), cross-country panel analyses (Demir et al., 2020; Yaqin & Safuan, 2023), structured reviews of regional evidence (Atinyo et al., 2026; Ahmad et al., 2020), and conceptual contributions on digital finance and stability (Ozili, 2018) all address overlapping questions with different instruments. A systematic review with narrowly pre-specified inclusion rules would risk discarding precisely the conceptual and contextual material needed to interpret these heterogeneous findings.

A narrative approach also suits the explanatory ambitions of this thesis. The review is not intended merely to catalogue studies but to trace the mechanisms through which mobile money and digital banking affect financial inclusion and development outcomes, and to identify where the evidence is thin or contradictory. That kind of interpretive synthesis requires the flexibility to move between quantitative findings, qualitative accounts of user behaviour, and policy analysis. Structured reviews of mobile money in Africa and Asia (Atinyo et al., 2026) and broader surveys of mobile money and development (Ahmad et al., 2020) use systematic and taxonomic, descriptive and analytical methods to synthesise the literature.

At the same time, the approach carries acknowledged costs. Narrative reviews are vulnerable to selection bias, and the boundary between evidence and interpretation is less sharply drawn than in systematic work. To mitigate this, the search strategy, inclusion criteria, and analytical categories were specified in advance and are reported below in sufficient detail to allow readers to assess the basis for the synthesis presented in section 2.3.

2.2.1.2 Relationship to Prior Review Work Several existing reviews provide orientation for the present study. Ahmad et al. (2020) survey the literature on mobile money and its contribution to financial inclusion and development, with a focus on Sub-Saharan Africa, using taxonomic, descriptive, and analytical methods. Atinyo et al. (2026) systematically review empirical evidence on mobile money across Africa and Asia, drawing on forty-seven peer-reviewed studies published between 2010 and 2024. Winarti (2026) synthesises conceptual mechanisms and empirical evidence linking digital financial inclusion to poverty reduction. Lotto (2025) offers a critical review of mobile money taxation and financial inclusion in East Africa.

These reviews are valuable, but they leave room for a synthesis organised around mechanisms and contextual variation rather than around regional boundaries or single outcome variables. The review undertaken here differs in three respects. It spans mobile money and digital banking together rather than treating them as separate literatures. It organises evidence around the mechanisms linking digital financial services to inclusion and welfare outcomes, not only around adoption. And it attends explicitly to heterogeneity, asking under what conditions effects appear and for whom.

2.2.1.3 Positioning Within the Thesis Structure The review methodology serves the wider argument of this thesis in a specific way. Section 2.1 identified four clusters of gaps: conceptual gaps concerning the distinction between access and meaningful use, methodological gaps concerning the predominance of short-window and cross-sectional designs, empirical gaps concerning the uneven geographic and demographic coverage of the evidence, and policy gaps concerning the interaction between digital financial inclusion and taxation, consumer protection, and infrastructure. The review methodology described here was designed to surface evidence relevant to each of these gaps, and the synthesis in section 2.3 is organised accordingly.

2.2.2 Search Strategy and Source Selection

2.2.2.1 Databases and Search Terms Literature was identified through searches of Semantic Scholar, CrossRef, and arXiv, supplemented by targeted retrieval of World Bank and National Bureau of Economic Research working papers where these were cited in the retrieved literature. The search combined terms describing the technology (mobile money, digital banking, fintech, digital financial services, agent banking), the outcome domain (financial inclusion, access to finance, usage, financial exclusion), and the geographic or developmental context (developing economies, Sub-Saharan Africa, East Africa, South Asia, Southeast Asia, Latin America).

Search strings were constructed to allow variation in terminology, since the field uses overlapping labels for similar phenomena. Searches were run iteratively, with terms refined as the retrieved literature revealed adjacent bodies of work.

The searches were not restricted by publication type, but peer-reviewed journal articles were prioritised for evidentiary claims. Working papers and preprints were retained where they addressed questions not covered in the peer-reviewed literature, and are cited sparingly and identified as such in the synthesis. This distinction matters because several of the most directly relevant recent contributions, including multidimensional evidence on financial deepening and mobile money (Niu, 2026) and cross-country evidence on mobile money and informal enterprises (Khan, 2025), are currently available only as preprints.

2.2.2.2 Inclusion and Exclusion Criteria Studies were included if they addressed digital financial services in developing or emerging economies, reported on adoption, usage, or outcomes of mobile money or digital banking, and were published in English. No fixed publication window was imposed, but the search concentrated on work published from 2010 onward, reflecting the period in which mobile money moved from pilot stage to substantial scale. Foundational earlier work was retained where it established concepts or measurement conventions still in use, notably the user-side indicators of financial inclusion developed by Demirgüç-Kunt and Klapper (2013).

Studies were excluded if they concerned digital financial services exclusively in high-income economies without a comparative dimension relevant to developing-economy contexts, if they addressed financial technology without a discernible link to inclusion or usage, or if they were purely descriptive market reports without an identifiable methodology. Studies on adjacent topics such as general digital transformation (Verhoef et al., 2021) or blockchain research outside the financial inclusion domain (Yli-Huumo et al., 2016) were retained only as background where they illuminated a design principle or contextual condition, and are not used to support claims about financial inclusion outcomes.

Criterion	Included	Excluded
Context	Developing and emerging economies	High-income economies without comparative relevance
Technology	Mobile money, digital banking, fintech for inclusion	Financial technology without inclusion link
Outcomes	Adoption, usage, inclusion, welfare, policy	Market reports without methodology
Language	English	Non-English
Period	Concentrated 2010 onward, seminal earlier work retained	–
Evidence type	Peer-reviewed prioritised; preprints sparingly	Unverifiable or promotional material

Table 4: Inclusion and exclusion criteria applied during source selection.

The criteria were applied with a degree of judgement rather than mechanical screening. Where a study addressed a developing-economy context as part of a multi-country sample, it was retained and its geographic scope noted, since cross-country designs are central to several of the questions this thesis addresses. Where a study's abstract did not permit a confident judgement about its methodology, the study was retained only for the subject its title names, and no findings are attributed to it in the synthesis.

2.2.2.3 Source Composition and Role Assignment The resulting evidence base is heterogeneous in method, geography, and evidentiary weight. It includes randomised controlled trials (Riley, 2024; Aker et al., 2016; Dalton et al., 2024), quasi-experimental designs (Qamar & Dempere, 2026), cross-country panel analyses (Demir et al., 2020; Yaqin & Safuan, 2023), survey-based studies (Poojari & M, 2026), structured and critical reviews (Atinyo et al., 2026; Lotto, 2025; Ahmad et al., 2020), and conceptual contributions (Ozili, 2018; Gabor & Brooks, 2016; Donovan, 2012). This diversity is a strength for a synthesis organised around mechanisms, since different designs illuminate different links in the causal chain, but it complicates any attempt to aggregate findings quantitatively.

To manage this, sources were assigned roles according to the weight they can reasonably carry. Studies with strong identification strategies or extensive coverage of a relevant question anchor the central claims of the synthesis. Studies with narrower scope or weaker identification support specific points without carrying the main argument. Sources whose abstracts were unavailable or whose relevance is contextual rather than evidentiary are used only for the subject their titles name, and no findings, methods, or conclusions are attributed to them. This discipline is reflected in the citation practice throughout the synthesis.

Source Type	Illustrative Examples	Role in Synthesis
Experimental and quasi-experimental	(Riley, 2024; Aker et al., 2016; Dalton et al., 2024)	Anchor causal claims about usage and outcomes
Cross-country panel	(Demir et al., 2020; Yaqin & Safuan, 2023)	Anchor claims about aggregate relationships
Survey-based	(Poojari & M, 2026; Ikart, 2022)	Support claims about determinants and perceptions
Structured and critical reviews	(Atinyo et al., 2026; Lotto, 2025; Ahmad et al., 2020)	Support claims about the state of the field
Conceptual contributions	(Ozili, 2018; Gabor & Brooks, 2016; Donovan, 2012)	Frame mechanisms and policy debates
Contextual and background	(Verhoef et al., 2021),	Provide framing only, no evidentiary weight

Table 5: Composition of the evidence base and the role assigned to each source type.

The geographic distribution of the evidence base is uneven, and this unevenness is itself a finding that shapes the synthesis. Sub-Saharan Africa, and Kenya in particular, is heavily represented, reflecting the prominence of M-PESA in the literature (Jack & Suri, 2011; Morawczynski & Pickens, 2009). South Asia features through studies of digital banking and financial inclusion in India (Poojari & M, 2026). Southeast Asia appears through work on unbanked populations in Indonesia (Nahwan, 2025). Latin America is comparatively underrepresented, though recent work on digital financial inclusion and renewable energy consumption in the region (Said, 2026) and on digital literacy and technology adoption across Africa, Asia, and Latin America (Adel, 2024) partially addresses this.

2.2.2.4 Temporal and Thematic Coverage The temporal distribution of the evidence base reflects the maturation of the field. Early work concentrated on establishing whether mobile money could reach unbanked populations and documenting patterns of adoption and use (Jack & Suri, 2011; Morawczynski & Pickens, 2009). The middle period shifted toward measuring impacts, with experimental and quasi-experimental designs examining risk sharing (Jack & Suri, 2014) and business outcomes (Dalton et al., 2024). More recent work has broadened to include questions of taxation (Lotto, 2025; Mpofu & Mhlanga, 2022), consumer protection (Mavhuru & Chitimira, 2025; Okello Candiya Bongomin & Ntayi, 2020), algorithmic decision-making in digital banking (Flores, 2026), and the intersection of digital financial inclusion with climate resilience (Mehta, 2026).

This temporal progression matters for interpreting the evidence. Findings from early studies reflect a period when mobile money was a relatively novel product in a small number of markets, and their generalisability to more mature and more competitive markets is uncertain. Findings from the most recent period are often available only as preprints and have not yet been subjected to peer review. The synthesis in section 2.3 treats both ends of this distribution with appropriate caution.

2.2.3 Analytical Framework

2.2.3.1 Thematic Organisation Around Mechanisms The analytical strategy was thematic rather than chronological or geographic. Studies were grouped according to the mechanism they illuminate, producing five broad categories: access and adoption, usage and engagement, welfare and development outcomes, contextual and institutional conditions, and risks and unintended consequences. This organisation reflects the argument developed in section 2.1 that understanding digital financial inclusion requires attention not only to whether individuals have access but also to how they use services and what they achieve through that use.

The access and adoption category encompasses work on the determinants of uptake, including education and income disparities (Nyoka, 2019) and socioeconomic and cultural factors (Ikart, 2022). The usage and engagement category addresses the distinction between holding an account and actively using it, a distinction that emerges repeatedly in the literature and that the Global Findex data make visible (Demirgüç-Kunt et al., 2020). The welfare and development outcomes category covers studies linking digital financial inclusion to poverty reduction (Winarti, 2026; Wang & Fu, 2021), income inequality (Demir et al., 2020), entrepreneurship (Koomson et al., 2022), and women's economic empowerment (Behera, 2026).

The contextual and institutional conditions category captures work on how political, regulatory, and infrastructural factors shape outcomes, including the political economy of digital financial inclusion (Gabor & Brooks, 2016), the role of digital literacy and infrastructure (Adel, 2024), and the effects of taxation (Lotto, 2025; Mpofu & Mhlanga, 2022). The risks and unintended consequences category addresses consumer protection (Mavhuru & Chitimira, 2025; Okello Candiya Bongomin & Ntayi, 2020), financial crime (Oyoo, 2020), and the possibility that expanded access does not translate into improved capability (Flores, 2026).

Mechanism Category	Core Question	Illustrative Sources
Access and adoption	Who adopts, and what determines uptake?	(Nyoka, 2019; Ikart, 2022)
Usage and engagement	Who uses actively, and why do accounts remain dormant?	(Demirgüç-Kunt et al., 2020; Morawczynski & Pickens, 2009)
Welfare and development	What outcomes follow from use?	(Demir et al., 2020; Winarti, 2026; Koomson et al., 2022)
Context and institutions	How do context and policy shape effects?	(Gabor & Brooks, 2016; Lotto, 2025; Adel, 2024)

Mechanism Category	Core Question	Illustrative Sources
Risks and unintended effects	What can go wrong?	(Flores, 2026; Okello Candiya Bongomin & Ntayi, 2020; Oyoo, 2020)

Table 6: Thematic categories used to organise the evidence base.

2.2.3.2 Comparative and Contextual Analysis Within each thematic category, studies were compared along three dimensions: methodology, geographic context, and outcome measured. This comparative reading allows the synthesis to distinguish patterns that hold across contexts from those that appear specific to particular settings. Where studies using different methods and different samples converge on a similar finding, that convergence strengthens the claim. Where they diverge, the divergence becomes an object of analysis rather than a problem to be resolved by preferring one study over another.

Contextual analysis was applied systematically rather than selectively. Studies were read with attention to the institutional conditions in which they were conducted, including the regulatory environment, the level of mobile network coverage, the presence of competing financial service providers, and the demographic composition of the sample. This attention reflects the finding, developed across several strands of the literature, that the effects of digital financial inclusion are conditional on context. Evidence on the mediating role of digital consumer protection in the relationship between mobile money adoption and financial inclusion (Okello Candiya Bongomin & Ntayi, 2020) illustrates how institutional factors can alter outcomes.

2.2.3.3 Treatment of Quantitative Evidence Quantitative findings are reported with attention to their scope and precision. Where studies report effect sizes, confidence intervals, or sample sizes, these are noted in the synthesis, since a claim supported by a well-powered experimental design carries different weight from a claim supported by a small cross-sectional survey. Where studies report associations without identification strategies capable of supporting causal interpretation, the synthesis describes them as associations rather than effects.

This distinction is not merely technical. Much of the literature on digital financial inclusion and development outcomes relies on cross-country panel data (Demir et al., 2020; Niu, 2026; Yaqin & Safuan, 2023), and the credibility of these strategies varies. Experimental evidence, by contrast, is concentrated on a narrower set of questions, principally the effects of mobile money on risk sharing, consumption, and business outcomes (Jack & Suri, 2014; Riley, 2024; Dalton et al., 2024). The synthesis therefore treats the experimental literature as stronger on internal validity and the cross-country literature as stronger on external coverage, without treating either as uniformly superior.

Quantitative findings are also reported with attention to heterogeneity. Several studies report effects that vary by gender, location, education, or income (Nyoka, 2019; Koomson et al., 2022), and these variations are central to the argument of this thesis rather than incidental. Where a study reports an average effect, the synthesis notes whether the study also reports subgroup results and whether those results qualify the average.

2.2.3.4 Handling of Conceptual and Theoretical Material Conceptual contributions were treated as providing frameworks rather than evidence. Ozili's discussion of the benefits and risks associated with digital finance (Ozili, 2018), Gabor and Brooks's analysis of the political economy of digital financial inclusion (Gabor & Brooks, 2016), and Donovan's overview of the factors driving mobile money growth (Donovan, 2012) are used to frame mechanisms and policy debates, not to establish empirical claims. The same applies to work on financial inclusion and stability (Hannig & Jansen, 2010) and on the relationship between digital financial inclusion and economic systems (Ozili, 2026), which inform the interpretive framework without carrying evidentiary weight.

This separation matters because conceptual contributions often make claims that read as empirical. A conceptual paper may assert that digital finance promotes inclusion while also creating new risks, and that assertion may be well-reasoned, but it is not evidence that the risks have materialised in any particular setting. The synthesis therefore distinguishes between claims that a mechanism exists and claims that a mechanism has been observed to operate in a specific context.

2.2.4 Methodological Limitations and Considerations

2.2.4.1 Limitations of the Review Process Several limitations follow from the design choices described above. The review is not exhaustive, and no claim is made that the evidence base assembled here captures all relevant work. Searches were conducted in English, which excludes research published in other languages, including work on digital financial inclusion in Francophone West Africa and Latin America that may address questions this review treats as underexplored. The concentration of the search on three databases means that work indexed elsewhere may have been missed.

The absence of formal duplicate screening and inter-rater reliability procedures means that selection decisions were made by a single reviewer without independent verification. This is a recognised limitation of narrative reviews, and it means that the inclusion decisions reported above should be read as documented judgement rather than as reproducible protocol. The thematic categories were also developed by a single reviewer, and different categorisations are possible.

The reliance on abstracts for initial screening introduces a further limitation. Where an abstract was unavailable, the study could be assessed only on its title, and its content could not be verified. Studies in this category are cited only for their subject matter, and no findings are attributed to them. This conservative approach reduces the risk of misattribution but also means that some relevant evidence may be underused.

2.2.4.2 Limitations of the Underlying Literature The limitations of the review are compounded by limitations in the literature itself, several of which were identified in section 2.1 and which shape what the synthesis can and cannot establish. The most consequential is the predominance of short observation windows. Experimental studies of mobile money measure outcomes over periods of months (Dalton et al., 2024), which means that the literature is better at establishing immediate effects than at establishing whether those effects persist or compound. Long-term evidence on whether mobile money adoption produces durable improvements in welfare remains scarce.

A second limitation concerns the concentration of evidence in a small number of settings. Kenya features prominently in the experimental and quasi-experimental literature (Jack & Suri, 2011; Morawczynski & Pickens, 2009). The literature on South Asia and Southeast Asia is growing (Poojari & M, 2026; Nahwan, 2025), and Latin America is comparatively underrepresented (Said, 2026; Adel, 2024).

A third limitation concerns the gap between adoption and usage. The literature documents adoption extensively (Nyoka, 2019; Ikart, 2022; Lashitew et al., 2019). The Global Findex data make the phenomenon visible (Demirgüç-Kunt et al., 2020), and ethnographic work on M-PESA provides qualitative insight into usage patterns (Morawczynski & Pickens, 2009). This gap is central to the research agenda this thesis develops.

A fourth limitation concerns the treatment of risks and unintended consequences. Consumer protection (Mavhuru & Chitimira, 2025; Okello Candiya Bongomin & Ntayi, 2020), financial crime (Oyoo, 2020), and the possibility that algorithmic decision-making in digital banking may expand access while eroding capability (Flores, 2026) are all addressed in the literature, but these strands are less developed than the literature on benefits. The synthesis treats this asymmetry as informative in itself, since it suggests that the field has been more attentive to documenting the promise of digital financial inclusion than to documenting its costs.

Limitation	Consequence for the Synthesis	Addressed By
Short observation windows	Immediate effects better established than long-term	Noting time horizons explicitly
Geographic concentration	Findings may not generalise beyond studied settings	Contextual comparison across regions
Adoption-usage gap	Usage determinants underexplored	Foregrounding dormancy as a theme

Limitation	Consequence for the Synthesis	Addressed By
Underdeveloped risk literature	Costs less documented than benefits	Treating asymmetry as a finding
Preprint reliance	Some recent evidence not peer-reviewed	Citing preprints sparingly and flagging status

Table 7: Limitations in the underlying literature and how the synthesis addresses them.

2.2.4.3 Implications for the Synthesis These limitations shape the claims that the synthesis in section 2.3 can responsibly make. Where the evidence is strong and convergent, the synthesis states findings with appropriate confidence. Where the evidence is thin or contested, the synthesis describes the state of the debate rather than resolving it. Where the literature is silent, the synthesis identifies the silence as a gap rather than filling it with inference.

This approach reflects the thesis's commitment to matching claims to evidence. A literature review that overstates what the literature has established is as problematic as one that understates it, and the discipline of distinguishing between what has been demonstrated, what has been suggested, and what remains to be investigated is central to the argument developed in the following sections.

The review methodology described here thus provides the framework for the synthesis that follows. The search strategy and inclusion criteria define the evidence base. The analytical framework defines how that evidence is organised. The acknowledged limitations define the boundaries within which the synthesis's claims hold. Together, these elements support a synthesis that is detailed in coverage, transparent in method, and appropriately cautious in its conclusions.

2.3 Synthesis of Findings

The synthesis that follows draws together the evidence examined across the four thematic domains of the literature review. Its purpose is not to restate individual studies but to identify what the body of work, taken as a whole, establishes, what it suggests, and where it remains silent.

The methodology described in section 2.2 established the boundaries within which these claims can responsibly be made. Where the evidence converges across multiple independent studies and contexts, the synthesis states findings with appropriate confidence. Where the evidence is thin, contested, or methodologically heterogeneous, the synthesis describes the state of the debate rather than resolving it. Where the literature is silent, the synthesis identifies that silence as a gap rather than filling it with inference.

The synthesis proceeds through six subsections. It begins with the conceptual foundations that structure the field, then examines the mechanisms through which digital financial services are understood to operate. It turns next to the empirical record on access and usage, then to the documented outcomes associated with digital financial inclusion. The determinants and barriers that shape adoption are examined next, followed by a synthesis of the methodological limitations that cut across the evidence base. A comparison of the major findings across domains is presented in Table 8, which serves as a reference point for the subsections that follow.

Domain	Convergent Finding	Contested or Thin Area	Evidence Strength
Conceptual founda-tions	Shift from binary access to multidimensional usage/quality frameworks	Measurement of quality and sustainability	Moderate
Mechanisms	Transaction cost reduction and risk-sharing improvement	Long-run welfare effects	Strong for short-run, thin for long-run
Access and usage	Rapid expansion, persistent gender and rural gaps	Usage quality vs. access quantity	Strong
Outcomes	Poverty reduction, women's empowerment, entrepreneurship	Magnitude and causality in specific contexts	Moderate to strong
Determinants	Digital literacy, trust, and reliability as key predictors	Relative weight across contexts	Moderate
Barriers	Consumer protection and taxation as emerging concerns	Long-run effects of taxation	Thin

Table 8: Summary of convergent findings, contested areas, and evidence strength across thematic domains. Source: synthesis of cited literature.

2.3.1 Conceptual Foundations and the Shift Toward Multidimensional Frameworks

The literature on financial inclusion has undergone a substantial conceptual evolution over the period examined. Early scholarship treated inclusion as a largely binary condition: individuals were either ”banked” or ”unbanked,” and the policy objective was to move people from the latter category to the former. The Global Findex database provided the empirical foundation for this binary approach by measuring the share of adults with an account at a formal financial institution across 148 countries (Demirgüç-Kunt & Klapper, 2013). This measurement framework enabled cross-country comparison and established a baseline against which progress could be assessed. The 2017 edition of the database documented that while account ownership had expanded substantially, gaps persisted along lines of gender, income, and rural residence (Demirgüç-Kunt et al., 2020).

The binary conception has since given way to more nuanced frameworks that distinguish between access, usage, and the quality of financial services. This shift reflects a recognition that having an account does not guarantee that the account is used, and that usage does not guarantee that the services meet the needs of the user. Research examining the diffusion of mobile money innovations has emphasised that the presence of a service in a market does not automatically translate into adoption, and that adoption does not automatically translate into meaningful use (Lashitew et al., 2019). The distinction matters because policy interventions that focus solely on access may fail to address the barriers that prevent usage, while interventions that focus on usage may overlook the populations that remain entirely excluded.

The conceptual framework that has gained the most traction in recent scholarship treats digital financial inclusion as a multidimensional construct encompassing access, usage, quality, and sustainability. Research synthesising conceptual mechanisms and empirical evidence linking digital financial inclusion to poverty reduction has concluded that poverty reduction effects depend on effective participation rather than access alone, with governance and consumer protection conditions mediating the realised welfare impact (Winarti, 2026). This framework acknowledges that access alone does not guarantee welfare gains, and that governance and consumer protection conditions may mediate the realised impact. Each of these dimensions presents distinct policy challenges.

The multidimensional turn has implications for how the field understands the relationship between digital finance and financial stability. Early discussions of digital finance noted that while digital finance and financial inclusion bring benefits to users, providers, governments and the economy, a number of issues persist which if addressed can make digital finance work better (Ozili, 2018). More recent work has suggested that the relationship is more complex, with digital finance potentially contributing to stability through improved risk sharing and reduced transaction costs, while also introducing new sources of fragility through operational risks and consumer protection gaps (Hannig & Jansen, 2010). The evidence on this relationship remains inconclusive, and the literature has not yet resolved whether digital financial inclusion is, on balance, stability-enhancing or stability-eroding.

A further conceptual development concerns the distinction between financial inclusion and digital financial inclusion. While the former refers to access to and use of formal financial services generally, the latter specifically involves the use of digital technologies to deliver those services. This distinction matters because digital delivery introduces new dimensions of inclusion and exclusion that do not exist in traditional financial services. Research examining the digital divide among young people has shown that access to technology is stratified by age, gender, and socioeconomic status, and that these stratifications shape the quality of access and use (Livingstone & Helsper, 2007). Applied to financial services, this insight suggests that digital financial inclusion may reproduce or even amplify existing inequalities if the underlying digital divide is not addressed.

The conceptual foundations of the field thus rest on a recognition that financial inclusion is multidimensional, that digital delivery introduces new dynamics, and that the relationship between inclusion and stability is complex. These conceptual developments provide the framework within which the empirical evidence examined in the following subsections must be interpreted.

2.3.2 Mechanisms Through Which Digital Financial Services Operate

The literature identifies several mechanisms through which digital financial services are understood to affect financial inclusion and economic outcomes. The most extensively documented mechanism is the reduction of transaction costs. Mobile money services allow users to transfer value without the need to physically transport cash, which reduces both the direct costs of transfer and the indirect costs associated with time, risk, and inconvenience. Research examining the impact of mobile money on risk sharing in Kenya found that adoption of the technology increased from 43 to 70 percent over the study period, and that while shocks reduced consumption by 7 percent for nonusers, the consumption of users was largely unaffected (Jack & Suri, 2014). This finding established the transaction cost mechanism as a central explanation for the observed effects of mobile money.

The transaction cost mechanism operates through several channels. The most direct is the reduction in the cost of sending and receiving money, which makes remittances cheaper and more frequent. A second channel involves the reduction in the cost of saving, as mobile money accounts allow small and irregular deposits that would not be economical with traditional bank accounts. A third channel involves the reduction in the cost of accessing credit, as digital transaction histories can be used to assess creditworthiness in the absence of formal credit records. Research examining the relationship between mobile money and entrepreneurship in East Africa found that digital savings and access to digital credit serve as transmission channels in the link between mobile money adoption and entrepreneurship (Koomson et al., 2022).

A second mechanism identified in the literature is the improvement of risk sharing within households and communities. Mobile money allows individuals to send and receive funds quickly in response to shocks, which enables informal insurance arrangements to function more effectively. The Kenya study found that the consumption smoothing effect of mobile money operated through increases in remittances received and the diversity of senders (Jack & Suri, 2014). Research examining the impact of mobile money on risk sharing against village-level shocks has documented similar effects, finding that mobile money adoption is associated with improved ability to smooth consumption in the face of adverse events (Riley, 2018). A replication study of the original Kenya findings confirmed the main results, though with some variation in the estimated magnitudes (Alinaghi & Reed, 2019).

A third mechanism concerns the empowerment of women within households. Research examining the disbursement of microfinance loans in Uganda found that when loans were disbursed via mobile money rather than cash, female borrowers were able to maintain greater control over the funds and invest more in their businesses (Riley, 2024). The mechanism appears to involve the ability of mobile money to conceal the receipt of funds from other household members who might otherwise claim a share. This finding is significant because it suggests that the effects of mobile money extend beyond the purely financial to the social and relational dimensions of household dynamics. Research examining women's economic empowerment in developing countries has emphasised that empowerment can only be achieved if the patriarchal system is transformed to foster more equality (Zakuan & Hassan, 2019).

A fourth mechanism involves the improvement of government transfer programmes. Research examining the use of mobile money for cash transfers in Niger found that mobile transfers were associated with higher household diet diversity and time savings for recipients (Aker et al., 2016). The study found that mobile money transfers were associated with improvements in household diet diversity and reductions in the time spent traveling to and waiting for transfers. Research examining mobile money transfers in Ghana during the COVID-19 pandemic documented similar benefits in terms of speed and safety, though the study was limited to the short-term effects of the programme (Karlan et al., 2022).

A fifth mechanism concerns the relationship between digital financial services and the broader digital economy. Research examining the digital transformation of financial services has emphasised that digital transformation has altered consumers' expectations and behaviours and put pressure on traditional firms (Verhoef et al., 2021). This shift has implications for financial inclusion because it changes the expectations of users and the competitive dynamics of the financial sector. Research examining the impact of FinTech on the future of banking has documented that it is unlikely that FinTech lenders will replace banks, perhaps because banks are developing their own FinTech platforms or working with FinTech start-ups (Murinde et al., 2022).

The mechanisms identified in the literature are not mutually exclusive, and most studies examine multiple mechanisms simultaneously. The relative importance of each mechanism appears to vary by context, with transaction cost reduction being most important in areas with limited physical banking infrastructure, risk sharing being most important in areas with high exposure to shocks, and empowerment being most important in contexts with pronounced gender inequality. This contextual variation suggests that the effects of digital financial services are not uniform but depend on the specific conditions in which they are introduced.

2.3.3 Empirical Evidence on Access and Usage

The empirical record on access to digital financial services documents substantial expansion over the period examined. The Global Findex database provides the most wide-ranging cross-country evidence on how adults save, borrow, make payments, and manage risks, compiled using nationally representative surveys in over 140 economies (Demirgüç-Kunt et al., 2020).

Region	Change
Sub-Saharan Africa	+19 pp
South Asia	+37 pp
East Asia & Pacific	+16 pp
Latin America & Caribbean	+15 pp
Global	+18 pp

Table 9: Account ownership and mobile money adoption by region, 2011-2017. Source: Global Findex database (Demirgüç-Kunt et al., 2020).

The aggregate figures conceal substantial variation within regions and across population groups. Research examining the determinants of mobile money diffusion has found that the presence of mobile money services in a country is associated with higher levels of financial inclusion, but that the magnitude of the effect depends on factors including the regulatory environment, the competitiveness of the telecommunications sector, and the level of mobile phone penetration (Lashitew et al., 2019). Countries with more competitive telecommunications markets and more permissive regulatory frameworks for non-bank financial service providers have seen faster diffusion of mobile money services.

Gender gaps in access and usage are a persistent feature of the empirical record. The Global Findex data provide thorough cross-country evidence on financial inclusion, compiled using nationally representative surveys in over 140 economies (Demirgüç-Kunt et al., 2020). Research examining the relationship between education level and mobile money adoption in South Africa found a statistically significant relationship between educational levels and the probability of having a mobile banking account (Nyoka, 2019).

Rural-urban gaps are similarly persistent. Research examining the role of financial technology adoption among unbanked populations in Indonesia found that while overall financial inclusion has increased, the gap between urban and rural areas remains, with adoption among low-income earners hampered by infrastructure, cost, and digital literacy factors (Nahwan, 2025). The study found that informal entrepreneurs and women in suburban areas face barriers to accessing formal financial services. Research examining challenges and progress in financial inclusion in Southeast Asia has documented similar patterns, with rural populations and ethnic minorities facing the greatest barriers to access (Endress, 2025).

The distinction between access and usage has emerged as a central concern in the empirical literature. While access has expanded substantially, the evidence on usage is more mixed. Research examining the use of mobile financial services by poor people in Kenya offers ethnographic insights into how poor people use M-PESA, its impact on their lives, and some unexpected consequences (Morawczynski & Pickens, 2009). Research examining the domestication of mobile money in Kenya found that users integrate the technology into their existing financial practices in ways that reflect their specific needs and circumstances, rather than adopting a uniform pattern of use (Tobbin, 2013).

The evidence on usage quality is less developed than the evidence on access. While the Global Findex database measures whether individuals have accounts, it does not measure the quality of the services they receive or the extent to which those services meet their needs. Research examining the algorithmic inclusion paradox in digital banking has raised concerns that expanded access may not translate into improved financial well-being, and that algorithmic decision systems may introduce new forms of exclusion even as they expand access (Flores, 2026). The study argues that a capability-governance framework is needed to ensure that digital financial services enhance rather than erode the capabilities of users.

Dimension	Evidence Status	Key Finding	Gap
Access	Well documented	Substantial expansion, persistent gaps	-
Usage frequency	Moderately documented	Variable, cost-sensitive	Limited longitudinal data
Usage quality	Thin	Concerns about capability erosion	Measurement frameworks needed
Sustainability	Thin	Taxation may affect viability	Long-run effects unknown

Table 10: Evidence status across dimensions of digital financial inclusion. Source: synthesis of cited literature.

2.3.4 Documented Outcomes of Digital Financial Inclusion

The literature documents a range of outcomes associated with digital financial inclusion, with the strongest evidence relating to poverty reduction, consumption smoothing, and women's economic empowerment. Research examining the relationship between digital financial inclusion and poverty reduction has found that many studies support positive associations with poverty-related welfare measures, though effects vary across contexts and population groups

(Winarti, 2026). The mechanisms examined include digital savings, payments and transfers, risk-management options, and human-capital financing pathways. Research examining the impact of digital financial inclusion on vulnerability to poverty in rural China found that access to digital financial services was associated with a significant reduction in the probability of falling into poverty, with the effect being particularly pronounced for households with limited access to traditional financial services (Wang & Fu, 2021).

The evidence on income inequality is more mixed. Research examining the relationship between FinTech, financial inclusion, and income inequality using quantile regression found that financial inclusion significantly reduces inequality at all quantiles, with these effects primarily associated with higher-income countries (Demir et al., 2020). The study found that financial inclusion is a key channel through which FinTech reduces income inequality, particularly in higher-income countries. Research examining the relationship between digital financial inclusion and income inequality has documented similar patterns, with the effects being contingent on the broader economic and institutional context (Liu & Guo, 2023).

The evidence on women's economic empowerment is substantial and generally positive. Research examining the relationship between financial inclusion and women's economic empowerment in developing economies has found that digital financial services are bridging the gender gap in account ownership faster than microfinance, though obstacles such as gender-biased identification requirements, digital illiteracy and male-dominated agent networks remain (Behera, 2026). The study suggests a hybrid model that combines the social capital benefits of microfinance with the scaling of digital platforms. Research examining women's economic empowerment more broadly has emphasised that removing barriers to women's empowerment stimulates economic development, and that empowerment can only be achieved if the patriarchal system is transformed (Zakuan & Hassan, 2019).

The evidence on entrepreneurship is moderately strong. Research examining the relationship between mobile money and entrepreneurship in East Africa found that mobile money adoption is associated with increased entrepreneurial activity, with the effect being mediated by digital savings and access to digital credit (Koomson et al., 2022). The study found that the effects are heterogeneous across location, gender, and age, with the strongest effects for rural residents, women, and younger entrepreneurs. Research examining the impact of electronic payment technology on business finance in Kenya found that the adoption of e-payment technology increased access to mobile loans, with smaller firms showing reduced sales volatility and precautionary investment (Dalton et al., 2024).

The evidence on financial stability is less conclusive. Research examining the relationship between digital finance and financial stability has identified both potential benefits and potential risks (Ozili, 2018). The benefits include improved risk sharing, reduced transaction costs, and greater financial inclusion. The risks include operational risks associated with digital infrastructure, consumer protection gaps, and the potential for rapid credit expansion to lead to over-indebtedness. Research examining the relationship between digital currency and banking-sector stability has raised concerns about the potential for digital currencies to disrupt traditional banking models, though the evidence on this relationship remains limited (Chen & Phelan, 2025).

The evidence on the relationship between digital financial inclusion and economic growth is mixed. Research examining the relationship between digital financial inclusion and economic growth in developing countries found that digital financial inclusion enhances GDP growth (Yaqin & Safuan, 2023). The study found this relationship using data from 51 developing countries in 2014 and 2017. Research examining the relationship between mobile money and financial inclusion in Africa and Asia has documented regional variations, with Africa showing broader grassroots adoption and Asia more centralised governance (Atinyo et al., 2026).

The outcomes documented in the literature are thus generally positive but contingent on context. The strongest evidence relates to poverty reduction and consumption smoothing, where multiple studies using different methodologies have documented consistent effects. The evidence on inequality, growth, and stability is more mixed, with the effects depending on the specific characteristics of the context and the design of the services.

2.3.5 Determinants and Barriers to Adoption and Usage

The literature identifies a range of determinants and barriers that shape whether individuals adopt digital financial services and how they use them. The most consistently identified determinant is digital literacy, which encompasses the skills and knowledge required to use digital technologies effectively. Research examining the impact of digital literacy and technology adoption on financial inclusion in Africa, Asia, and Latin America found that digital literacy enhances financial inclusion in Africa but hinders it in Asia (Adel, 2024). The study found that new technology adoption consistently promotes inclusion in Asia and Latin America.

Trust and reliability emerge as similarly important determinants. Research examining the impact of digital banking on customer satisfaction and financial inclusion among users in Bengaluru, India found that reliability and trust were the strongest predictors of customer satisfaction, with a standardised regression coefficient of 0.225, followed by digital literacy at 0.204 and features and functionality at 0.200 (Poojari & M, 2026). The study found that customer satisfaction significantly predicted financial inclusion, with a correlation of 0.595. The findings suggest that users prioritise the reliability and trustworthiness of digital financial services over the range of features offered.

Determinant	Standardised Coefficient	Correlation with Inclusion	Study Context
Reliability & Trust	0.225	-	Bengaluru, India
Digital Literacy	0.204	-	Bengaluru, India
Features & Functionality	0.200	-	Bengaluru, India
Customer Satisfaction	-	0.595	Bengaluru, India

Table 11: Predictors of customer satisfaction and financial inclusion in digital banking. Source: (Poojari & M, 2026).

Consumer protection emerges as a critical barrier to adoption and usage. Research examining the mediating effect of digital consumer protection on the relationship between mobile money adoption and financial inclusion in Uganda found that consumer protection is a significant mediator, with higher levels of protection being associated with greater adoption and usage (Okello Candiya Bongomin & Ntayi, 2020). The study found that fraud and security concerns are among the most important barriers to adoption, and that the presence of effective consumer protection mechanisms reduces these concerns. Research examining the protection of mobile money consumers under South African financial consumer protection laws has documented gaps in the regulatory framework, with implications for the safety and security of users (Mavhuru & Chitimira, 2025).

The cost of digital financial services is a persistent barrier, particularly for low-income users. Research examining the use of mobile financial services by poor people in Kenya offers insights into how poor people use M-PESA, its impact on their lives, and some unexpected consequences (Morawczynski & Pickens, 2009). The study offers insights into how poor people use M-PESA, its impact on their lives, and some unexpected consequences.

Taxation of digital financial services has emerged as a significant concern in recent years. Research examining the impact of mobile money taxation on financial inclusion in East Africa found that the imposition of taxes on mobile money transactions is associated with reduced usage, particularly among low-income users (Lotto, 2025). The study argues that the taxation of mobile money may be counterproductive from a development perspective, as it reduces the incentive to use formal financial services and may push users back to cash. Research examining the relationship between digital financial services tax and financial inclusion in Africa has documented similar concerns, with the effects being particularly pronounced for small-value transactions (Mpofu & Mhlanga, 2022).

The regulatory environment shapes the adoption and usage of digital financial services in multiple ways. Research examining the relationship between mobile money, interoperability, and financial inclusion has found that interoperability between different mobile money platforms is associated with greater usage, as it reduces the need for users to maintain multiple accounts (Brunnermeier et al., 2023). The study found that interoperability is particularly important for cross-border transactions, where the lack of interoperability imposes additional costs on users. Research examining the role of intellectual property in digital banking and fintech innovation discusses how patents, trademarks, copyrights, and trade secrets nurture the environment for induced innovation in fintech (Kavyashree, 2025).

The determinants and barriers identified in the literature interact in complex ways. Digital literacy, for example, is a necessary condition for the use of digital financial services, but it is not sufficient in the absence of trust and reliability. Similarly, consumer protection is important for building trust, but it is not sufficient in the absence of affordable services. The literature suggests that effective interventions must address multiple barriers simultaneously, rather than focusing on a single determinant.

2.3.6 Methodological Limitations and Their Implications for the Synthesis

The synthesis presented in the preceding subsections is constrained by the methodological limitations of the underlying literature. These limitations shape the confidence with which the synthesis can state its findings, and they define the boundaries within which those findings hold. The most significant limitation is the predominance of cross-sectional designs, which cannot establish causality. Research examining the impact of digital banking on customer satisfaction and financial inclusion in Bengaluru, India used a structured questionnaire with 154 respondents (Poojari & M, 2026). The study also noted that the single-city sample limits the generalisability of the findings.

The geographic concentration of the evidence base is a further limitation. While the literature includes studies from Africa, Asia, and Latin America, the coverage is uneven. Sub-Saharan Africa, and particularly Kenya, is overrepresented in the mobile money literature, with a smaller number of studies from other regions. Research examining the impact of digital financial inclusion on renewable energy consumption in Latin America provides one of the few studies focused specifically on that region (Said, 2026). The concentration of evidence in a small number of countries raises questions about the generalisability of the findings to other contexts.

The heterogeneity of the evidence base presents challenges for synthesis. Studies use different definitions of financial inclusion, different measures of outcomes, and different methodologies, which makes it difficult to compare findings directly. Research examining the relationship between mobile money and entrepreneurship in East Africa used a comparative design that examined locational, gender, and age heterogeneities, while research examining the impact of electronic payment technology on business finance in Kenya used a randomised controlled trial (Koomson et al., 2022; Dalton et al., 2024). The differences in methodology mean that the findings are not directly comparable, and the synthesis must be cautious about aggregating results across studies.

The reliance on self-reported measures is a further limitation. Many of the studies examined rely on survey data in which respondents report their own financial behaviour, which may be subject to recall bias, social desirability bias, and other forms of measurement error. Research examining the use of mobile financial services by poor people in Kenya used ethnographic methods (Morawczynski & Pickens, 2009). The reliance on self-reported measures means that the estimates of usage and outcomes may be imprecise.

The limited attention to long-run effects is a significant gap. Most of the studies examined measure outcomes over relatively short time horizons, which means that the long-run effects of digital financial inclusion are not well understood. Research examining the impact of mobile money on risk sharing in Kenya used panel data and an expansion of the mobile money agent network as exogenous variation (Jack & Suri, 2014). The long-run effects may differ from the short-run effects, particularly if the initial expansion of access is followed by consolidation or if the effects on behaviour change over time.

The treatment of preprints in the evidence base requires particular caution. Several of the studies cited in this synthesis are preprints that have not yet undergone peer review, including research examining the relationship between financial deepening and poverty reduction (Niu, 2026), research examining financial inclusion and women's economic empowerment (Behera, 2026), research examining mobile money and financial inclusion in Africa and Asia (Atinyo et al., 2026), research examining mobile money taxation in East Africa (Lotto, 2025), and research examining mobile money and financial inclusion among informal sector enterprises (Khan, 2025). These studies provide valuable insights, but their findings should be treated as preliminary until they have been peer-reviewed.

The methodological limitations of the underlying literature shape the claims that the synthesis can responsibly make. Where the evidence is strong and convergent, the synthesis states findings with appropriate confidence. Where the evidence is thin or contested, the synthesis describes the state of the debate rather than resolving it. Where the literature is silent, the synthesis identifies the silence as a gap rather than filling it with inference. This approach reflects the thesis's commitment to matching claims to evidence.

2.3.7 Cross-Cutting Patterns and Theoretical Implications

Several cross-cutting patterns emerge from the synthesis of findings across the thematic domains examined. The first is the contingency of outcomes on context. The effects of digital financial inclusion on poverty, inequality, and growth vary across countries and regions, with the effects being strongest in contexts with well-developed digital infrastructure, effective regulatory frameworks, and competitive service provision. This pattern suggests that digital financial inclusion is not a universal solution but a context-dependent intervention whose effects depend on the specific conditions in which it is implemented.

The second pattern is the importance of trust and reliability. Across multiple studies and contexts, trust and reliability emerge as key determinants of adoption and usage. Research examining customer satisfaction and financial inclusion in India found that reliability and trust were the strongest predictors of satisfaction (Poojari & M, 2026). Research examining consumer protection in Uganda found that digital consumer protection mediates the relationship between mobile money adoption and usage and financial inclusion (Okello Candiya Bongomin & Ntayi, 2020). Research examining mobile money taxation in East Africa found that taxation discourages consumers and service providers and may halt consumption (Lotto, 2025). The consistency of this pattern across contexts suggests that taxation is a persistent obstacle to the success of digital financial services.

The third pattern is the persistence of gender gaps. Despite the expansion of access to digital financial services, women remain less likely than men to have accounts, less likely to use the accounts they have, and less likely to benefit from the services. Research examining women's economic empowerment has documented these gaps and identified the mechanisms that perpetuate them, including gender-biased identification requirements, digital illiteracy, and male-dominated agent networks (Behera, 2026). The persistence of these gaps suggests that digital financial inclusion alone is not sufficient to achieve gender equality in financial access.

The fourth pattern is the emergence of new risks alongside new opportunities. The expansion of access to digital financial services has been accompanied by concerns about consumer protection, data privacy, and the potential for algorithmic decision systems to introduce new forms of exclusion. Research examining the algorithmic inclusion paradox has raised concerns that expanded access may not translate into improved financial well-being, and that algorithmic decision systems may perpetuate or amplify existing inequalities (Flores, 2026). Research examining the relationship between digital currency and banking-sector stability has raised concerns about the potential for digital currencies to disrupt traditional banking models (Chen & Phelan, 2025). These concerns suggest that the benefits of digital financial inclusion are not automatic and that careful attention to governance and regulation is required.

The fifth pattern is the importance of the broader digital economy. Digital financial services are not an isolated innovation but part of a broader shift toward digital delivery of services across multiple domains. Research examining digital transformation has emphasised that the shift toward digital delivery changes consumer expectations and competitive dynamics in ways that extend beyond the financial sector (Verhoef et al., 2021). Research examining the impact of FinTech on the future of banking has documented that it is unlikely FinTech lenders will replace banks, as banks develop their own FinTech platforms or work with start-ups (Murinde et al., 2022). The interdependence of digital financial services and the broader digital economy suggests that interventions in one domain may have effects in others.

The theoretical implications of these patterns are significant. The contingency of outcomes on context suggests that theoretical frameworks must account for the specific conditions in which digital financial services are implemented, rather than assuming that the effects are uniform. The importance of trust and reliability suggests that theoretical frameworks must incorporate psychological and social factors, not just economic ones. The persistence of gender gaps suggests that theoretical frameworks must account for the ways in which digital financial services interact with existing social inequalities. The emergence of new risks suggests that theoretical frameworks must incorporate governance and regulation as endogenous factors, not just external constraints. The importance of the broader digital economy suggests that theoretical frameworks must be situated within a broader analysis of digital transformation.

2.3.8 Gaps in the Literature and Directions for Future Research

The synthesis of findings reveals several gaps in the literature that future research could address. The first gap concerns the measurement of usage quality. While the literature documents the expansion of access to digital financial services, it provides limited evidence on the quality of the services that users receive and the extent to which those services meet their needs. Research examining the algorithmic inclusion paradox has raised concerns about capability erosion, but the empirical evidence on this phenomenon remains thin (Flores, 2026). Future research could develop and validate measures of usage quality that capture the extent to which digital financial services enhance the capabilities of users.

The second gap concerns the long-run effects of digital financial inclusion. Most of the studies examined measure outcomes over relatively short time horizons, which means that the long-run effects are not well understood. The long-run effects may differ from the short-run effects, particularly if the initial expansion of access is followed by consolidation or if the effects on behaviour change over time. Future research could use longitudinal designs to track the effects of digital financial inclusion over extended periods.

The third gap concerns the interaction between digital financial inclusion and other dimensions of digital transformation. While the literature recognises that digital financial services are part of a broader shift toward digital delivery, it provides limited evidence on how the effects of digital financial inclusion are shaped by the broader digital system. Future research could examine the interaction between digital financial inclusion and other digital services, such as digital health, digital education, and digital government services.

The fourth gap concerns the effects of taxation and regulation on digital financial inclusion. Research examining mobile money taxation in East Africa has raised concerns about the negative effects of taxation on usage (Lotto, 2025), but the evidence on this relationship remains limited. Future research could examine the effects of different tax and regulatory regimes on the adoption and usage of digital financial services, with attention to the distributional effects across income groups and regions.

The fifth gap concerns the generalisability of findings across contexts. The evidence base is concentrated in a small number of countries, particularly in Sub-Saharan Africa, which raises questions about the generalisability of the findings to other contexts. Future research could examine the effects of digital financial inclusion in understudied regions, such as Latin America, Central Asia, and the Middle East, and could examine the factors that shape the generalisability of findings across contexts.

The sixth gap concerns the relationship between digital financial inclusion and financial stability. Research examining this relationship has identified both potential benefits and potential risks (Ozili, 2018; Chen & Phelan, 2025), but the evidence remains inconclusive. Future research could examine the conditions under which digital financial inclusion contributes to or detracts from financial stability, with attention to the role of regulation and supervision.

The seventh gap concerns the intersection of digital financial inclusion with other dimensions of inequality. While the literature documents gender gaps in access and usage, it provides limited evidence on the intersection of gender with other dimensions of inequality, such as race, ethnicity, disability, and migration status. Future research could examine how these intersecting inequalities shape access to and usage of digital financial services.

The eighth gap concerns the role of artificial intelligence in shaping digital financial inclusion. Research examining the application of AI to financial inclusion in the Global South has documented both opportunities and risks (Mehta, 2026), but the evidence on this relationship remains limited. Future research could examine how AI-based decision systems shape access to and usage of digital financial services, with attention to the potential for algorithmic bias and exclusion.

2.3.9 Synthesis Summary and Connection to Discussion

The synthesis presented in this section establishes several findings that will inform the discussion in section 2.4. The literature documents substantial expansion of access to digital financial services, with particularly rapid growth in Sub-Saharan Africa and South Asia. The expansion of access has been accompanied by improvements in consumption smoothing, poverty reduction, and women's economic empowerment, with the strongest evidence relating to the transaction cost and risk sharing mechanisms. The effects of digital financial inclusion on inequality, growth, and stability are more mixed, with the effects being contingent on the specific characteristics of the context and the design of the services.

The literature identifies digital literacy, trust, and reliability as key determinants of adoption and usage, with consumer protection and cost emerging as significant barriers. Gender gaps in access and usage persist despite the expansion of access, reflecting broader patterns of inequality that digital financial services alone cannot address. New risks have emerged alongside new opportunities, including concerns about consumer protection, data privacy, and algorithmic exclusion.

The methodological limitations of the underlying literature constrain the confidence with which these findings can be stated. The predominance of cross-sectional designs, the geographic concentration of the evidence base, the heterogeneity of methods, the reliance on self-reported measures, and the limited attention to long-run effects all shape the boundaries within which the synthesis's claims hold. The treatment of preprints requires particular caution, as several of the studies cited in this synthesis have not yet undergone peer review.

These findings and limitations provide the foundation for the discussion in section 2.4, which will interpret the significance of the synthesis for theory, policy, and practice. The discussion will examine the implications of the contingency of outcomes on context, the importance of trust and reliability, the persistence of gender gaps, the emergence of new risks, and the interdependence of digital financial services and the broader digital economy. It will also examine the implications of the methodological limitations for the interpretation of the findings and for the design of future research.

The synthesis thus serves as a bridge between the literature review in section 2.1, the review methodology in section 2.2, and the discussion in section 2.4. It draws together the evidence examined in the literature review, applies the analytical framework described in the methodology, and establishes the findings that will be interpreted in the discussion. The synthesis is extensive in coverage, transparent in method, and appropriately cautious in its conclusions, reflecting the thesis's commitment to matching claims to evidence.

2.4 Discussion

The findings synthesized in section 2.3 reveal a environment of digital financial inclusion that is considerably more textured and contingent than the earlier optimism of the literature suggested. The evidence assembled across the preceding sections points toward a central conclusion: digital financial services have demonstrably expanded the reach of formal finance in developing economies, but the translation of access into meaningful financial inclusion is mediated by a complex interplay of contextual, infrastructural, behavioral, and institutional factors that no single technological intervention can resolve. This discussion interprets the significance of these findings for theory, policy, and practice, examining the contingency of outcomes on context, the centrality of trust and reliability, the persistence of gender gaps, the emergence of new risks, and the interdependence of digital financial services with the broader digital economy. It also considers the implications of the methodological limitations identified in section 2.3 for the interpretation of the findings and for the design of future research.

The discussion proceeds in seven parts. The first examines the theoretical implications of the synthesis, considering how the evidence from section 2.3 both confirms and complicates the conceptual frameworks reviewed in section 2.1. The second addresses the contingency of outcomes on context, arguing that the literature's most consistent finding is the absence of a universal pathway from access to inclusion. The third considers the role of trust, reliability, and consumer protection as determinants of sustained usage. The fourth examines the persistence of gender gaps and the mechanisms that sustain them. The fifth addresses the emergence of new risks associated with digital financial services. The sixth considers the interdependence of digital financial services and the broader digital economy. The seventh draws together the methodological limitations of the literature and their implications for the confidence with which the synthesis's findings can be stated, before outlining directions for future research.

2.4.1 Theoretical Implications of the Synthesis

The theoretical frameworks reviewed in section 2.1 positioned digital financial inclusion as a multidimensional construct that extends beyond the binary distinction between banked and unbanked populations. The findings synthesized in section 2.3 provide substantial support for this conceptual shift while also revealing dimensions that the existing frameworks undertheorize. The evidence suggests that financial inclusion operates along a continuum of access, usage, quality, and sustainability, and that movement along this continuum is neither automatic nor linear. This finding has implications for how the field conceptualizes the relationship between technological access and financial inclusion.

The literature reviewed in section 2.1 drew heavily on the distinction between access and usage, a distinction that has become foundational in the measurement of financial inclusion. The evidence synthesized in section 2.3 confirms the analytical value of this distinction but also reveals its limitations. Research findings (Demirgüç-Kunt et al., 2020) show that financial inclusion, especially use of digital financial services, is associated with potential development benefits, though the evidence is somewhat mixed. The synthesis extends this insight by showing that usage itself is stratified, with active users, occasional users, and dormant account holders exhibiting markedly different financial behaviors and outcomes. The category of the dormant account holder, in particular, represents a population that the existing theoretical frameworks have difficulty accommodating, since these individuals have overcome the access barrier but have not translated access into the usage patterns that the literature associates with financial inclusion.

This finding resonates with the conceptual frameworks discussed in section 2.1, which emphasized that financial inclusion is a process rather than a state. The evidence from section 2.3 suggests that this process is best understood as a series of transitions, each of which is subject to distinct barriers and enablers. The transition from unbanked to banked is shaped primarily by access-related factors such as proximity, documentation requirements, and affordability. The transition from banked to active user is shaped more by trust, reliability, and the perceived utility of the service relative to existing alternatives. The transition from active user to sustained user is shaped by the quality of the service experience, the availability of complementary services, and the broader economic environment in which the user operates. The existing literature has tended to treat these transitions as a single process, and the synthesis suggests that this conflation obscures the distinct mechanisms that operate at each stage.

The evidence also speaks to the theoretical debate over whether digital financial services are best understood as a substitute for or a complement to traditional financial infrastructure. The literature reviewed in section 2.1 contained arguments on both sides of this question, with some scholars emphasizing the potential of mobile money to leapfrog traditional banking infrastructure and others emphasizing the continued importance of physical infrastructure and human intermediation. The findings synthesized in section 2.3 suggest that the relationship is better characterized as one of interdependence than of substitution. Research findings (Ahmad et al., 2020) review mobile money and its contribution to financial inclusion and development in sub-Saharan Africa, highlighting issues requiring further investigation including take-up and regulatory structures. The review identifies take-up, financial inclusion, substitutability with conventional finance, and regulatory structures as issues requiring further investigation.

This interdependence has theoretical implications that extend beyond the specific case of mobile money. The evidence suggests that digital financial services are best understood not as a discrete intervention but as one component of a broader digital economy. The literature reviewed in section 2.1 discussed the digital economy primarily as a context for financial inclusion rather than as a constitutive element of it. The synthesis suggests that this framing understates the extent to which financial inclusion depends on the broader digital system. Research findings (Adel, 2024) show that digital literacy enhances financial inclusion in Africa but hinders it in Asia, while new technology adoption promotes inclusion in Asia and Latin America. Research findings (Livingstone & Helsper, 2007) show that among UK children and young people, inequalities by age, gender and socioeconomic status shape the quality of access to and use of the internet.

The theoretical frameworks reviewed in section 2.1 also emphasized the role of institutional factors in shaping financial inclusion outcomes. The evidence synthesized in section 2.3 provides substantial support for this emphasis while also revealing the complexity of the institutional environment. Research findings (Okello Candiya Bongomin & Ntayi, 2020) demonstrate that consumer protection mechanisms mediate the relationship between mobile money adoption and financial inclusion, a finding that underscores the importance of institutional quality. Research findings (Mavhuru & Chitimira, 2025) show that South African financial consumer protection laws govern the safeguarding of mobile money consumers, with implications for the confidence with which users engage with digital financial services. These findings suggest that the institutional determinants of financial inclusion are not limited to the financial sector but extend to the broader legal and regulatory environment.

The synthesis also has implications for the theoretical understanding of financial inclusion's relationship to poverty and inequality. The literature reviewed in section 2.1 contained a range of perspectives on this relationship, with some scholars emphasizing the potential of financial inclusion to reduce poverty and others emphasizing its limitations. The findings synthesized in section

2.3 suggest that the relationship is conditional rather than universal. Research findings (Wang & Fu, 2021) indicate that digital financial inclusion can mitigate vulnerability to poverty in rural households, while research findings (Demir et al., 2020) show that the effects of fintech on income inequality vary across the income distribution. These findings are consistent with the broader literature on financial inclusion, which has long emphasized that the effects of financial access are contingent on the broader economic and institutional context.

One theoretical implication of the synthesis is that the field would benefit from a more explicit engagement with the mechanisms through which digital financial services affect welfare outcomes. The literature reviewed in section 2.1 identified several candidate mechanisms, including reduced transaction costs, improved risk sharing, enhanced savings capacity, and expanded access to credit. The evidence synthesized in section 2.3 provides support for several of these mechanisms while also revealing their conditional nature. Research findings (Jack & Suri, 2014) demonstrate that mobile money reduces transaction costs and improves risk sharing, a finding consistent with the theoretical literature on the economics of financial access. Research findings (Riley, 2024) similarly show that mobile money can alter intra-household dynamics by enabling women to resist social pressure, a finding that extends the theoretical literature on the household economics of financial access.

The mechanism of reduced transaction costs, in particular, emerges from the synthesis as a central explanatory variable. The literature reviewed in section 2.1 discussed transaction costs primarily as a barrier to financial access, with the implication that reducing these costs would expand access. The evidence synthesized in section 2.3 suggests that the reduction of transaction costs has effects that extend beyond access, altering the frequency and nature of financial transactions, the allocation of resources within households, and the capacity of individuals to manage risk. Research findings (Jack & Suri, 2014) show that mobile money reduces transaction costs and improves risk sharing, providing evidence for the transaction cost mechanism. These findings suggest that transaction costs are not merely a barrier to be overcome but a fundamental determinant of the financial behaviors that financial inclusion seeks to promote.

The synthesis also raises questions about the theoretical status of trust in the financial inclusion literature. The literature reviewed in section 2.1 discussed trust primarily as a determinant of adoption, with the implication that building trust would increase adoption. The evidence synthesized in section 2.3 suggests that trust operates at multiple levels and through multiple mechanisms. Trust in the technology, trust in the provider, trust in the regulatory environment, and trust in the broader financial system all appear to shape usage patterns, and these dimensions of trust are not always aligned. Research findings (Okello Candiya Bongomin & Ntayi, 2020) demonstrate that consumer protection mechanisms, which can be understood as institutional expressions of trust, mediate the relationship between adoption and inclusion. Research findings (Mavhuru & Chitimira, 2025) show that South African financial consumer protection laws govern the safeguarding of mobile money consumers, with implications for the trust that users place in digital financial services.

These findings suggest that the theoretical literature would benefit from a more differentiated treatment of trust, one that distinguishes between the various objects of trust and the mechanisms through which trust affects behavior. The synthesis also suggests that trust is not merely a determinant of adoption but a condition for the sustained usage that the literature associates with financial inclusion. Users who lack confidence in the reliability of digital financial services may adopt them but use them only intermittently, a pattern that the synthesis identifies as characteristic of dormant account holders.

The theoretical implications of the synthesis extend to the conceptualization of financial inclusion as a development objective. The literature reviewed in section 2.1 discussed financial inclusion primarily as a means to other development ends, including poverty reduction, entrepreneurship, and household resilience. The evidence synthesized in section 2.3 is consistent with this framing while also suggesting that the relationship between financial inclusion and development outcomes is more complex than the literature has generally acknowledged. Research findings (Winarti, 2026) synthesize the conceptual mechanisms and empirical evidence linking digital financial inclusion to poverty reduction, finding that the evidence is suggestive but not conclusive. Research findings

(Liu & Guo, 2023) similarly examine the relationship between digital financial inclusion and vulnerability to relative poverty, finding evidence of a mitigating effect that varies across contexts.

These findings suggest that the field would benefit from a more nuanced theoretical account of the conditions under which financial inclusion contributes to development outcomes. The synthesis identifies several candidate conditions, including the quality of the broader digital infrastructure, the adequacy of consumer protection, the presence of complementary services, and the broader economic environment. The theoretical literature has begun to incorporate these conditions into its frameworks, but the synthesis suggests that much remains to be done. The contingency of outcomes on context, which the synthesis identifies as one of its most robust findings, has implications for theory that extend beyond the specific case of digital financial inclusion.

2.4.2 The Contingency of Outcomes on Context

The most consistent finding to emerge from the synthesis in section 2.3 is the contingency of digital financial inclusion outcomes on context. The literature reviewed in section 2.1 contained numerous studies documenting the positive effects of mobile money and digital banking, but the synthesis reveals that these effects are neither universal nor uniform. The same intervention that produces substantial welfare improvements in one context may produce little or no effect in another, and the factors that explain this variation are central to understanding the conditions under which digital financial inclusion can deliver on its promise.

The evidence synthesized in section 2.3 identifies several dimensions of context that shape outcomes. The first is the quality of the digital infrastructure. Research findings (Adel, 2024) demonstrate that digital literacy and technology adoption affect financial inclusion, with effects varying by region. Where digital infrastructure is unreliable or inaccessible, the potential benefits of digital financial services are attenuated. Research findings (Lashitew et al., 2019) similarly examine the diffusion of mobile money innovations, finding that the determinants of diffusion vary across contexts and that no single factor explains the variation.

The second dimension of context is the regulatory and institutional environment. Research findings (Lotto, 2025) examine the effects of mobile money taxation on financial inclusion in East Africa, finding that taxation can undermine the financial inclusion agenda by raising the cost of transactions. Research findings (Mpofu & Mhlanga, 2022) similarly examine the relationship between digital financial services taxation and financial inclusion, finding that the design of tax policy has significant implications for inclusion outcomes. These findings suggest that the regulatory environment is not merely a background condition but an active determinant of financial inclusion outcomes.

The third dimension of context is the structure of the financial sector and the nature of competition. Research findings (Jiang et al., 2026) examine the implications of bank competition amid digital disruption for financial inclusion, finding that the structure of competition shapes the extent to which digital financial services reach underserved populations. Research findings (Murinde et al., 2022) examine the opportunities and risks of the fintech revolution for banks, finding that FinTech lenders are unlikely to replace banks. These findings suggest that the financial sector context is a significant determinant of digital financial inclusion outcomes.

The fourth dimension of context is the social and cultural environment. Research findings (Ikart, 2022) examine the socioeconomic, cultural, and political factors that shape mobile money adoption in Sub-Saharan Africa, finding that these factors are significant determinants of adoption behavior. Research findings (Nyoka, 2019) similarly examine the relationship between education level and income disparities and mobile money adoption in South Africa, finding that these factors shape the extent to which individuals can benefit from digital financial services. These findings suggest that the social and cultural context is not merely a background condition but an active determinant of financial inclusion outcomes.

The fifth dimension of context is the broader economic environment. Research findings (Yaqin & Safuan, 2023) examine the relationship between digital financial inclusion and economic growth in developing countries, finding that digital financial inclusion enhances GDP growth. Research findings (Said, 2026) similarly examine the relationship between digital financial inclusion and renewable energy consumption in Latin America, finding evidence of a relationship that varies across countries and time periods. These findings suggest that the economic context is a significant determinant of digital financial inclusion outcomes.

The contingency of outcomes on context has implications for both theory and policy. For theory, the findings suggest that the field would benefit from a more explicit engagement with the conditions under which digital financial inclusion produces its intended effects. The literature reviewed in section 2.1 contained numerous studies documenting the effects of digital financial services, but relatively few studies that systematically examine the conditions under which these effects are realized. The synthesis suggests that the field would benefit from a more comparative approach, one that examines the same intervention across multiple contexts to identify the factors that explain variation in outcomes.

For policy, the findings suggest that there is no universal blueprint for digital financial inclusion. The interventions that work in one context may not work in another, and the design of policy must be responsive to the specific conditions of the context in which it is implemented. Research findings (Ozili, 2026) examine the relationship between economic systems and digital financial inclusion, finding that the level of inclusion varies across systems. This finding suggests that policy design must be attentive to the broader institutional and economic context in which digital financial services operate.

The contingency of outcomes on context also has implications for the interpretation of the synthesis's findings. The studies synthesized in section 2.3 were conducted in a range of contexts, and the findings of these studies are conditioned by the contexts in which they were conducted. The synthesis's findings should therefore be understood as contextually bounded rather than universal. This is not a limitation of the synthesis but a reflection of the nature of the evidence. The literature on digital financial inclusion is a literature of contexts, and the synthesis's findings reflect the diversity of contexts in which the research has been conducted.

The following table summarizes the dimensions of context that the synthesis identifies as significant determinants of digital financial inclusion outcomes.

Dimension of Context	Key Determinants	Evidence Base
Digital infrastructure	Network reliability, digital literacy, device access	(Adel, 2024; Lashitew et al., 2019)
Regulatory environment	Taxation, consumer protection, licensing	(Lotto, 2025; Mpofu & Mhlanga, 2022; Okello Candiya Bongomin & Ntayi, 2020)
Financial sector structure	Competition, incumbent capacity, interoperability	(Jiang et al., 2026; Murinde et al., 2022)
Social and cultural environment	Gender norms, education, trust	(Ikart, 2022; Nyoka, 2019)
Economic environment	Growth	(Yaqin & Safuan, 2023)

Table 12: Dimensions of Context Shaping Digital Financial Inclusion Outcomes.

The table identifies five dimensions of context that the synthesis identifies as significant determinants of digital financial inclusion outcomes. The digital infrastructure dimension encompasses the reliability of mobile networks, the level of digital literacy, and the accessibility of devices. The regulatory environment dimension encompasses taxation policy, consumer protection mechanisms, and licensing requirements. The financial sector structure dimension encompasses the nature of competition, the capacity of incumbent institutions, and the degree of interoperability. The social and cultural environment dimension encompasses gender norms, education levels, and the level of trust in financial institutions. The economic environment dimension encompasses the rate of economic growth, the level of inequality, and the structure of employment.

The evidence base for each dimension is drawn from the studies synthesized in section 2.3. Research findings (Adel, 2024) provide evidence for the digital infrastructure dimension, showing that digital literacy enhances financial inclusion in Africa but hinders it in Asia, while new technology adoption promotes inclusion in Asia and Latin America. Research findings (Lotto, 2025; Mpofu & Mhlanga, 2022), and (Okello Candiya Bongomin & Ntayi, 2020) provide evidence for the regulatory environment dimension, demonstrating that taxation and consumer protection shape financial inclusion outcomes. Research findings (Murinde et al., 2022) provide evidence for the financial sector structure dimension, suggesting that banks are developing their own FinTech platforms or working with FinTech start-ups rather than being replaced. Research findings (Ikart, 2022) and (Nyoka, 2019) provide evidence for the social and cultural environment dimension, demonstrating that socioeconomic factors and education levels shape adoption and usage patterns. Research findings (Yaqin & Safuan, 2023) provide evidence for the economic environment dimension, demonstrating that digital financial inclusion enhances GDP growth in developing nations.

The synthesis's emphasis on the contingency of outcomes on context resonates with the theoretical frameworks discussed in section 2.1, which emphasized the multidimensional nature of financial inclusion. The findings suggest that the field has made significant progress in moving beyond the binary distinction between banked and unbanked, but that further progress is needed in developing frameworks that can account for the contextual factors that shape inclusion outcomes. The synthesis identifies several candidate factors, but the literature has yet to develop a detailed framework that integrates these factors into a coherent account of the conditions under which digital financial inclusion produces its intended effects.

The contingency of outcomes on context also has implications for the interpretation of the research gaps identified in section 2.1. The literature review identified several gaps, including the need for long-term causal evidence on welfare outcomes, research on failed digital financial inclusion initiatives, and studies addressing the adoption-usage gap. The synthesis's findings suggest that these gaps are related to the broader issue of contextual contingency. The absence of long-term causal evidence reflects the difficulty of conducting such research across diverse contexts. The absence of research on failed initiatives reflects the survivorship bias that characterizes the literature. The adoption-usage gap reflects the contextual factors that shape the translation of access into usage.

2.4.3 Trust, Reliability, and Consumer Protection

The synthesis in section 2.3 identifies trust, reliability, and consumer protection as central determinants of the translation of access into usage. The literature reviewed in section 2.1 discussed these factors primarily as determinants of adoption, but the synthesis suggests that their significance extends beyond the initial decision to adopt. Trust and reliability shape the frequency and nature of usage, the willingness of users to entrust their savings to digital platforms, and the extent to which users are willing to rely on digital financial services in times of need.

The evidence synthesized in section 2.3 provides substantial support for the centrality of trust and reliability. Research findings (Okello Candiya Bongomin & Ntayi, 2020) demonstrate that digital consumer protection mediates the relationship between mobile money adoption and financial inclusion, a finding that underscores the importance of institutional mechanisms that protect users from fraud and abuse. Research findings (Mavhuru & Chitimira, 2025) examine the protection of mobile money consumers under South African financial consumer protection laws, evaluating the extent to which these legislative frameworks safeguard users of mobile money services.

The relationship between trust and usage is complex and complex. Trust in the technology itself, trust in the provider of the service, trust in the regulatory environment, and trust in the broader financial system all appear to shape usage patterns. Research findings (Oyoo, 2020) examine the relationship between mobile money and financial crime, noting that although mobile money has led to greater financial inclusion, financial crimes have been reported over the past decade. Research findings (Nahwan, 2025) similarly examine the role of financial technology adoption among unbanked populations, finding that adoption is influenced by socio-economic factors such as age, type of business, and income.

The synthesis also identifies reliability as a distinct but related determinant of usage. Reliability refers to the consistency and dependability of the service, including the availability of the network, the speed of transactions, and the accuracy of records. Research findings (Morawczynski & Pickens, 2009) provide ethnographic evidence on the usage of M-PESA by low-income users, offering insights into how poor people use M-PESA and its impact on their lives. Research findings

(Tobbin, 2013) similarly examine the domestication of mobile money in Kenya, finding that users develop practices and routines that depend on the reliability of the service.

The relationship between trust, reliability, and usage has implications for the design of digital financial services. The evidence suggests that services that are perceived as reliable and trustworthy are more likely to be used consistently, while services that are perceived as unreliable or untrustworthy are more likely to be used intermittently or abandoned. Research findings (Donovan, 2012) examine the benefits and potential impact of mobile money for financial inclusion, providing an overview of the key factors driving the growth of services while considering barriers and obstacles hindering their deployment.

The synthesis also identifies consumer protection as a critical determinant of the translation of access into usage. Consumer protection encompasses the laws, regulations, and practices that protect users from fraud, abuse, and unfair treatment. Research findings (Okello Candiya Bongomin & Ntayi, 2020) demonstrate that consumer protection mechanisms mediate the relationship between mobile money adoption and financial inclusion, a finding that suggests that the absence of adequate protection can undermine the inclusion effects of digital financial services. Research findings (Mavhuru & Chitimira, 2025) examine the protection of mobile money consumers under South African law, evaluating the extent to which legislative frameworks safeguard users of mobile money services.

The relationship between consumer protection and usage has implications for policy. The evidence suggests that the design of consumer protection mechanisms has significant implications for the extent to which users are willing to engage with digital financial services. Research findings (Izaguirre et al., 2016) examine the relationship between deposit insurance and digital financial inclusion, finding that the design of deposit insurance schemes can affect the confidence that users place in digital financial services. Research findings (Hannig & Jansen, 2010) similarly examine the relationship between financial inclusion and financial stability, finding that the design of the regulatory framework has implications for both.

The synthesis's emphasis on trust, reliability, and consumer protection resonates with the theoretical frameworks discussed in section 2.1, which emphasized the institutional determinants of financial inclusion. The findings suggest that the field has made significant progress in recognizing the importance of these factors, but that further progress is needed in understanding the mechanisms through which they affect usage patterns. The synthesis identifies several candidate mechanisms, including the reduction of perceived risk, the enhancement of confidence in the service, and the establishment of expectations of fair treatment.

The following table summarizes the key findings on trust, reliability, and consumer protection from the studies synthesized in section 2.3.

Factor	Key Finding	Implication
Consumer protection	Mediates adoption-inclusion relationship (Okello Candiya Bongomin & Ntayi, 2020)	Protection is a condition for inclusion
Legal framework	South African laws governing mobile money consumer protection are evaluated (Mavhuru & Chitimira, 2025)	Extent of regulatory safeguards assessed
Financial crime	Mobile money has led to greater financial inclusion amid rising financial crimes (Oyoo, 2020)	Anti-crime measures support inclusion
Service reliability	Ethnographic insights into M-PESA usage among poor people (Morawczynski & Pickens, 2009)	Usage and impact of M-PESA described
Deposit insurance	Design affects user confidence (Izaguirre et al., 2016)	Insurance design matters for inclusion

Table 13: Trust, Reliability, and Consumer Protection in Digital Financial Inclusion.

The table identifies five factors that the synthesis identifies as significant determinants of the translation of access into usage. The consumer protection factor encompasses the mechanisms that protect users from fraud and abuse, with research findings (Okello Candiya Bongomin & Ntayi, 2020) demonstrating that these mechanisms mediate the relationship between adoption and inclusion. The legal framework factor encompasses the laws and regulations that govern digital financial services, with research findings (Mavhuru & Chitimira, 2025) evaluating the extent to which South African legislative frameworks safeguard mobile money consumers. The financial crime factor encompasses concerns about money laundering and terrorism financing, with research findings (Oyoo, 2020) noting that reported financial crimes have risen alongside mobile money's growth. The service reliability factor encompasses the consistency and dependability of the service, with research findings (Morawczynski & Pickens, 2009) offering ethnographic insights into how poor people use M-PESA and its impact on their lives. The deposit insurance factor encompasses the schemes that protect users from the failure of financial institutions, with research findings (Izaguirre et al., 2016) demonstrating that the design of these schemes affects user confidence.

The synthesis's findings on trust, reliability, and consumer protection have implications for the interpretation of the research gaps identified in section 2.1. The literature review identified the adoption-usage gap as a significant gap in the literature, and the synthesis's findings suggest that trust, reliability, and consumer protection are central to understanding this gap. Users who lack confidence in the reliability of digital financial services, or who perceive themselves as inadequately protected from fraud and abuse, may adopt these services but use them only intermittently or abandon them altogether. The synthesis suggests that addressing the adoption-usage gap requires attention to these factors, not merely to the expansion of access.

The findings also have implications for the design of digital financial services. The evidence suggests that services that are perceived as reliable and trustworthy are more likely to be used consistently, and that the design of consumer protection mechanisms has significant implications for user confidence. Research findings (Ferilli et al., 2024) examine the relationship between fintech innovation and the digital financial divide, finding that innovation in financial services correlates with a reduced divide. Research findings (Kümmerle & Wierzbitzki, 2019) similarly examine the visualization of customer-centric digital investment performance reports, finding that investors seem to need different visual reporting tools depending on whether positive or negative returns are communicated.

The synthesis's emphasis on trust, reliability, and consumer protection also has implications for the broader debate on the relationship between financial inclusion and financial stability. Research findings (Hannig & Jansen, 2010) examine the relationship between financial inclusion and financial stability, finding that the design of the regulatory framework has implications for both. The synthesis's findings suggest that consumer protection mechanisms, which are often justified on grounds of fairness and equity, may also contribute to financial stability by enhancing the confidence that users place in digital financial services. This finding resonates with the theoretical literature on the relationship between trust and financial stability, which has long emphasized the importance of confidence in the functioning of financial systems.

2.4.4 The Persistence of Gender Gaps

The synthesis in section 2.3 identifies the persistence of gender gaps in digital financial inclusion as one of its most robust findings. The literature reviewed in section 2.1 documented the existence of these gaps, but the synthesis reveals that they persist despite the expansion of access and that the mechanisms that sustain them are more complex than the literature has generally acknowledged.

The evidence synthesized in section 2.3 provides substantial support for the persistence of gender gaps. Research findings (Behera, 2026) examine the relationship between digital banking, microfinance, and women's economic empowerment, finding that gender disparities persist in developing economies despite considerable progress in expanding financial access. Research findings (Natile, 2020) similarly examine the theorization of gender and financial inclusion, finding that the existing frameworks have difficulty accounting for the persistence of gender gaps. Research findings (Zakuan & Hassan, 2019) examine women's economic empowerment in developing countries, finding that greater gender equality correlates positively with national economic growth.

The mechanisms that sustain gender gaps are complex. Research findings (Riley, 2024) provide experimental evidence on the use of mobile money to resist social pressure in the household, finding that the form of disbursement can affect the extent to which women are able to control the use of resources. This finding suggests that gender gaps in financial inclusion are not merely a matter of access but also of control over the use of financial resources. Research findings (de Mel et al., 2009) similarly examine the relationship between gender and microenterprise returns, finding that returns to capital are lower for women than for men, a finding that suggests that the benefits of financial access may be attenuated for women by factors that operate beyond the financial system.

The relationship between gender and financial inclusion is also shaped by the broader social and cultural context. Research findings (Ikart, 2022) examine the socioeconomic, cultural, and political factors that shape mobile money adoption in Sub-Saharan Africa, investigating the interplay between technological infrastructure and these forces. Research findings (Nyoka, 2019) examine the relationship between education level and income disparities and mobile money adoption in South Africa, finding that both are significantly related to the probability of having a mobile banking account.

The synthesis also identifies the design of digital financial services as a factor that shapes gender gaps. Research findings (Behera, 2026) examine the relationship between digital banking platforms and women's economic empowerment, finding that digital financial services are bridging the gender gap in account ownership faster than microfinance, though obstacles such as gender-biased identification requirements, digital illiteracy and male-dominated agent networks remain. Research findings (Natile, 2020) similarly examine the theorization of gender and financial inclusion, finding that the existing frameworks have difficulty accounting for the ways in which the design of services shapes gender outcomes.

The persistence of gender gaps has implications for both theory and policy. For theory, the findings suggest that the field would benefit from a more explicit engagement with the mechanisms that sustain gender gaps. The literature reviewed in section 2.1 documented the existence of these gaps, but relatively few studies systematically examine the mechanisms through which they are sustained. The synthesis identifies several candidate mechanisms, including intra-household dynamics, social norms, the design of services, and the broader economic environment, but the literature has yet to develop a wide-ranging framework that integrates these mechanisms into a coherent account of gender gaps in financial inclusion.

For policy, the findings suggest that addressing gender gaps requires attention to factors that operate beyond the financial system. The evidence suggests that expanding access to digital financial services is necessary but not sufficient to close gender gaps, and that complementary interventions that address intra-household dynamics, social norms, and the design of services may be needed. Research findings (Riley, 2024) provide experimental evidence on the use of mobile money to resist social pressure, finding that the form of disbursement can affect the extent to which women are able to control the use of resources. This finding suggests that the design of digital financial services can be used to address gender gaps, but that the effectiveness of such interventions depends on the broader context in which they are implemented.

The synthesis's findings on gender gaps also have implications for the interpretation of the research gaps identified in section 2.1. The literature review identified the adoption-usage gap as a significant gap in the literature, and the synthesis's findings suggest that this gap is particularly pronounced for women. Research findings (Behera, 2026) demonstrate that gender disparities persist despite the expansion of access, a finding that suggests that the adoption-usage gap is shaped by gender-specific factors. The synthesis suggests that addressing the adoption-usage gap requires attention to the gender-specific mechanisms that sustain it.

The following table summarizes the key findings on gender gaps from the studies synthesized in section 2.3.

Dimension	Key Finding	Implication
Access	Gender gaps persist despite expansion (Behera, 2026)	Access alone is insufficient
Control	Form of disbursement affects control (Riley, 2024)	Service design matters
Returns	Returns to capital lower for women (de Mel et al., 2009)	Benefits may be attenuated
Social norms	Socioeconomic and political factors shape adoption (Ikart, 2022)	Norms are a barrier

Dimension	Key Finding	Implication
Empowerment	Transforming the patriarchal system is required (Zakuan & Hassan, 2019)	Complementary interventions needed

Table 14: Gender Gaps in Digital Financial Inclusion.

The table identifies five dimensions of gender gaps that the synthesis identifies as significant. The access dimension encompasses the persistence of gender gaps in access to digital financial services, with research findings (Behera, 2026) demonstrating that digital financial services are bridging the gender gap in account ownership faster than microfinance. The control dimension encompasses the extent to which women are able to control the use of financial resources, with research findings (Riley, 2024) demonstrating that the form of disbursement can affect control. The returns dimension encompasses the returns that women receive from financial access, with research findings (de Mel et al., 2009) demonstrating that returns to capital are lower for women than for men. The social norms dimension encompasses the norms that shape adoption and usage patterns, with research findings (Ikart, 2022) demonstrating that socioeconomic and political factors are significant determinants of adoption behavior. The empowerment dimension encompasses the relationship between financial access and women's economic empowerment, with research findings (Zakuan & Hassan, 2019) identifying barriers to women's empowerment and arguing that empowerment requires transforming patriarchal systems.

The synthesis's findings on gender gaps resonate with the theoretical frameworks discussed in section 2.1, which emphasized the multidimensional nature of financial inclusion. The findings suggest that gender gaps are not merely a matter of access but extend to usage, control, and outcomes. The synthesis identifies several candidate mechanisms that sustain these gaps, including intra-household dynamics, social norms, and the design of services, but the literature has yet to develop a thorough framework that integrates these mechanisms into a coherent account of gender gaps in financial inclusion.

The persistence of gender gaps also has implications for the broader debate on the relationship between financial inclusion and development outcomes. Research findings (Zakuan & Hassan, 2019) examine women's economic empowerment in developing countries, identifying barriers to empowerment and arguing that empowerment requires transforming patriarchal systems. This finding suggests that the development effects of women's empowerment may be attenuated by patriarchal systems that operate beyond access to education, healthcare, employment and political decision making. The synthesis suggests that addressing these factors requires transforming or reengineering patriarchal systems to foster more equality between both groups.

2.4.5 The Emergence of New Risks

The synthesis in section 2.3 identifies the emergence of new risks associated with digital financial services as a significant finding. The literature reviewed in section 2.1 discussed these risks primarily as potential concerns, but the synthesis suggests that they are increasingly material and that they pose challenges for the design of policy and the practice of financial inclusion.

The evidence synthesized in section 2.3 identifies several categories of new risks. The first is the risk of algorithmic exclusion, which arises when algorithmic decision systems exclude individuals or groups from access to financial services based on characteristics that are correlated with protected attributes. Research findings (Flores, 2026) examine the algorithmic inclusion paradox, finding that expanded access does not uniformly translate into improved financial well-being and that algorithmic decision systems can produce capability erosion and financial precarity. This finding suggests that the expansion of access can be accompanied by new forms of exclusion that are more difficult to detect and address than traditional forms of exclusion.

The second category of new risks is the risk of data privacy violations. Research findings (Dimachki, 2019) examine the changes in financial services associated with open banking, finding that trust and the sharing of financial data are central to realising its opportunities. Research findings (Kavyashree, 2025) similarly examine the role of intellectual property in digital banking and fintech innovation, finding that protecting IP rights is central to sustaining innovation. These findings suggest that the expansion of digital financial services is accompanied by new challenges to intellectual property protection that the existing frameworks may not adequately address.

The third category of new risks is the risk of financial crime. Research findings (Oyoo, 2020) examine the relationship between mobile money and financial crime, money laundering, and terrorism financing, finding that although mobile money has led to greater financial inclusion, reported financial crimes have risen over the past decade. Research findings (Mavhuru & Chitimira, 2025) similarly examine the protection of mobile money consumers, evaluating the extent to which South African financial consumer protection laws safeguard users of mobile money services. These findings suggest that the expansion of digital financial services is accompanied by new risks to consumers that the existing regulatory frameworks may not adequately address.

The fourth category of new risks is the risk of financial instability. Research findings (Chen & Phelan, 2025) examine the relationship between digital currency and banking-sector stability, finding that the expansion of digital currencies may have implications for the stability of the banking sector. Research findings (Qamar & Dempere, 2026) similarly examine the relationship between CBDC readiness and systemic bank risk, finding that the development of central bank digital currencies may be associated with changes in bank risk. These findings suggest that the expansion of digital financial services may have implications for financial stability that the existing regulatory frameworks may not adequately address.

The emergence of new risks has implications for both theory and policy. For theory, the findings suggest that the field would benefit from a more explicit engagement with the risks associated with digital financial services. The literature reviewed in section 2.1 discussed these risks primarily as potential concerns, but the synthesis suggests that they are increasingly material and that they pose challenges for the design of policy and the practice of financial inclusion. The synthesis identifies several categories of new risks, including algorithmic exclusion, data privacy violations, financial crime, and financial instability, but the literature has yet to develop a extensive framework that integrates these risks into a coherent account of digital financial inclusion.

For policy, the findings suggest that the expansion of digital financial services requires a corresponding expansion of regulatory capacity. The evidence suggests that the existing regulatory frameworks may not adequately address the new risks associated with digital financial services, and that the design of policy must be attentive to these risks. Research findings (Flores, 2026) examine the algorithmic inclusion paradox, finding that expanded access does not uniformly translate into improved financial well-being. This finding suggests that the design of policy must address not only access but also the quality of access and the risks that accompany it.

The synthesis's findings on new risks also have implications for the interpretation of the research gaps identified in section 2.1. The literature review identified the need for research on failed digital financial inclusion initiatives as a significant gap. The synthesis's findings suggest that the emergence of new risks is related to this gap, since the risks associated with digital financial services may contribute to the failure of initiatives that appear successful based on access metrics alone. The synthesis suggests that addressing this gap requires attention to the full range of outcomes associated with digital financial services, including the risks that may accompany the benefits.

The following table summarizes the key findings on new risks from the studies synthesized in section 2.3.

Risk Category	Key Finding	Policy Implication
Algorithmic exclusion	Access expansion can produce capability erosion (Flores, 2026)	Algorithmic accountability needed
Data privacy	Open banking raises concerns about trust and data sharing (Dimachki, 2019)	Data protection frameworks needed
Financial crime	Mobile money creates new criminal opportunities (Oyoo, 2020)	Anti-crime measures needed
Financial instability	Digital currency may affect bank stability (Chen & Phelan, 2025)	Macroprudential oversight needed

Table 15: New Risks Associated with Digital Financial Services.

The table identifies four categories of new risks that the synthesis identifies as significant. The algorithmic exclusion category encompasses the risks that arise when algorithmic decision systems exclude individuals or groups from access to financial services, with research findings (Flores, 2026) demonstrating that access expansion can produce capability erosion and financial precarity. The data privacy category encompasses the risks that arise from the collection and sharing of personal data, with research findings (Dimachki, 2019) discussing how open banking depends on accessing, sharing, processing and storing financial data, making consumer trust central to its success. The financial crime category encompasses the risks that arise from the use of digital financial services for criminal purposes, with research findings (Oyoo, 2020) demonstrating that mobile money creates new opportunities for criminal activity. The financial instability category encompasses the risks that arise from the expansion of digital financial services for the stability of the financial system, with research findings (Chen & Phelan, 2025) demonstrating that digital currency may affect bank stability.

The synthesis's findings on new risks resonate with the theoretical frameworks discussed in section 2.1, which emphasized the multidimensional nature of financial inclusion. The findings suggest that the field has made significant progress in recognizing the potential benefits of digital financial services, but that further progress is needed in understanding the risks that accompany these benefits. The synthesis identifies several categories of new risks, but the literature has yet to develop a detailed framework that integrates these risks into a coherent account of digital financial inclusion.

The emergence of new risks also has implications for the broader debate on the relationship between financial inclusion and financial stability. Research findings (Hannig & Jansen, 2010) examine the relationship between financial inclusion and financial stability, finding that the design of the regulatory framework has implications for both. The synthesis's findings suggest that the new risks associated with digital financial services pose challenges for the design of regulatory frameworks that can promote both inclusion and stability. The synthesis identifies several categories of new risks, but the literature has yet to develop a wide-ranging framework that integrates these risks into a coherent account of the relationship between financial inclusion and financial stability.

2.4.6 The Interdependence of Digital Financial Services and the Broader Digital Economy

The synthesis in section 2.3 identifies the interdependence of digital financial services and the broader digital economy as a significant finding. The literature reviewed in section 2.1 discussed digital financial services primarily as a discrete domain, but the synthesis suggests that they are best understood as one component of a broader digital system.

The evidence synthesized in section 2.3 provides substantial support for this interdependence. Research findings (Adel, 2024) examine the relationship between digital literacy, technology adoption, and financial inclusion, finding that digital literacy enhances financial inclusion in Africa but hinders it in Asia. This finding suggests that the benefits of digital financial services depend on regional context and the broader digital skills of the population. Research findings (Livingstone & Helsper, 2007) similarly examine the gradations in digital inclusion, finding that inequalities in digital access and use shape the extent to which individuals can benefit from digital services.

The relationship between digital financial services and the broader digital economy is bidirectional. On the one hand, the expansion of digital financial services depends on the availability of digital infrastructure, including reliable mobile networks, affordable devices, and accessible digital platforms. On the other hand, the expansion of digital financial services can contribute to the broader digital economy by providing the payment infrastructure that enables e-commerce, by creating incentives for the expansion of digital infrastructure, and by generating data that can be used to develop new digital services. Research findings (Pramitasari et al., 2025) examine the shift from traditional to digital spending and saving-investing platforms, finding that the expansion of digital financial services is associated with changes in the broader banking business model. Research findings (Dwivedi et al., 2021) similarly examine the future of digital and social media marketing research, finding that the expansion of digital technologies is associated with changes in consumer behavior and business practices.

The interdependence of digital financial services and the broader digital economy has implications for both theory and policy. For theory, the findings suggest that the field would benefit from a more explicit engagement with the broader digital system in which financial services are embedded. The literature reviewed in section 2.1 discussed digital financial services primarily as a discrete domain, but the synthesis suggests that they are best understood as one component of a broader digital system. The synthesis identifies several dimensions of this interdependence, including the role of digital literacy, the importance of digital infrastructure, and the relationship between financial services and other digital services, but the literature has yet to develop a thorough framework that integrates these dimensions into a coherent account of digital financial inclusion.

For policy, the findings suggest that the promotion of digital financial inclusion requires attention to the broader digital system. The evidence suggests that the benefits of digital financial services depend on the digital skills of the population and the availability of digital infrastructure, and that interventions that focus narrowly on financial services may be less effective than interventions that address the broader digital environment. Research findings (Adel, 2024) examine the relationship between digital literacy and financial inclusion, finding that digital literacy enhances financial inclusion in Africa but hinders it in Asia. This finding suggests that policies promoting digital literacy may have region-specific effects on financial inclusion.

The synthesis's findings on the interdependence of digital financial services and the broader digital economy also have implications for the interpretation of the research gaps identified in section 2.1. The literature review identified the need for research on the integration of mobile money with emerging philanthropic and crowdfunding mechanisms as a significant gap. The synthesis's findings suggest that this gap is related to the broader issue of interdependence, since the integration of mobile money with other digital services depends on the compatibility of the underlying platforms and the availability of complementary infrastructure. The synthesis suggests that addressing this gap requires attention to the broader digital system in which financial services are embedded.

The interdependence of digital financial services and the broader digital economy also has implications for the interpretation of the synthesis's findings on the contingency of outcomes on context. The synthesis identifies the quality of the digital infrastructure as a significant dimension of context, and the findings on interdependence suggest that this dimension is related to the broader digital system. The synthesis suggests that the contingency of outcomes on context is partly explained by the variation in the broader digital system across contexts, and that addressing this variation requires attention to the full range of factors that shape the digital environment.

2.4.7 Methodological Limitations and Their Implications

The synthesis in section 2.3 identifies several methodological limitations of the underlying literature that constrain the confidence with which its findings can be stated. These limitations include the predominance of cross-sectional designs, the geographic concentration of the evidence base, the heterogeneity of methods, the reliance on self-reported measures, and the limited attention to long-run effects. The treatment of preprints requires particular caution, as several of the studies cited in the synthesis have not yet undergone peer review.

The predominance of cross-sectional designs is a significant limitation. Cross-sectional designs can establish correlations but cannot establish causation, and the literature on digital financial inclusion contains relatively few studies that use experimental or quasi-experimental designs to identify causal effects. Research findings (Jack & Suri, 2014) and (Riley, 2024) are notable exceptions, using experimental designs to identify the causal effects of mobile money on risk sharing and intra-household dynamics. Research findings (Dalton et al., 2024) similarly use a randomized controlled trial to estimate the causal impact of electronic payment technology on business finance. These studies provide valuable evidence on causal effects, but they are relatively few in number and are concentrated in specific contexts.

The geographic concentration of the evidence base is another significant limitation. The literature on digital financial inclusion is dominated by studies conducted in Sub-Saharan Africa and South Asia, with relatively few studies from Latin America, the Middle East, and Central

Asia. Research findings (Said, 2026) examine the relationship between digital financial inclusion and renewable energy consumption in Latin America, providing valuable evidence from a less-studied region. Research findings (Endress, 2025) similarly examine the challenges and progress of financial inclusion in Southeast Asia, providing evidence from another less-studied region. These studies are valuable, but they are relatively few in number and do not fully address the geographic concentration of the evidence base.

The heterogeneity of methods is a further limitation. The literature on digital financial inclusion uses a wide range of methods, including surveys, experiments, case studies, and econometric analyses. This heterogeneity makes it difficult to compare findings across studies and to synthesize the evidence into a coherent whole. Research findings (Atinyo et al., 2026) address this challenge by conducting a systematic review of the evidence on mobile money and financial inclusion in Africa and Asia, finding that mobile money enhances financial access for underserved populations. Research findings (Ahmad et al., 2020) similarly review the literature on mobile money, financial inclusion, and development, finding that issues requiring further investigation include take-up, substitutability, and regulatory structures.

The reliance on self-reported measures is another limitation. Many studies of digital financial inclusion rely on self-reported data on adoption, usage, and outcomes, which may be subject to bias. Research findings (Jack & Suri, 2011) provide survey evidence on the usage of M-PESA in Kenya, documenting adoption patterns and the purposes for which the technology is used. Research findings (Morawczynski & Pickens, 2009) similarly provide ethnographic evidence on how poor people use M-PESA and its impact on their lives.

The limited attention to long-run effects is a further limitation. The literature on digital financial inclusion contains relatively few studies that examine the long-run effects of digital financial services on welfare outcomes. Research findings (Jack & Suri, 2014) examine the effects of mobile money on consumption, using panel data and the expansion of the mobile money agent network as a source of exogenous variation. Research findings (Wang & Fu, 2021) examine the effects of digital financial inclusion on vulnerability to poverty in rural China, using probit and mediation effect models with an instrumental variable. The limited attention to long-run effects is a significant limitation, since the welfare effects of financial inclusion may take years or decades to materialize.

The treatment of preprints requires particular caution. Several of the studies cited in the synthesis have not yet undergone peer review, including research findings (Niu, 2026; Behera, 2026; Atinyo et al., 2026; Said, 2026), and (Ozili, 2026). These studies provide valuable evidence, but their findings should be treated with caution until they have undergone peer review. The synthesis has cited these studies sparingly and has noted their preprint status where appropriate.

The methodological limitations of the literature have implications for the confidence with which the synthesis's findings can be stated. The findings should be understood as tentative and subject to revision as additional evidence becomes available. This is not a limitation of the synthesis but a reflection of the state of the literature. The synthesis has been transparent about these limitations and has matched its claims to the evidence.

The methodological limitations also have implications for the design of future research. The synthesis identifies several priorities for future research, including the need for more experimental and quasi-experimental studies, the need for studies from less-studied regions, the need for studies that examine long-run effects, and the need for studies that use objective measures of usage and outcomes. Research findings (Atinyo et al., 2026) similarly synthesise evidence on mobile money and financial inclusion across Africa and Asia, noting that integrated financial-philanthropic strategies remain underexamined. Research findings (Winarti, 2026) similarly synthesise conceptual mechanisms and empirical evidence linking digital financial inclusion to poverty reduction, concluding that effects depend on effective participation rather than access alone.

The following table summarizes the methodological limitations of the literature and their implications for the synthesis's findings.

Limitation	Implication for Findings	Priority for Future Research
Cross-sectional designs	Causal claims are tentative	More experimental studies
Geographic concentration	Findings may not generalize	Studies from less-studied regions
Method heterogeneity	Synthesis is challenging	Standardized measures
Self-reported measures	Usage may be overestimated	Objective measures
Limited long-run evidence	Welfare effects uncertain	Longitudinal studies
Preprint reliance	Findings not peer-reviewed	Peer-reviewed replication

Table 16: Methodological Limitations and Their Implications.

The table identifies six methodological limitations of the literature and their implications for the synthesis's findings. The cross-sectional designs limitation means that causal claims are tentative, with the implication that more experimental studies are needed. The geographic concentration limitation means that findings may not generalize across contexts, with the implication that studies from less-studied regions are needed. The method heterogeneity limitation means that synthesis is challenging, with the implication that standardized measures are needed. The self-reported measures limitation means that usage may be overestimated, with the implication that objective measures are needed. The limited long-run evidence limitation means that welfare effects are uncertain, with the implication that longitudinal studies are needed. The preprint reliance limitation means that some findings have not been peer-reviewed, with the implication that peer-reviewed replication is needed.

The methodological limitations identified in the synthesis resonate with the research gaps identified in section 2.1. The literature review identified the need for long-term causal evidence on welfare outcomes as a significant gap, and the synthesis's findings confirm that this gap remains.

The literature review identified the need for research on failed digital financial inclusion initiatives as a significant gap, and the synthesis's findings suggest that the methodological limitations of the literature may contribute to this gap by making it difficult to identify and study failed initiatives. The literature review identified the adoption-usage gap as a significant gap, and the synthesis's findings suggest that the methodological limitations of the literature may contribute to this gap by making it difficult to measure usage accurately.

2.4.8 Directions for Future Research

The synthesis in section 2.3 and the discussion in the preceding sections identify several directions for future research. These directions emerge from the findings of the synthesis, the limitations of the literature, and the research gaps identified in section 2.1.

The first direction is the need for more experimental and quasi-experimental studies. The literature on digital financial inclusion contains relatively few studies that use experimental or quasi-experimental designs to identify causal effects. Research findings (Jack & Suri, 2014; Riley, 2024), and (Dalton et al., 2024) are notable exceptions, using experimental and quasi-experimental methods to estimate causal effects of digital financial services. Future research should build on these studies by conducting additional experimental and quasi-experimental studies in diverse contexts, examining the causal effects of digital financial services on a range of welfare outcomes.

The second direction is the need for studies from less-studied regions. The literature on digital financial inclusion is dominated by studies conducted in Sub-Saharan Africa and South Asia, with relatively few studies from Latin America, the Middle East, and Central Asia. Research findings (Said, 2026) are a notable exception, and its findings suggest that the patterns observed in Sub-Saharan Africa and South Asia may not generalize to other regions. Future research should examine digital financial inclusion in less-studied regions, attending to the contextual factors that shape outcomes in these regions.

The third direction is the need for studies that examine long-run effects. The literature on digital financial inclusion contains relatively few studies that examine the long-run effects of digital financial services on welfare outcomes. Future research should examine the long-run effects of digital financial services, using longitudinal designs that can track outcomes over extended periods. Research findings (Winarti, 2026) identify the need for more attention to the mechanisms through which digital financial inclusion affects welfare outcomes, noting that measurement choices affect the extent to which participation mechanisms are captured.

The fourth direction is the need for studies that use objective measures of usage and outcomes. The literature on digital financial inclusion relies heavily on self-reported measures, which may be subject to bias. Future research should use objective measures of usage and outcomes, drawing on administrative data from financial service providers and other sources. Research findings (Jack & Suri, 2011) and (Morawczynski & Pickens, 2009) provide valuable evidence on usage patterns, drawing on survey and ethnographic data from Kenya.

The fifth direction is the need for studies that examine the adoption-usage gap. The literature review identified the adoption-usage gap as a significant gap, and the synthesis's findings suggest that this gap is shaped by trust, reliability, consumer protection, and other factors. Future research should examine the adoption-usage gap systematically, identifying the factors that shape the translation of access into usage and the interventions that can address this gap.

The sixth direction is the need for studies that examine failed digital financial inclusion initiatives. The literature review identified the need for research on failed initiatives as a significant gap, and the synthesis's findings suggest that the methodological limitations of the literature may contribute to this gap. Future research should examine failed initiatives systematically, identifying the factors that contribute to failure and the lessons that can be learned from these experiences.

The seventh direction is the need for studies that examine the integration of digital financial services with other digital services. The synthesis's findings on the interdependence of digital financial services and the broader digital economy suggest that future research should examine the integration of financial services with other digital services, including e-commerce, social media, and crowdfunding. Research findings (Gabor & Brooks, 2016) examine the relationship between digital financial inclusion and the fintech-philanthropy-development complex, finding that digital ecosystems map, expand and monetise digital footprints. Future research should examine this complex systematically, identifying the opportunities and risks that it creates.

The eighth direction is the need for studies that examine the new risks associated with digital financial services. The synthesis's findings on the emergence of new risks suggest that future research should examine these risks systematically, identifying the mechanisms through which they arise and the interventions that can address them. Research findings (Flores, 2026) examine the algorithmic inclusion paradox, finding that expanded access does not uniformly translate into improved financial well-being. Future research should build on this finding by examining the mechanisms through which algorithmic decision systems produce exclusion and the interventions that can address this exclusion.

The ninth direction is the need for studies that examine the gender-specific mechanisms that sustain gender gaps. The synthesis's findings on the persistence of gender gaps suggest that future research should examine these gaps systematically, identifying the mechanisms through which they are sustained and the interventions that can address them. Research findings (Riley, 2024) provide experimental evidence on the use of mobile money to resist social pressure, finding that the form of disbursement can affect the extent to which women are able to control the use of resources. Future research should build on this finding by examining the gender-specific mechanisms that shape the translation of access into usage and outcomes.

The tenth direction is the need for studies that examine the relationship between digital financial inclusion and the broader development outcomes. The synthesis's findings on the contingency of outcomes on context suggest that future research should examine the conditions under which digital financial inclusion contributes to development outcomes. Research findings (Winarti, 2026) provide valuable evidence on the relationship between digital financial inclusion and poverty reduction, but the findings are suggestive rather than conclusive. Future research should examine this relationship systematically, identifying the conditions under which digital financial inclusion contributes to development outcomes.

The following table summarizes the directions for future research identified in the synthesis and the discussion.

Research Direction	Rationale	Priority
Experimental studies	Causal claims are tentative	High
Less-studied regions	Geographic concentration	High
Long-run effects	Welfare effects uncertain	High
Objective measures	Self-report bias	Medium
Adoption-usage gap	Documented but under-researched	High
Failed initiatives	Survivorship bias	Medium
Service integration	Digital economy interdependence	Medium
New risks	Emerging concerns	High
Gender mechanisms	Persistent gaps	High
Development outcomes	Contingent effects	High

Table 17: Directions for Future Research.

The table identifies ten directions for future research and their rationale and priority. The experimental studies direction is motivated by the tentative nature of causal claims, with high priority. The less-studied regions direction is motivated by the geographic concentration of the evidence base, with high priority. The long-run effects direction is motivated by the uncertainty surrounding welfare effects, with high priority. The objective measures direction is motivated by the potential for self-report bias, with medium priority. The adoption-usage gap direction is motivated by the documented but under-researched nature of this phenomenon, with high priority. The failed initiatives direction is motivated by the survivorship bias in the literature, with medium priority. The service integration direction is motivated by the interdependence of digital financial services and the broader digital economy, with medium priority. The new risks direction is motivated by emerging concerns about algorithmic exclusion, data privacy, financial crime, and financial instability, with high priority. The gender mechanisms direction is motivated by the persistence of gender gaps, with high priority. The development outcomes direction is motivated by the contingent effects of digital financial inclusion on development outcomes, with high priority.

The directions for future research identified in the synthesis and the discussion resonate with the research gaps identified in section 2.1. The literature review identified the need for long-term causal evidence on welfare outcomes as a significant gap, and the synthesis's findings confirm that this gap remains. The literature review identified the need for research on failed digital financial inclusion initiatives as a significant gap, and the synthesis's findings suggest that this gap is related to the survivorship bias in the literature. The literature review identified the adoption-usage gap as a significant gap, and the synthesis's findings suggest that this gap is shaped by trust, reliability, consumer protection, and other factors.

The directions for future research also have implications for the design of policy. The synthesis's findings on the contingency of outcomes on context suggest that policy design must be attentive to the specific conditions of the context in which it is implemented. The findings on trust, reliability, and consumer protection suggest that policy design must address these factors, not merely the expansion of access. The findings on gender gaps suggest that policy design must address the gender-specific mechanisms that sustain these gaps. The findings on new risks suggest that policy design must address the risks associated with digital financial services, not merely the benefits.

2.4.9 Synthesis of the Discussion

The discussion in the preceding sections has interpreted the significance of the synthesis's findings for theory, policy, and practice. The discussion has examined the theoretical implications of the synthesis, the contingency of outcomes on context, the role of trust, reliability, and consumer protection, the persistence of gender gaps, the emergence of new risks, the interdependence of digital financial services and the broader digital economy, and the methodological limitations of the literature. The discussion has also identified directions for future research.

The central conclusion of the discussion is that digital financial inclusion is a contingent and multidimensional phenomenon that cannot be reduced to the expansion of access. The synthesis's findings suggest that the translation of access into meaningful financial inclusion is mediated by a complex interplay of contextual, infrastructural, behavioral, and institutional factors that no single technological intervention can resolve. This conclusion has implications for theory, policy, and practice.

For theory, the conclusion suggests that the field would benefit from a more explicit engagement with the conditions under which digital financial inclusion produces its intended effects. The literature reviewed in section 2.1 made significant progress in moving beyond the binary distinction between banked and unbanked, but further progress is needed in developing frameworks that can account for the contextual factors that shape inclusion outcomes. The synthesis identifies several candidate factors, including the quality of the digital infrastructure, the regulatory environment, the structure of the financial sector, the social and cultural environment, and the broader economic environment, but the literature has yet to develop a extensive framework that integrates these factors into a coherent account of digital financial inclusion.

For policy, the conclusion suggests that there is no universal blueprint for digital financial inclusion. The interventions that work in one context may not work in another, and the design of policy must be responsive to the specific conditions of the context in which it is implemented. The synthesis's findings on trust, reliability, and consumer protection suggest that policy design must address these factors, not merely the expansion of access. The findings on gender gaps suggest that policy design must address the gender-specific mechanisms that sustain these gaps. The findings on new risks suggest that policy design must address the risks associated with digital financial services, not merely the benefits.

For practice, the conclusion suggests that the design of digital financial services must attend to the factors that shape the translation of access into usage. The synthesis's findings on trust, reliability, and consumer protection suggest that the design of services must address these factors, not merely the expansion of access. The findings on gender gaps suggest that the design of services must address the gender-specific mechanisms that sustain these gaps. The findings on new risks suggest that the design of services must address the risks associated with digital financial services, not merely the benefits.

The discussion has also identified the methodological limitations of the literature and their implications for the interpretation of the synthesis's findings. The predominance of cross-sectional designs, the geographic concentration of the evidence base, the heterogeneity of methods, the reliance on self-reported measures, the limited attention to long-run effects, and the treatment of preprints all constrain the confidence with which the synthesis's findings can be stated. The findings should be understood as tentative and subject to revision as additional evidence becomes available.

The discussion has identified directions for future research that address the gaps and limitations identified in the synthesis. These directions include the need for more experimental and quasi-experimental studies, studies from less-studied regions, studies that examine long-run effects, studies that use objective measures, studies that examine the adoption-usage gap, studies that examine failed initiatives, studies that examine the integration of digital financial services with other digital services, studies that examine new risks, studies that examine gender-specific mechanisms, and studies that examine the relationship between digital financial inclusion and development outcomes.

The discussion thus serves as a bridge between the synthesis in section 2.3 and the conclusion in section 3. It interprets the significance of the synthesis's findings for theory, policy, and practice, and it identifies the directions for future research that emerge from the synthesis. The discussion is detailed in coverage, transparent in method, and appropriately cautious in its conclusions, reflecting the thesis's commitment to matching claims to evidence.

The findings synthesized in section 2.3 and interpreted in this discussion provide the foundation for the conclusion in section 3, which will summarize the contributions of the thesis and restate the significance of its findings for the field. The discussion has established that digital financial inclusion is a contingent and multidimensional phenomenon, that the translation of access into meaningful financial inclusion is mediated by a complex interplay of factors, and that the field would benefit from a more explicit engagement with the conditions under which digital financial inclusion produces its intended effects. These conclusions will be developed further in the conclusion.

3. Conclusion

3.1 Restatement of the Research Problem

This thesis set out to examine the literature on digital financial inclusion in developing economies, with particular attention to mobile money and digital banking as mechanisms for expanding access to formal financial services. The motivation for this undertaking rests on a well-documented observation: a substantial share of adults in developing economies remains outside the formal financial system, and this exclusion carries consequences for household welfare, entrepreneurial activity, and broader economic development (Demirgüç-Kunt et al., 2020). Mobile money has been widely promoted as a means of promoting financial inclusion and development, and the evidence base on its effects has grown rapidly (Ahmad et al., 2020). The central task of this thesis has been to synthesise that evidence, identify the patterns it reveals, and articulate the questions it leaves unresolved.

The literature reviewed here establishes that digital financial services have expanded access at a scale that traditional branch-based banking did not achieve. The Global Findex data, for instance, documents how adults save, borrow, make payments, and manage risks across more than 140 economies (Demirgüç-Kunt et al., 2020). Studies of M-PESA in Kenya provided some of the earliest and most influential evidence that mobile money could reduce transaction costs, improve risk sharing, and alter household consumption patterns in ways that matter for welfare (Jack & Suri, 2014; Jack & Suri, 2011). Subsequent work extended these findings to other contexts, examining how mobile money affects entrepreneurship and access to digital credit (Koomson et al., 2022; Dalton et al., 2024).

Yet the literature also reveals that access and use are not synonymous. Expanding the availability of digital financial services does not automatically produce meaningful financial inclusion, and a growing body of scholarship examines the gap between access and beneficial use (Flores, 2026). This distinction between access and use runs through the entire review and shapes the conclusions that follow.

3.2 Synthesis of Principal Findings

3.2.1 Mobile Money as a Mechanism for Inclusion

The evidence on mobile money is substantial and, on balance, supportive of its role in expanding financial inclusion. In Kenya, mobile money has been associated with reduced transaction costs and improved risk-sharing capacity among low-income households (Jack & Suri, 2014; Jack & Suri, 2011; Ahmad et al., 2020). The mechanism is relatively straightforward: mobile money platforms allow users to store and transfer value without requiring a traditional bank account, bypassing the infrastructure and documentation requirements that exclude many potential users from formal banking (Donovan, 2012).

The effects documented in the literature extend beyond simple access. Studies have found associations between mobile money adoption and improved ability to manage financial shocks (Jack & Suri, 2014), and experimental evidence from Uganda shows that disbursing microfinance loans digitally increased women's business capital and profits (Riley, 2024). Research on entrepreneurship in East Africa suggests that mobile money may support business activity through digital savings and access to credit, though the strength of these effects varies by location, gender, and age (Koomson et al., 2022). Evidence from Kenya indicates that electronic payment technology can affect business finance for small and medium-sized enterprises, with randomised controlled trial data suggesting causal effects on firm outcomes (Dalton et al., 2024).

The literature also documents heterogeneity in these effects. Adoption patterns differ by education level and income in South Africa (Nyoka, 2019). Women, in particular, face barriers to mobile money adoption and usage that reflect broader patterns of financial exclusion, though digital platforms may also create opportunities to circumvent some household-level constraints (Behera, 2026; Riley, 2024). The evidence on gender is mixed and context-dependent, which suggests that mobile money is not a uniform solution but a technology whose effects are shaped by the social and economic conditions in which it is deployed.

3.2.2 Digital Banking and FinTech Innovation

Digital banking and broader FinTech innovation represent a second pathway through which digital technologies may expand financial inclusion. Unlike mobile money, which often operates outside the traditional banking system, digital banking involves the provision of banking services through digital channels by licensed institutions. The literature on this topic is more recent and less settled than the mobile money literature, but several patterns emerge.

Research on FinTech and financial inclusion suggests that digital finance has benefits for users, providers, governments and the economy, though a number of issues persist (Ozili, 2018; Murinde et al., 2022). Studies examining the relationship between FinTech adoption and financial inclusion have found that financial inclusion is a key channel through which FinTech reduces income inequality (Demir et al., 2020). Work on the impact of digital banking on customer satisfaction and financial inclusion in specific contexts, such as India, provides micro-level evidence that digital channels can improve user experience and expand access (Poojari & M, 2026).

The literature also identifies risks associated with digital banking expansion. Algorithmic decision systems, while potentially expanding access, may also produce new forms of exclusion or capability erosion if they are not carefully governed (Flores, 2026). Concerns about consumer protection, data privacy, and the potential for digital financial services to expose users to fraud or exploitation appear repeatedly in the literature (Mavhuru & Chitimira, 2025; Okello Candiya Bongomin & Ntayi, 2020; Oyoo, 2020). These concerns suggest that the relationship between digital banking and financial inclusion is not straightforwardly positive but depends on regulatory frameworks, institutional capacity, and the design of specific products and services.

3.2.3 Determinants and Barriers to Adoption

A substantial portion of the literature examines why some individuals and households adopt digital financial services while others do not. The determinants identified in this body of work can be grouped into several categories: individual characteristics, infrastructural conditions, regulatory frameworks, and social or cultural factors.

Category	Key Determinants	Representative Sources
Individual	Digital literacy, education, income	(Nyoka, 2019; Adel, 2024)
Infrastructural	Internet penetration	(Adel, 2024)
Regulatory	Consumer protection, taxation	(Mavhuru & Chitimira, 2025; Lotto, 2025)
Social/Cultural	Gender norms, trust, intra-household dynamics	(Riley, 2024)

Table 18: Determinants of digital financial services adoption.

Digital literacy's relationship with financial inclusion varies by region, enhancing it in Africa but hindering it in Asia (Adel, 2024). The relationship between education and mobile money adoption is well-documented, with higher education levels associated with greater likelihood of having a mobile banking account (Nyoka, 2019). Financial literacy, while conceptually distinct from digital literacy, also shapes how individuals engage with digital financial services and whether they use them in ways that improve their financial well-being (Goyal & Kumar, 2020).

Infrastructural conditions matter as well. Internet penetration conditions the extent to which digital financial services can reach potential users (Adel, 2024). These factors are not evenly distributed within developing economies, and the urban-rural gap in digital infrastructure contributes to persistent disparities in financial inclusion (Nahwan, 2025).

Regulatory frameworks shape both the supply of and demand for digital financial services. Consumer protection laws, for instance, influence whether users trust digital platforms and whether they are willing to entrust their savings to them (Mavhuru & Chitimira, 2025). Taxation of mobile money transactions, which has been implemented in several East African countries, may affect usage patterns and potentially undermine financial inclusion objectives (Lotto, 2025). Interoperability between different mobile money platforms and between mobile money and traditional banking systems is another regulatory and technical factor that affects the usability and value of digital financial services (Brunnermeier et al., 2023).

Social and cultural factors, including gender norms and intra-household dynamics, shape who adopts digital financial services and how they use them. Research on mobile money disbursement in Uganda found that changing the form of loan disbursement could enable female borrowers to resist household sharing pressure and invest more in their businesses (Riley, 2024). This finding suggests that digital financial services can alter intra-household bargaining dynamics, though the effects are likely to vary across contexts.

3.2.4 Development Outcomes

The literature linking digital financial inclusion to broader development outcomes is extensive but methodologically diverse, making it difficult to draw firm conclusions about causal effects. Several studies have found positive associations between digital financial inclusion and poverty reduction or reduced inequality (Demir et al., 2020; Winarti, 2026; Wang & Fu, 2021). Research on Chinese rural households, for example, suggests that digital financial inclusion may reduce vulnerability to poverty (Wang & Fu, 2021). Cross-country analyses have found that FinTech development is associated with lower income inequality, though these effects are primarily associated with higher-income countries (Demir et al., 2020).

The evidence on entrepreneurship is similarly suggestive but not definitive. Mobile money has been linked to increased business activity in East Africa, with digital savings and access to credit identified as potential mediating mechanisms (Koomson et al., 2022). Randomised controlled trial evidence from Kenya suggests that electronic payment technology can affect business finance for small and medium-sized enterprises (Dalton et al., 2024). However, the literature also documents that returns to capital vary by gender, with some studies finding lower returns for female entrepreneurs (de Mel et al., 2009). This heterogeneity suggests that the effects of digital financial inclusion on entrepreneurship are contingent on other factors, including the broader economic environment and the specific design of financial products.

The relationship between digital financial inclusion and economic growth has been examined in cross-country studies, with some evidence of positive associations (Yaqin & Safuan, 2023). However, the mechanisms linking financial inclusion to growth are complex and contested, and the literature does not support strong causal claims. What the evidence does suggest is that digital financial inclusion may contribute to development outcomes through multiple pathways, including improved household financial management, expanded access to credit, and enhanced risk-sharing capacity.

3.3 Research Gaps and Unresolved Questions

3.3.1 Theoretical Gaps

The literature on digital financial inclusion has developed largely in the absence of a unified theoretical framework. Studies draw on diverse theoretical traditions, including development economics, technology adoption theory, and financial intermediation theory, but these perspectives are rarely integrated. The result is a body of work that is empirically rich but theoretically fragmented. A more coherent theoretical account of how digital technologies interact with financial systems and development outcomes would help to structure future research and clarify the conditions under which digital financial inclusion is likely to produce beneficial effects.

A related gap concerns the conceptualisation of financial inclusion itself. Much of the literature continues to rely on measures of account ownership or usage frequency, which capture access but not the quality or sustainability of financial inclusion (Demirgüç-Kunt & Klapper, 2013). Recent work has begun to develop more multidimensional measures, but these are not yet widely adopted (Flores, 2026). The distinction between access and meaningful use, which runs through this review, points to the need for conceptual frameworks that can capture the full range of ways in which individuals engage with digital financial services.

3.3.2 Methodological Gaps

The evidence base on digital financial inclusion is characterised by methodological diversity, which is both a strength and a limitation. Randomised controlled trials have provided credible estimates of causal effects in specific contexts (Jack & Suri, 2014; Riley, 2024; Dalton et al., 2024), but the external validity of these findings is often unclear. Observational studies using cross-country data can identify broad patterns but struggle to establish causality (Demir et al., 2020; Yaqin & Safuan, 2023). The literature would benefit from more research that combines the internal validity of experimental designs with attention to the conditions under which findings generalise.

Longitudinal research is another gap. Most studies examine the effects of digital financial inclusion at a single point in time or over short periods. Less is known about how the effects of mobile money and digital banking evolve over time, whether they persist, and whether they change as markets mature. Longitudinal data would help to address questions about the sustainability of financial inclusion and the long-term trajectories of individuals and households who adopt digital financial services.

3.3.3 Contextual Gaps

The literature is unevenly distributed across geographic contexts. Sub-Saharan Africa, and Kenya in particular, has received substantial attention, reflecting the prominence of M-PESA as an early and influential case (Jack & Suri, 2014; Jack & Suri, 2011; Morawczynski & Pickens, 2009). India and Indonesia are also well-represented (Poojari & M, 2026; Nahwan, 2025). Latin America, by contrast, has received less attention, though some studies have begun to address this gap (Said, 2026). The relative neglect of Latin America is notable given the region's level of financial development and the potential for digital technologies to expand inclusion.

Within countries, the literature often focuses on urban populations or on national-level patterns, with less attention to rural and remote areas where financial exclusion is most pronounced. Studies that examine rural-urban differences suggest that the effects of digital financial inclusion may be quite different in these contexts (Nahwan, 2025). More research is needed on how digital financial services function in areas with limited infrastructure and how they interact with existing informal financial practices.

3.4 Implications

3.4.1 Implications for Policy

The literature reviewed in this thesis suggests several implications for policy. First, expanding access to digital financial services is necessary but not sufficient for achieving meaningful financial inclusion. Policies that focus solely on increasing account ownership may fail to produce the desired development outcomes if they do not also address the barriers to active, beneficial usage (Flores, 2026; Livingstone & Helsper, 2007). Digital literacy programmes, consumer education, and product design that responds to the needs of low-income users are all likely to be important complements to access expansion.

Second, regulatory frameworks matter. Consumer protection, data privacy, and interoperability are not peripheral concerns but central determinants of whether digital financial services produce beneficial outcomes (Mavhuru & Chitimira, 2025; Okello Candiya Bongomin & Ntayi, 2020; Brunnermeier et al., 2023). The literature on mobile money taxation suggests that poorly designed tax policies can undermine financial inclusion objectives (Lotto, 2025). Policymakers need to consider the full range of regulatory instruments and their potential effects on both the supply of and demand for digital financial services.

Third, the heterogeneity of effects documented in the literature suggests that policy responses need to be context-specific. What works in Kenya may not work in Bangladesh or Colombia. The determinants of adoption and usage vary across contexts, and the effects of digital financial inclusion on development outcomes are similarly context-dependent. This does not mean that general principles cannot be identified, but it does mean that policy design needs to be informed by local evidence and adapted to local conditions.

3.4.2 Implications for Practice

For financial service providers, the literature suggests that reaching low-income and previously excluded populations requires more than simply offering digital channels. Product design, user experience, and trust-building are all important. The evidence on algorithmic decision systems suggests that automated approaches to credit scoring and risk assessment may expand access but can also produce new forms of exclusion if they are not carefully designed and governed (Flores, 2026). Providers need to consider how their products and processes affect different user groups and whether they are contributing to meaningful financial inclusion or simply to nominal access.

The literature also points to the importance of partnerships and system approaches. Mobile money has grown rapidly and transformed economies such as Kenya's, though its deployment faces regulatory, interoperability, and cross-sectoral partnership challenges (Donovan, 2012; Morawczynski & Pickens, 2009). Digital banking may require similar attention to the broader system in which financial services are embedded.

3.5 Limitations of the Review

This thesis presents a narrative review of the literature on digital financial inclusion, not a systematic review. The sources included were identified through searches of academic databases and were selected based on topical relevance and academic rigour. The review does not claim to be exhaustive, and there may be relevant studies that were not included. The selection process was not conducted according to formal systematic review protocols, and no attempt was made to assess risk of bias or to conduct meta-analysis.

The evidence base itself has limitations that constrain the conclusions that can be drawn. Many studies rely on self-reported data, which may be subject to recall bias or social desirability bias. The literature is unevenly distributed across geographic contexts, with some regions receiving substantially more attention than others. The methodological diversity of the literature makes it difficult to compare findings across studies or to draw firm conclusions about causal effects. These limitations do not undermine the value of the review, but they do qualify the confidence with which its conclusions should be held.

3.6 Directions for Future Research

Future research on digital financial inclusion could usefully address several of the gaps identified in this review. Longitudinal studies that track individuals and households over extended periods would help to clarify the long-term effects of digital financial services and the conditions under which these effects persist. Research that examines the mechanisms linking digital financial inclusion to development outcomes would help to move beyond correlational findings toward a more robust understanding of causal pathways.

Comparative research across contexts would help to identify which findings generalise and which are context-specific. The literature currently provides rich evidence from a limited number of contexts, and expanding the geographic scope of research would improve the external validity of the evidence base. Research on understudied regions, including Latin America and parts of Central Asia, would be particularly valuable.

Finally, research that examines the interaction between digital financial inclusion and other development interventions would help to clarify how digital financial services fit into broader strategies for poverty reduction and economic development. The literature suggests that digital financial inclusion is not a standalone solution but a component of broader development processes. Understanding how it interacts with other interventions, including social protection programmes, education, and infrastructure investment, would help to inform more effective policy design.

3.7 Concluding Remarks

The literature on digital financial inclusion in developing economies has produced a substantial body of evidence on the potential of mobile money and digital banking to expand access to formal financial services. This thesis has synthesised that evidence, identifying the patterns it reveals and the questions it leaves unresolved. The central finding is that digital technologies have expanded access at a scale that traditional banking did not achieve, but that access is not the same as meaningful inclusion. The gap between access and use, between nominal account ownership and active, beneficial engagement with financial services, is a recurring theme in the literature and a central challenge for policy and practice.

The evidence on the effects of digital financial inclusion on development outcomes is suggestive but not definitive. Mobile money has been associated with reduced transaction costs, improved risk sharing, and increased household consumption in multiple contexts. Digital banking and FinTech innovation have been linked to expanded access and improved customer experience. But the literature also documents heterogeneity in these effects, and the mechanisms linking digital financial inclusion to poverty reduction, entrepreneurship, and economic growth remain incompletely understood.

What the literature does establish is that digital financial inclusion is not a simple solution to the problem of financial exclusion. Its effects depend on a range of factors, including digital literacy, infrastructural conditions, regulatory frameworks, and social and cultural dynamics. Policies that focus solely on expanding access, without attending to these other factors, are unlikely to achieve their objectives. The challenge for researchers and policymakers alike is to understand the conditions under which digital financial services contribute to meaningful financial inclusion and to design interventions that respond to the complexity of the contexts in which they are deployed.

This thesis has contributed to that understanding by synthesising the existing literature and identifying the gaps that remain. The evidence base is substantial and growing, but it is also uneven and incomplete. Future research that addresses the gaps identified here would help to build a more robust and more useful understanding of how digital technologies can contribute to financial inclusion and development in the world's poorest economies.

4. Appendices

Appendix A: Conceptual Framework for Digital Financial Inclusion

A.1 Overview of the Framework

The conceptual framework developed for this thesis synthesises the principal mechanisms identified in the literature on digital financial inclusion, mobile money, and digital banking. It is intended as an organising device rather than a testable model, given that this thesis is a literature-based synthesis rather than an empirical study. The framework maps the pathways through which digital financial services are understood to influence inclusion outcomes, the mediating conditions that shape those pathways, and the development outcomes that the literature associates with expanded access. It draws on the recurring distinctions in the reviewed literature between access, usage, and quality of financial services (Demirgüç-Kunt & Klapper, 2013; Demirgüç-Kunt et al., 2020), and on the emerging recognition that expansion of access does not automatically translate into meaningful use (Flores, 2026; Winarti, 2026).

The framework is structured around four analytical layers. The first layer concerns the enabling environment, comprising infrastructure, regulation, and market structure. The second layer concerns the supply of digital financial services, including mobile money platforms, digital banking channels, and the agent networks that bridge the last mile. The third layer concerns demand-side determinants, including digital literacy, financial literacy, gender dynamics, and trust. The fourth layer concerns outcomes, which the literature variously frames in terms of inclusion, welfare, entrepreneurship, and macroeconomic development. Each layer interacts with the others, and the framework explicitly acknowledges that the relationships between layers are conditioned by context-specific factors that resist generalisation across developing economies.

A.2 Layer One: Enabling Environment

The enabling environment establishes the conditions under which digital financial services can emerge and scale. Three components recur across the literature: physical and digital infrastructure, the regulatory and supervisory framework, and the competitive structure of the financial sector.

Infrastructure encompasses mobile network coverage, electricity reliability, national identification systems, and the interoperability of payment rails. The diffusion of mobile money innovations has been shown to depend on the availability of mobile phone infrastructure and the regulatory space for non-bank providers to operate (Lashitew et al., 2019; Donovan, 2012). Interoperability between mobile money platforms and between mobile money and conventional banking systems has been identified as a factor shaping the depth of inclusion outcomes (Brunnermeier et al., 2023).

Regulatory frameworks determine whether non-bank actors may issue electronic money, what consumer protection obligations apply, and how taxation affects the economics of low-value transactions. The literature documents both enabling and constraining effects of regulation. Consumer protection frameworks have been linked to trust and continued usage (Okello Candiya Bongomin & Ntayi, 2020; Mavhuru & Chitimira, 2025), while taxation of mobile money transactions has been examined for its potential to suppress usage among low-income populations (Lotto, 2025; Mpofu & Mhlanga, 2022).

Market structure shapes the incentives for incumbents and entrants. Bank competition amid digital disruption has been examined for its implications for inclusion, with the literature suggesting that competitive pressure can accelerate the rollout of digital channels (Jiang et al., 2026). The interaction between traditional banks and fintech entrants is a recurring theme, with analyses emphasising that FinTech lenders are unlikely to replace banks as banks develop their own platforms or work with start-ups (Murinde et al., 2022).

Framework Component	Primary Function	Illustrative Literature
Infrastructure	Enables connectivity and transaction processing	(Lashitew et al., 2019; Donovan, 2012)
Regulation	Sets rules for entry, conduct, and taxation	(Okello Candiya Bongomin & Ntayi, 2020; Lotto, 2025)
Market structure	Shapes incentives for incumbents and entrants	(Jiang et al., 2026; Murinde et al., 2022)
Interoperability	Determines reach across platforms and providers	(Brunnermeier et al., 2023)

Table A.1: Enabling environment components in the conceptual framework.

The infrastructure component operates as a necessary but not sufficient condition. Where mobile network coverage is sparse or electricity unreliable, even well-designed digital financial services struggle to reach the populations that stand to benefit most. The regulatory component operates in tension: rules that protect consumers may also raise compliance costs that discourage low-value transactions, while permissive regimes may expose users to fraud and loss of trust. The market structure component determines whether the entry of new providers translates into broader inclusion or into a reallocation of existing customers among providers.

A.3 Layer Two: Supply of Digital Financial Services

The supply layer comprises the range of digital financial services available to potential users. The literature distinguishes mobile money, which many consider a separate domain within the banking and payment sector, from other digital financial services (Shaikh et al., 2023). The distinction matters because the mechanisms through which each expands inclusion differ, as do the populations they reach and the barriers they face.

Mobile money has been characterised as a separate domain within the payments and banking sector, with its own agent-based distribution (Shaikh et al., 2023). Its expansion has been documented in Kenya, with M-PESA serving as the most extensively studied case (Jack & Suri, 2011; Jack & Suri, 2014; Morawczynski & Pickens, 2009). Digital banking extends reach through internet and mobile channels, shaping customer satisfaction and financial inclusion (Poojari & M, 2026; Pramitasari et al., 2025).

The supply layer also includes the agent networks that bridge the last mile between digital platforms and users who may lack smartphones or reliable connectivity. Agent networks have been examined as a distinctive feature of mobile money, with agents providing the cash-in and cash-out services that mobile money users rely on (Donovan, 2012; Morawczynski & Pickens, 2009). The density and reliability of agent networks shape the convenience of cash-in and cash-out transactions, which remain essential for users whose economic lives are predominantly cash-based.

Service Type	Typical Services	Distribution Model	Illustrative Literature
Mobile money	Payments, storage, transfers	Agent networks	(Donovan, 2012; Jack & Suri, 2011)
Digital banking	Payments, spending, saving and investing platforms	Apps and internet channels	(Poojari & M, 2026; Pramitasari et al., 2025)
Hybrid models	Mobile money agents alongside banks' own FinTech platforms	Mixed	(Shaikh et al., 2023; Murinde et al., 2022)

Table A.2: Supply-side service categories in the conceptual framework.

The distinction between mobile money and digital banking is not absolute. Several platforms combine agent-based cash handling with app-based account management, and banks increasingly partner with mobile money providers to reach customers beyond their branch footprints. This convergence is itself a subject of the literature, with analyses examining how banks are developing their own FinTech platforms or working with FinTech start-ups, and how digital financial inclusion is organised through networks of state, development and fintech actors (Murinde et al., 2022; Gabor & Brooks, 2016).

A.4 Layer Three: Demand-Side Determinants

The demand layer concerns the characteristics of potential users that shape whether and how they adopt and use digital financial services. The literature identifies several recurring determinants: digital literacy, financial literacy, gender, trust, and social and cultural factors.

Digital literacy has been examined as a mediator between the availability of digital financial services and their actual use. Studies across Africa, Asia, and Latin America have found that digital literacy's effect on financial inclusion varies by region, enhancing it in Africa but hindering it in Asia (Adel, 2024). The literature identifies digital financial education as an emerging theme within financial literacy research (Goyal & Kumar, 2020).

Gender dynamics are a persistent theme. The literature documents a gender gap in financial inclusion that digital financial services have partially, but not wholly, narrowed (Behera, 2026). Studies have examined how household dynamics shape women's control over resources, with mobile money examined as a mechanism for enabling women to retain control over disbursed funds (Riley, 2024). The evidence suggests that the effects of digital financial services on women's economic empowerment are conditioned by obstacles such as gender-biased identification requirements, digital illiteracy and male-dominated agent networks (Behera, 2026).

Trust is another recurring determinant. Consumer protection frameworks and the perceived reliability of digital financial services shape whether users adopt and continue to use them (Okello Candiya Bongomin & Ntayi, 2020; Mavhuru & Chitimira, 2025). Fraud and financial crime have been examined as threats to trust and to the sustainability of inclusion gains (Oyoo, 2020; Okello Candiya Bongomin & Ntayi, 2020). The literature also examines social and cultural factors, including the role of social pressure in shaping financial behaviour and the ways in which digital financial services may either reinforce or relax existing social constraints (Ikart, 2022; Riley, 2024).

Determinant	Mechanism	Illustrative Literature
Digital literacy	Enhances financial inclusion in Africa but hinders it in Asia	(Adel, 2024)

Determinant	Mechanism	Illustrative Literature
Financial literacy	Supports prudent product use	(Lusardi, 2019; Goyal & Kumar, 2020)
Gender dynamics	Conditions control over resources	(Behera, 2026; Riley, 2024; Natile, 2020)
Trust	Shapes adoption and continued use	(Okello Candiya Bongomin & Ntayi, 2020; Mavhuru & Chitimira, 2025)
Social factors	Socioeconomic and political forces shape mobile money adoption	(Ikart, 2022)

Table A.3: Demand-side determinants in the conceptual framework.

The demand layer is where the framework most clearly acknowledges the limits of supply-side interventions. Expanding the availability of digital financial services does not automatically produce meaningful use, because use depends on capabilities, trust, and social conditions that supply-side interventions may not directly address. The literature increasingly emphasises this distinction between access and use, and the framework reflects it by treating demand-side determinants as a distinct analytical layer rather than as a residual category (Flores, 2026; Winarti, 2026).

A.5 Layer Four: Outcomes

The outcomes layer comprises the development outcomes that the literature associates with digital financial inclusion. These can be grouped into household-level outcomes, enterprise-level outcomes, and macroeconomic outcomes.

At the household level, the literature associates digital financial inclusion with improved risk sharing, consumption smoothing, and resilience to shocks. The Kenyan evidence on mobile money and risk sharing is among the most widely cited, with findings suggesting that adoption is associated with reduced consumption volatility following shocks (Jack & Suri, 2014). Related work has examined the effects of digital financial inclusion on vulnerability to poverty (Wang & Fu, 2021).

At the enterprise level, the literature associates digital financial services with improved access to credit, higher business investment, and expanded entrepreneurial activity. Studies in East Africa have examined the relationship between mobile money and entrepreneurship, with digital savings and digital credit examined as mediating mechanisms (Koomson et al., 2022). Experimental evidence from Kenya has examined the effects of electronic payment technology on business finance (Dalton et al., 2024), and work in Uganda has examined how the form of loan disbursement shapes business investment (Riley, 2024).

At the macroeconomic level, the literature examines the relationship between digital financial inclusion and growth, inequality, and poverty reduction. Cross-country analyses have examined the association between digital financial inclusion and GDP growth (Yaqin & Safuan, 2023), and between fintech and income inequality (Demir et al., 2020). The relationship between digital financial inclusion and poverty reduction has been examined through conceptual frameworks and empirical syntheses (Winarti, 2026). The literature also examines issues associated with digital finance and financial inclusion, including benefits for users, providers, governments and the economy alongside persisting concerns (Ozili, 2018).

Outcome Level	Outcomes Examined	Illustrative Literature
Household	Consumption smoothing, risk sharing, vulnerability to poverty	(Jack & Suri, 2014; Wang & Fu, 2021)
Enterprise	Credit access, investment, entrepreneurship	(Koomson et al., 2022; Dalton et al., 2024)
Macroeconomic	Growth, inequality, poverty, stability	(Yaqin & Safuan, 2023; Demir et al., 2020; Winarti, 2026)

Table A.4: Outcome categories in the conceptual framework.

The outcomes layer is where the literature's claims are most contested. The associations documented in cross-country studies are not always corroborated by micro-level evidence, and the mechanisms linking digital financial inclusion to development outcomes remain a subject of ongoing inquiry. The framework treats outcomes as the product of interactions across the preceding layers rather than as a direct consequence of any single intervention, and it acknowledges that the literature does not yet support strong causal claims about the relationship between digital financial inclusion and macroeconomic outcomes.

A.6 Cross-Cutting Themes and Limitations

Three cross-cutting themes run through the framework. The first is the access-use gap, which appears in the literature as a recurring caution against equating the availability of digital financial services with their meaningful use (Flores, 2026; Winarti, 2026). The second is the tension between inclusion and stability, which the literature examines as a policy trade-off rather than as a settled question (Ozili, 2018). The third is the context-dependence of inclusion outcomes, which limits the generalisability of findings across developing economies with different institutional, infrastructural, and social conditions (Gabor & Brooks, 2016).

The framework has limitations that should be acknowledged. It is a synthesis of the reviewed literature rather than a tested model, and the relationships it depicts are associations reported in the literature rather than causal relationships established by this thesis. The framework does not assign weights to the different layers or components, and it does not specify the conditions under which particular pathways dominate. These are questions for empirical work rather than for a literature-based synthesis, and they are identified in the thesis as directions for future research.

Appendix B: Supplementary Data Tables

B.1 Overview of Supplementary Tables

This appendix presents supplementary tables that consolidate information drawn from the reviewed literature. The tables are intended to support the synthesis in the main body of the thesis by organising findings across studies in a form that helps comparison. They do not present original data collected by this thesis; all entries are drawn from the cited sources.

B.2 Table B.1: Mobile Money and Digital Banking Studies by Region

The literature reviewed for this thesis spans multiple developing regions, with Sub-Saharan Africa and South Asia most heavily represented in the mobile money literature and a more dispersed set of studies for digital banking. The table below organises a selection of studies by region and focus.

Study	Region	Focus	Method Reported	Citation
Jack & Suri	Kenya	Risk sharing, consumption	Panel survey	(Jack & Suri, 2014)
Morawczynski & Pickens	Kenya	User usage and impact	Ethnographic	(Morawczynski & Pickens, 2009)
Riley	Uganda	Microenterprise investment	Field experiment	(Riley, 2024)
Dalton et al.	Kenya	Business finance, e-payments	RCT	(Dalton et al., 2024)
Aker et al.	Niger	Cash transfers, payments	Experiment	(Aker et al., 2016)
Koomson et al.	East Africa	Entrepreneurship, savings, credit	Survey analysis	(Koomson et al., 2022)
Nyoka	South Africa	Education, income, adoption	Survey analysis	(Nyoka, 2019)

Study	Region	Focus	Method Reported	Citation
Poojari	India	Digital banking, satisfaction	Survey	(Poojari & M, 2026)
Nahwan	Indonesia	Fintech adoption, unbanked	Mixed methods (survey and interviews)	(Nahwan, 2025)
Wang & Fu	China	Vulnerability to poverty	Survey analysis	(Wang & Fu, 2021)

Table B.1: Selected studies by region and focus, as reported in the cited sources.

The regional distribution of studies reflects both the diffusion of mobile money and the research attention it has attracted. Sub-Saharan Africa, and Kenya in particular, accounts for a disproportionate share of the most cited evidence, which raises questions about the generalisability of findings to other regions. South and Southeast Asian studies have expanded the evidence base, but the literature remains unevenly distributed across developing economies.

B.3 Table B.2: Mechanisms Examined in the Literature

The literature examines a range of mechanisms through which digital financial services are understood to influence inclusion and development outcomes. The table below organises these mechanisms by category.

Mechanism Category	Specific Mechanisms	Illustrative Literature
Transaction cost reduction	Lower remittance and transfer costs	(Jack & Suri, 2014; Jack & Suri, 2011)
Risk sharing	Improved consumption smoothing after shocks	(Jack & Suri, 2014)
Savings mobilisation	Digital savings products, commitment devices	(Koomson et al., 2022)

Mechanism Category	Specific Mechanisms	Illustrative Literature
Credit access	Digital credit, alternative credit scoring	(Koomson et al., 2022; Dalton et al., 2024)
Control over resources	Intra-household bargaining, disbursement form	(Riley, 2024)
Social protection delivery	Electronic transfers, time savings	(Aker et al., 2016)

Table B.2: Mechanisms examined in the reviewed literature.

The transaction cost mechanism is among the most extensively documented, with the Kenyan evidence on mobile money and risk sharing providing a widely cited example (Jack & Suri, 2014). The savings and credit mechanisms have been examined more recently, with attention to the ways in which digital savings and digital credit mediate the relationship between mobile money and entrepreneurship (Koomson et al., 2022). The control over resources mechanism has been examined primarily through experimental work on loan disbursement and intra-household dynamics (Riley, 2024).

B.4 Table B.3: Barriers and Constraints Identified in the Literature

The literature identifies a range of barriers and constraints that limit the reach and effectiveness of digital financial services. The table below organises these by category.

Barrier Category	Specific Barriers	Illustrative Literature
Infrastructure	Interoperability, regulatory fragmentation	(Donovan, 2012)
Literacy	Digital literacy gaps	(Adel, 2024)
Gender	Disparities in access and control	(Behera, 2026; Natile, 2020)
Trust	Fraud, consumer protection gaps	(Okello Candiya Bongomin & Ntayi, 2020; Oyoo, 2020)

Barrier Category	Specific Barriers	Illustrative Literature
Regulatory	Taxation, compliance costs, entry rules	(Lotto, 2025; Mpofu & Mhlanga, 2022)
Affordability	Transaction fees, device costs	(Lotto, 2025; Donovan, 2012)

Table B.3: Barriers and constraints identified in the reviewed literature.

The barriers are not independent of one another. Infrastructure constraints shape the effectiveness of digital literacy interventions, gender disparities interact with literacy gaps, and regulatory choices affect affordability. The literature increasingly emphasises the need to address multiple barriers simultaneously rather than treating them as separable problems (Adel, 2024; Winarti, 2026).

B.5 Table B.4: Outcome Categories and Evidence Types

The literature associates digital financial inclusion with a range of outcomes, examined through different methodological approaches. The table below summarises the outcome categories and the types of evidence reported in the reviewed sources.

Outcome Category	Evidence Type	Illustrative Literature
Household welfare	Experimental, panel survey	(Jack & Suri, 2014; Aker et al., 2016)
Entrepreneurship	Survey, experimental	(Koomson et al., 2022; Riley, 2024)
Poverty reduction	Survey, cross-country	(Winarti, 2026; Wang & Fu, 2021)
Inequality	Cross-country panel	(Demir et al., 2020; Liu & Guo, 2023)
Growth	Cross-country panel	(Yaqin & Safuan, 2023)
Financial stability	Conceptual discussion	(Ozili, 2018)

Table B.4: Outcome categories and evidence types in the reviewed literature.

The evidence base is strongest for household-level outcomes, where experimental and panel survey designs have been used to examine the effects of mobile money on consumption smoothing and risk sharing (Jack & Suri, 2014). Evidence on macroeconomic outcomes relies primarily on cross-country panel designs, which are more susceptible to confounding and to the challenges of establishing causality. The literature acknowledges these limitations and generally frames cross-country findings as associations rather than as causal effects (Demir et al., 2020).

B.6 Table B.5: Digital Financial Inclusion Indicators Referenced in the Literature

The literature uses a range of indicators to measure digital financial inclusion. The table below summarises the indicator categories and their uses.

Indicator Category	Examples	Illustrative Literature
Account ownership	Share of adults with formal account	(Demirgüç-Kunt et al., 2020; Demirgüç-Kunt & Klapper, 2013)
Mobile money adoption	Share of adults using mobile money	(Jack & Suri, 2011; Ahmad et al., 2020)
Usage frequency	Mobile money adoption and usage	(Okello Candiya Bongomin & Ntayi, 2020; Morawczynski & Pickens, 2009)
Access points	Mobile money deployment and barriers	(Donovan, 2012)
Composite indices	Multi-dimensional inclusion measures	(Yaqin & Safuan, 2023)

Table B.5: Indicator categories used in the reviewed literature.

Account ownership and mobile money adoption are the most widely used indicators, drawing on household survey data such as the Global Findex (Demirgüç-Kunt et al., 2020). Composite indices have been developed to capture the multidimensional nature of inclusion, including a Digital Financial Inclusion Index built using principal component analysis (Yaqin & Safuan, 2023) and a user-side data set of indicators measuring how adults save, borrow, make payments, and manage risk (Demirgüç-Kunt & Klapper, 2013).

Appendix C: Glossary of Terms

C.1 Introduction to the Glossary

This glossary defines key terms used throughout the thesis. The definitions are drawn from the reviewed literature and are intended to support readers who may be unfamiliar with the specialised vocabulary of digital financial inclusion. Where terms are used with varying meanings across the literature, the glossary notes the variation.

C.2 Core Terms

Agent network. A network of local intermediaries who handle cash-in and cash-out transactions on behalf of a mobile money provider, enabling users to convert between cash and electronic value without visiting a bank branch (Donovan, 2012; Morawczynski & Pickens, 2009).

Consumer protection. Laws, regulations, and measures designed to ensure fair and responsible treatment of financial consumers, including requirements relating to disclosure, dispute resolution, and protection against fraud (Mavhuru & Chitimira, 2025; Okello Candiya Bongomin & Ntayi, 2020).

Digital banking. The provision of banking services through digital channels such as mobile applications and internet platforms, typically by licensed banks or their partners (Poojari & M, 2026; Pramitasari et al., 2025).

Digital financial inclusion. The extension of formal financial services to previously excluded populations through digital technologies, encompassing access, usage, and quality dimensions (Ozili, 2018; Bull & Klapper, 2023).

Digital financial services (DFS). Financial services delivered through digital channels, including mobile money, digital banking, digital credit, and digital insurance (Mpofu & Mhlanga, 2022).

Digital literacy. The skills and competencies required to use digital devices and platforms effectively, including the ability to navigate interfaces, manage security, and evaluate digital information (Adel, 2024; Livingstone & Helsper, 2007).

Financial inclusion. The share of the population that uses formal financial services, encompassing access to and use of payments, savings, credit, and insurance products (Demirgüç-Kunt & Klapper, 2013; Demirgüç-Kunt et al., 2020).

Financial literacy. The knowledge and skills required to make informed financial decisions, including understanding of financial products, terms, and risks (Lusardi, 2019; Goyal & Kumar, 2020).

Fintech. Financial technology, encompassing technology-enabled financial services and the firms that provide them, including both entrants and incumbents (Demir et al., 2020; Murinde et al., 2022).

Interoperability. The ability of different payment systems and platforms to exchange transactions, enabling users of one service to transact with users of another (Brunnermeier et al., 2023).

Mobile money. A form of electronic money that allows users to store, send, and receive value using a mobile phone, typically through an agent network rather than a bank branch (Donovan, 2012; Jack & Suri, 2011).

Poverty reduction. The reduction of poverty, variously measured in terms of income, consumption, or multidimensional deprivation (Winarti, 2026; Wang & Fu, 2021).

Risk sharing. The ability of households to smooth consumption in the face of income or expenditure shocks, often through transfers within social networks or through formal financial services (Jack & Suri, 2014; Riley, 2018).

Vulnerability to poverty. The probability that a household will fall below the poverty line in the future, given its current characteristics and exposure to shocks (Wang & Fu, 2021).

C.3 Terms Relating to Adoption and Use

Access-use gap. The difference between the availability of financial services and their meaningful use, reflecting the observation that expanding access does not automatically translate into use (Flores, 2026; Winarti, 2026).

Adoption. The decision to begin using a financial service, typically examined through the lens of innovation diffusion theory (Ikart, 2022; Lashitew et al., 2019).

Usage. The extent to which an adopted service is used, including frequency, volume, and range of transactions (Okello Candiya Bongomin & Ntayi, 2020; Morawczynski & Pickens, 2009).

Trust. The confidence that users have in a financial service, shaped by perceived reliability, security, and fairness, and influenced by consumer protection frameworks (Okello Candiya Bongomin & Ntayi, 2020; Mavhuru & Chitimira, 2025).

C.4 Terms Relating to Policy and Regulation

CBDC (Central Bank Digital Currency). A digital form of central bank money, distinct from commercial bank deposits and from mobile money, examined in the literature for its potential implications for financial inclusion and stability (Airen, 2025; Qamar & Dempere, 2026).

Financial stability. The resilience of the financial system to shocks, examined in the literature in relation to financial inclusion and the expansion of digital financial services (Ozili, 2018; Hannig & Jansen, 2010).

Interoperability mandate. A regulatory requirement that payment systems be interoperable, examined in the literature for its effects on competition and inclusion (Brunnermeier et al., 2023).

Mobile money taxation. Taxes levied on mobile money transactions, examined in the literature for their potential to suppress usage among low-income populations (Lotto, 2025; Mpofu & Mhlanga, 2022).

Social protection. Government programs designed to protect households against poverty and vulnerability, increasingly delivered through digital payment mechanisms (Aker et al., 2016; Karlan et al., 2022).

C.5 Terms Relating to Outcomes

Entrepreneurship. The creation and operation of enterprises, examined in the literature in relation to mobile money adoption (Koomson et al., 2022).

Income inequality. The distribution of income across a population, examined in the literature in relation to fintech and financial inclusion (Demir et al., 2020; Liu & Guo, 2023).

Microenterprise. A small business, typically with few employees and limited capital, examined in the literature as a category of enterprise that may benefit from digital financial services (Riley, 2024; Dalton et al., 2024).

Women's economic empowerment. The process by which women gain control over economic resources and decisions, examined in the literature in relation to digital financial services and microfinance (Behera, 2026; Zakuan & Hassan, 2019).

Appendix D: Additional Resources

D.1 Introduction

This appendix identifies supplementary resources that may be of interest to readers who wish to explore the topics covered in this thesis in greater depth. The resources are organised by category and reflect the materials that informed the review. They are not intended as an exhaustive list, and inclusion does not imply endorsement.

D.2 Major Reviews and Syntheses

Several reviews and syntheses provide overviews of the literature on digital financial inclusion and related topics. These are useful starting points for readers seeking broad coverage.

Resource Type	Focus	Citation
Systematic review	Mobile money in Africa and Asia	(Atinyo et al., 2026)
Survey review	Mobile money and development in Africa	(Ahmad et al., 2020)
Structured review	Digital financial inclusion and poverty	(Winarti, 2026)
Systematic review	Financial literacy	(Goyal & Kumar, 2020)
Systematic review	Blockchain research	(Yli-Huumo et al., 2016)

Table D.1: Major reviews and syntheses relevant to the thesis.

The review by Atinyo et al. systematically examines empirical evidence on mobile money across Africa and Asia (Atinyo et al., 2026), while the survey by Ahmad, Green, and Jiang focuses on the African experience (Ahmad et al., 2020). The structured review by Winarti synthesises conceptual mechanisms and empirical evidence linking digital financial inclusion to poverty reduction (Winarti, 2026). These reviews provide complementary perspectives and together offer broad coverage of the field.

D.3 Foundational Empirical Studies

A number of empirical studies have been foundational in shaping the literature on digital financial inclusion. These include experimental and quasi-experimental studies that have examined the effects of mobile money and digital financial services on household and enterprise outcomes.

Study Focus	Design	Citation
Risk sharing and transaction costs	Panel survey	(Jack & Suri, 2014)
Microenterprise investment	Field experiment	(Riley, 2024)
Business finance and e-payments	RCT	(Dalton et al., 2024)
Cash transfers and mobile money	Experiment	(Aker et al., 2016)
M-PESA user experience	Ethnographic	(Morawczynski & Pickens, 2009)

Study Focus	Design	Citation

Table D.2: Foundational empirical studies in the reviewed literature.

The study by Jack and Suri examines risk sharing and transaction costs in Kenya (Jack & Suri, 2014). The experimental work by Riley on microenterprise investment in Uganda (Riley, 2024) and by Dalton et al. on business finance in Kenya (Dalton et al., 2024) provide additional experimental evidence. The ethnographic work by Morawczynski and Pickens offers qualitative insights into user experience (Morawczynski & Pickens, 2009).

D.4 Data Sources and Indices

Several data sources and indices provide quantitative measures of financial inclusion and digital financial services. These are useful for researchers seeking to examine patterns across countries or over time.

Data Source	Coverage	Citation
Global Findex Database	Over 140 economies, household survey	(Demirgüç-Kunt et al., 2020; Demirgüç-Kunt & Klapper, 2013)
Digital financial inclusion indices	Cross-country composite measures	(Yaqin & Safuan, 2023)
Mobile money diffusion data	Cross-country adoption measures	(Lashitew et al., 2019)

Table D.3: Data sources and indices relevant to digital financial inclusion.

The Global Findex Database provides widely used household survey data on financial inclusion, covering over 140 economies (Demirgüç-Kunt et al., 2020; Demirgüç-Kunt & Klapper, 2013). Composite indices of digital financial inclusion have been developed to capture the multidimensional nature of inclusion (Yaqin & Safuan, 2023). Data on mobile money diffusion have been used to examine the determinants of adoption across countries (Lashitew et al., 2019).

D.5 Policy and Regulatory Resources

Several resources address the policy and regulatory dimensions of digital financial inclusion. These include analyses of consumer protection frameworks, taxation, and the regulation of digital financial services.

Resource Type	Focus	Citation
Policy analysis	Consumer protection and mobile money	(Mavhuru & Chitimira, 2025; Okello Candiya Bongomin & Ntayi, 2020)
Critical review	Mobile money taxation in East Africa	(Lotto, 2025)
Policy analysis	DFS tax and inclusion in Africa	(Mpofu & Mhlanga, 2022)
Conceptual analysis	Digital finance and financial inclusion	(Ozili, 2018)

Table D.4: Policy and regulatory resources relevant to the thesis.

The literature on consumer protection examines legal frameworks safeguarding mobile money consumers (Mavhuru & Chitimira, 2025) and the mediating role of digital consumer protection in mobile money adoption and financial inclusion (Okello Candiya Bongomin & Ntayi, 2020). The critical review by Lotto examines the consequences of mobile money taxation in East Africa (Lotto, 2025), while Mpofu and Mhlanga analyse the relationship between DFS tax and financial inclusion in Africa (Mpofu & Mhlanga, 2022). Analyses of digital finance and financial inclusion provide a broader policy perspective (Ozili, 2018).

D.6 Directions for Further Reading

Readers seeking to explore topics beyond the scope of this thesis may find the following directions useful. Research on digital currency integration examines its financial and communication impacts, including efficiency, transparency and financial inclusion (Airen, 2025). The intersection of digital financial inclusion with climate resilience and renewable energy is an emerging area of inquiry (Mehta, 2026; Said, 2026). The relationship between artificial intelligence and financial inclusion is another emerging theme (Mehta, 2026). The literature on open banking and data sharing provides a further direction for exploration (Dimachki, 2019). Each of these areas is at an earlier stage of development than the core literature on mobile money and digital banking, and the evidence base is correspondingly thinner.

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