

Moving away from Trading on the Margins: Economic Empowerment of Informal Businesses through FinTech

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Abstract

While there have been increasing studies on the impact of financial technology (FinTech), limited research has explored how FinTech supports economic empowerment for informal businesses. Drawing on institutional logics and a case study of mobile money—a FinTech innovation—this study develops a model of mobile money-driven economic empowerment. We argue that this model is important to explain how those at the bottom of the economic pyramid, who are often neglected, use FinTech innovations to create and run informal businesses. Our findings and model explain the dynamics between logics, actors, and mobile money at three levels: regulatory, payments infrastructure, and informal economy. We identify three corresponding effects as outcomes of economic empowerment for informal businesses: greater access to start-up capital, new employment opportunities, and improved financial management. By illustrating these effects, our study contributes to a better understanding of how FinTech innovations offer a possible pathway to economic empowerment for informal businesses.

Keywords: FinTech, Mobile Money, Economic Empowerment, Informal Businesses, ICT4D, Sustainable Development Goals, Institutional Logics

1. Introduction

Financial technology (FinTech¹) is redefining financial services and improving access to financial products and markets. Payment innovations such as mobile money² are one of the most mature areas of FinTech in terms of revenue generation and diffusion (Gozman et al., 2018). This in turn has spurred enthusiasm from practitioners and scholars around how mobile money can help address financial exclusion (Friedline et al., 2019). Prior research on mobile money, including from the domain of information and communication technology for development (ICT4D), provides a understanding of antecedents to adoption by individuals (e.g., Adaba et al., 2019; Amoah et al., 2020; Finau et al., 2016; Senyo & Osabutey, 2020), the process of developing and shaping innovation (Foster & Heeks, 2013; Oborn et al., 2019) and on the emergence and practices of new actors in the FinTech landscape (Gozman et al., 2018; Ng et al., 2022; Senyo et al., 2022). However, there remains a lack of theoretical understanding on *how* mobile money contributes to outcomes such as economic empowerment. At the same time, evidence suggests that financial inclusion has not advanced all aspects of society (Kanungo & Gupta, 2021). There are also persistent questions around whether mobile money exacerbates divides (Bateman et al., 2019; Bernards, 2019; Gabor & Brooks, 2017; Mann 2017) or even creates new risks such as digital financialisation (e.g., harvesting citizens' data using digital financial infrastructure, which can be abused), financial surveillance (e.g., using harvested financial data to spy on citizens), and information capitalism (e.g., processing harvested financial data to generate value for corporate organisations, without sharing benefits directly with data subjects) (Martin, 2019; Mann, 2017; Taylor & Broedders, 2015).

One aspect of this theoretical problem that we aim to illuminate is how small businesses in the informal economy (informal businesses or informal entrepreneurs) may use mobile money as a pathway to economic empowerment. This is important because, even though there is a body of evidence that argues mobile money improves financial inclusion for many individuals (Amoah et al., 2020; World Bank, 2018), we do not know if this translates into new business opportunities and positive outcomes for informal businesses. Likewise, studies that focus on FinTech and

¹ As an umbrella term, FinTech refers to innovations that draw on a range of technologies from machine learning, blockchain and mobile phone applications to reimagine a wide array of financial services such as payments and loans (Bateman et al., 2019; Gomber et al., 2018).

² Mobile money is defined as a FinTech innovation that enables financial transactions via mobile phones without a bank account (Senyo & Osabutey, 2020).

technology start-ups (Leong et al., 2022; Ng et al., 2022) or even other small firms (Canhoto et al., 2021) are undertaken in contexts distinguished from the conditions of informal economies.

The gap in research on the informal economy is surprising given that informal businesses are important contributors to gross domestic product and people's livelihoods (World Bank, 2021). Informal businesses are typically one-person businesses, run by the owner, "who engage in monetary transactions not declared to the state for tax, benefit and/or labour law purposes when they should be declared but which are legal in all other respects" (Williams, 2014, p. 3). Informal businesses provide many individuals with a source of income and a way out of poverty (Sutter, Bruton, & Chen, 2019). As they are typically one-person ventures, economic benefits for the business translate into direct benefits for the owner. Examples of informal businesses include market vendors, smallholder farmers, petty retailers, and auto mechanics. They generally operate from physical locations such as markets, streets, lorry terminals or physical shops, and conduct operations via cash. Informal businesses have a simple organisational structure, typically operating as one-person ventures with a few supporting hands in some cases (Turner, 2018). They are also susceptible to shocks (Turner, 2018), such as the impacts of COVID-19 or inflation, in part because of resource scarcity but also because they are unregistered and, subsequently, cannot access government grants or bank loans (World Bank, 2021). Consequently, very few informal businesses grow.

These characteristics raise questions around how informal businesses can leverage the opportunity of digital innovations like mobile money to overcome challenges and grow. This is an important concern because mobile money solutions developed for large organisations require substantial initial capital investment for payment settlement, complementary IT infrastructure for systems integration with mobile network operators (MNOs), and technical capability to deploy and support payment systems. Such capabilities are clearly beyond the resources of informal businesses. Likewise, there are no dedicated mobile money solutions for informal businesses to receive payment for goods and services.

Businesses in informal economies operate in institutional complexity shaped by actors at different levels of the economy (e.g., macro, meso, and micro) and with different logics. Thus, to fully understand how changes at the macro level (e.g., to the financial sector structure) may impact the informal economy, we depart from FinTech research that focuses on one level (e.g., government *or* FinTech firms *or* individuals), and follow scholars that accommodate multiple

levels of analysis when studying technology driven development (Avgerou, 2010; Njihia & Merali, 2013; Ramadani et al., 2022) that brings together both formal institutions and informal economy actors. In turn, this perspective helps our understanding of economic empowerment of informal businesses but also how FinTech firms, banks, central banks, and MNOs create mobile money services and an environment that can deliver favourable conditions (or not) for economic empowerment (Lagna & Ravishankar, 2021). Given these theoretical gaps, the purpose of this study is to better understand FinTech and the macro and meso level dynamics and their impacts on informal businesses and particularly on their economic empowerment.

To capture this complex layering and filtering of institutions and practices we adopt the concept of institutional logics: “the socially constructed, historical patterns of material practices, assumptions, values, beliefs and rules by which individuals produce and reproduce their material subsistence, organize time and space and provide meaning to their social reality” (Thornton & Ocasio, 1999, p. 804). We undertake a qualitative study in Ghana by conducting interviews with a range of actors: informal businesses, government actors, MNOs, and FinTech firms. The findings offer new insights into how mobile money is used by informal businesses, and the subsequent impacts, and contributes to the scholarly discussion of economic empowerment. We articulate a model that explains the layers of logics, practices, and emerging opportunities, and how they shape potential for economic empowerment. The study also contributes to scholarly discourse that addresses the role of technology in societal change (Andrade, Techatassanasoontorn, & Ou, 2019; Majchrzak, Markus, & Wareham, 2016) and centralised versus decentralised national technology strategies implemented for socio-economic development (Ramadani et al., 2022). Our research also aligns with the United Nations Sustainable Development Goals (SDG) 1, 8 and 9³ and the need to further our understanding of the role of technological innovations for the betterment of society.

The remainder of the paper is structured as follows. The next section presents literature on FinTech, mobile money, informal businesses, and economic empowerment. This is followed by

³ SDG 1 focuses on the eradication of poverty, SDG 8: Decent Work and Economic Growth requires the promotion of “development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services” and SDG 9: Industry, Innovation and Infrastructure highlights the need to “facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries.” See: <https://www.un.org/development/desa/disabilities/envision2030.html>

our theoretical foundation of institutional logics. Following this, we present the methodology, and findings. We then discuss our findings, theoretical and practical implications, and limitations and future research directions. Finally, we present the conclusion.

2. Related Works and Theoretical Background

2.1 FinTech and mobile money

The term FinTech encompasses innovations that aim to provide alternative financial services. Examples of FinTech innovations include mobile money, cryptocurrencies, digital only banks, peer-to-peer lending, and regulatory technologies (RegTech). In many global south countries, mobile money is one of the prominent examples of FinTech innovations that is widespread. This is due to mobile money's unique characteristic of enabling financial transactions without the need for a formal bank account. There has been increasing interest in FinTech, leading to numerous streams of research. However, our focus is on FinTech, particularly mobile money, and development. In line with this focus, we review existing research, organised into design/innovation, regulation, use, and impact streams as summarised in Table 1. Column one refers to the streams, column two summarises the focus of the streams, column three refers to the key actors, while column four shows selected references, which is divided by research that focuses on mobile money (upper cell) and FinTech more broadly (bottom cell).

Table 1: FinTech and mobile money research streams

Streams	Focus	Key actors	References
Design/innovation	Building and reframing the financial services ecosystem and value chain through the design of new FinTech innovation	Meso level (e.g., MNOs, banks, software developers and cloud infrastructure vendors, FinTech firms)	Oborn et al., 2019; Ongwae & Duncombe, 2021
			Gozman et al., 2018; Gupta & Kanungo, 2022; Leong et al., 2022; Muthukannan et al., 2020; Ng et al., 2022
Regulation	Regulate financial services industry with a specific focus on preventing systemic risk to national economies and ensuring consumer protection	Meso level analysis (e.g., FinTech firms, banks, MNOs)	Senyo et al. 2022; Suwandaarachchi et al., 2020;
			Currie & Seddon, 2022; Currie et al., 2018; Gozman & Currie, 2014
Use		Micro level analysis (e.g., Individual	Adaba et al., 2019; Amoah et al., 2020; Finau et al., 2016;

	Adoption, diffusion, acceptance, and use of FinTech/mobile money	users, merchants, and entrepreneurs)	Senyo & Osabutey, 2020; Koomson et al., 2022 Taewoo et al., 2022; Belanche et al., 2019
Impact	Financial inclusion, people's welfare, empowerment, digital financialisation, platform surveillance, datafication, and information capitalism	Micro and meso level analysis (e.g., Individual users, and MNOs)	Kikulwe et al., 2014; N'dri & Kakinaka, 2020; Senyo et al., 2021 Jain & Gabor, 2020; Lagna & Ravishankar 2021; Mann, 2017; Taylor & Broeders, 2015

Studies in the design/innovation research stream focus on the innovation process of FinTech. These studies demonstrate how meso level actors—organisational level players such as FinTech firms, banks, and MNOs—develop and offer FinTech innovations as well as reframe financial service ecosystems (Muthukannan et al., 2020; Ng et al., 2022). Meso level actors, especially those in global south countries, determine which services are delivered through mobile money and prescribe how the technology is intended and used. However, users may use FinTech innovations in intended and unintended ways. In the case of mobile money for instance, Oborn et al. (2019) investigated how and why context reshapes mobile money's development. They traced the development of the M-PESA mobile money transfer service and witnessed distinctive changes in the innovation from how it was initially developed. They found that when innovation and local trajectories interact, it results in trajectory dynamics, demonstrating how context influences the development of innovations over time. Focusing on more technical design issues, Ongwae and Duncombe (2021) showed that tensions between the motivations of users and designers resulted in initial resistance in co-designing mobile money value-added services. Their study highlighted the diverse interests, power asymmetries and cross-cultural differences in using user-centred design approaches. This stream reinforces the important role of context in mobile money development. In IS research, this stream tends to neglect the role of macro level actors who provide legislative support for FinTech innovation to thrive.

Research on FinTech regulation from the perspective of regulators remains limited. This is surprising given that regulatory policies have cascading effects on other sectors. Rather, studies in the regulation research stream mostly focus on how meso level actors leverage FinTech to comply with regulatory requirements and are mostly based on developed countries (e.g., Currie & Seddon, 2022; Currie et al., 2018; Gozman & Currie, 2014). The financial sector is one of the most heavily

regulated industries. Regulators formulate laws and monitor their compliance to reduce systemic risks and protect consumers. Regulatory compliance in finance was previously done manually and periodically since it was difficult for regulators to monitor the operations of several financial institutions instantaneously. However, the emergence of FinTech has led to the development of RegTech to address this need. Prior research has largely focused on how banks and FinTech firms leverage RegTech for compliance monitoring and reporting (Gozman & Currie, 2014), rather than how regulation shapes FinTech. RegTech is configured to monitor internal operations to flag regulatory breaches instantly for corrective measures. By doing so, this has reduced the burden of regulatory requirements, although human actors sometimes circumvent these rules to stick with old practices (Currie & Seddon, 2022; Gozman & Currie, 2014).

Studies in the use research stream focus on the adoption, diffusion, and acceptance of mobile money (e.g., Amoah et al., 2020; Finau et al., 2016; Senyo & Osabutey, 2020). These studies examine both technological and behavioural determinants of mobile money use and have found there are still factors that inhibit uptake. Koomson et al. (2022) found that users of mobile money were more likely to engage in entrepreneurial activities. Studies have found links between the uptake of e-commerce and the financial inclusion of micro firms (Wirdiyanti et al., 2022), while other studies suggests that small firms that rely on FinTech may miss out on credit because they have not established adequate relationships and information exchanges with banks (Fasano & Cappa, 2022). At the individual level, Senyo and Osabutey (2020) found that performance and effort expectancy significantly affect mobile money use while price value, hedonic motivation, social influence, and perceived risk do not have any influence. Similarly, Amoah et al. (2020) found that being technology savvy and educated and having regular income and access to auxiliary services are key determinants of mobile money adoption and use. Studies in this research stream largely focus on micro level actors such as users and merchants and do not provide insights into why informal business may or may not adopt mobile money services.

Impact studies focus on socio-economic and socio-technical issues. Studies in this stream consider the double-edged peculiarities of mobile money. For instance, studies on the socio-economic development perspective consider the links between mobile money and financial inclusion (e.g., Senyo et al., 2021), the impact of mobile money on people's welfare and livelihoods (e.g., Adaba et al., 2019; Kikulwe et al., 2014; N'dri & Kakinaka, 2020) and how mobile money empowers individuals to participate in financial systems (Adaba et al., 2019)

including how mobile money mediated financial inclusion reduces a household's exposure to poverty in rural areas (Koomson et al., 2020). On the contrary, studies focusing on the socio-technical issues consider risks associated with mobile money services. For instance, these studies are concerned about the risk of financial data monetisation and political surveillance of citizens (Jain & Gabor, 2020), the effect of SIM card registration and platform surveillance (Martin, 2019), and datafication and information capitalism (Mann, 2017; Taylor & Broeders, 2015). More often, the benefits of FinTech, especially to the poor in terms of access and greater financial inclusion, and to the state in terms of revenue mobilisation and money laundering surveillance, tend to overshadow the socio-technical issues of FinTech (Mann, 2017). Thus, these studies raise critical issues on the intention of leveraging FinTech for a social good and the unexpected opportunities it creates for abuse and exploitation. Like the utilisation stream, social impact studies largely focus on micro and meso level actors such as individual users and MNOs while there is limited research on informal businesses.

2.2 FinTech, informal businesses, and economic empowerment

While FinTech including mobile money can be used in a range of ways, its availability or use alone does not necessarily result in economic empowerment as individuals must also be able to leverage the potential benefits of the innovation (Bernards, 2019). In the ICT4D literature, economic empowerment is defined as a mechanism through which basic life-supporting necessities such as shelter, health, food, and protection are expanded (Pandey & Zheng, 2019). In the context of FinTech and mobile money, we view empowerment as a process by which the technology enhances the capacity of people and organisations to run a business in a way that supports realisation of their desired outcomes. In the context of informal businesses that typically trade on the margins (i.e. small trading activities restricted to physical shops, markets, and streets) (Turner, 2018), this might mean more sales, autonomy, and income. We align with the notion of empowerment that moves beyond access to actualisation and view empowerment as an unfolding process that requires changes in existing institutions and related shifts in logics. Furthermore, we contend that empowerment is a process and not a fixed state or an end-point (Cornwall, 2016). This means that empowerment could be temporal and the mechanisms through which empowerment occurs can lead to experiences of disempowerment (Cornwall, 2016).

This raises the question of how empowerment occurs. Rao and Kelleher's (2005) empowerment framework suggests that empowerment often requires fundamental change at *both* the individual and institutional levels. Subsequently, there is a need for change in informal and formal structures, which are rooted in ideologies that may stifle empowerment. In the case of mobile money and FinTech more broadly, it is well documented that the technology can expand opportunities for large businesses and start-ups (Leong et al., 2022; Ng et al., 2022; Senyo et al., 2022). However, despite the many informal businesses, there is very little research on them and likewise few FinTech and mobile money initiatives are directed at them. From a macro and meso perspective, the limitations in institutional structures and formal laws that enable FinTech mean that informal businesses are unintentionally neglected. From an informal cultural norm perspective, informal businesses are considered enterprises that should remain small, conduct business physically, and operate in local markets (Slavova & Karanasios, 2019). As such, it is necessary to examine the interdependency between a social system's macro and micro levels to understand how a social system changes (Coleman, 1990; Ramadani et al., 2022). In other words, it is necessary first to explore how macro level social conditions affect micro level social environments and how these, in turn, influence actions performed by individuals, which then aggregate into macro level outcomes (Coleman, 1990).

Despite the potential of FinTech and mobile money to contribute positively to economic empowerment of informal businesses, it can also be used for disempowerment. For instance, FinTech can be used to harvest large financial datasets (Martin, 2019) that, in the wrong hands, can be used for disempowerment such as discrimination (e.g., purposely limiting loans to a specific group), financial surveillance, and exploitation (Mann, 2017; Taylor & Broeders, 2015). Conversely, FinTech could also be leveraged by marginalised groups such as informal businesses to use financial services to fulfil desired actions that can contribute to their empowerment. A study on FinTech lending in the USA showed that FinTech algorithms may also discriminate, but do so 40% less than face-to-face lenders (Bartlett et al., 2019). It is therefore important that developers, service providers, regulators, and other actors in FinTech ecosystems constantly reflect and remove obstacles that may impede the empowerment effects of FinTech in different spaces and over time.

2.3 Theoretical background

We use the notion of institutional logics (Friedland & Alford, 1991; Thornton, Ocasio, & Lounsbury, 2012) to theorise the relationships between actors, technologies, and markets collectively shaping mobile money and subsequently new forms of economic empowerment. Institutional logics are an established lens to understand the ways in which individual and organisational actors are influenced by multiple institutional orders which are both influenced by and influence information systems (IS) (Berente et al., 2019; Faik et al., 2020; Hansen & Baroody, 2020).

The concept of institutional logics provides a way to understand societal changes and challenges (Faik et al., 2020) by exploring the differentiated content, meanings, and effects of new and old institutional orders and their influence on formal and informal practices and behaviours. It follows that behaviours are legitimised by referencing and adopting logics that are derived from embedded institutions. These logics reflect specific sets of established beliefs and assumptions and offer templates to regularise and structure actions while providing opportunities for agency and change (Dalpiaz, Rindova, & Ravasi, 2016). The institutions, the logics derived from them and the practices they reproduce, and influence may be highly formalised or informalised. Related work has studied divergent institutional logics and related the formal and informal practices organisations use as a means to navigate institutional complexity (Kaufman & Covaleski, 2019). A further example is a study of institutional friction in China between formal logics of state control and informal logics of strategic entrepreneurship influencing formal and informal practices of innovation (Yiu et al., 2014).

Historically embedded institutional orders may vary in importance over time and the increasing influence of one institutional order may not necessarily replace another. At the same time, rather than assuming homogeneity, the logics view considers any context as potentially influenced by multiple and often competing logics (Berente et al., 2019; Dunn & Jones, 2010; Hansen & Baroody, 2020; Sandeep & Ravishankar, 2014; Tumbas, Berente, & Brocke, 2018). While new institutional arrangements may prescribe a dominant logic, these may co-exist or conflict with other arrangements which may have originated at different points in time under different historical contexts (Berente et al., 2019; Hansen & Baroody, 2020). Actors often seek to maintain and reproduce the logics which guided their actions previously (Thornton et al., 2012; Tumbas et al., 2018). Where actors fail to do so, logics may be eroded and delegitimised through

political pressure, changes in the functional utility of technologies, and shifts in how related markets and businesses operate (Currie et al., 2018; Gozman & Currie, 2014).

Institutional logics also operate at different levels of analysis across regulations, technologies, markets, industries, or geographies. Institutional changes and effects may occur through cross-level interactions (Thornton et al., 2012). Specifically, we draw from prior IS work on the connections between institutional changes occurring through regulatory rules and related authorised roles and identities (Campbell, 2007; Scott, 2013), reframing of beliefs and assumptions underpinning the design of technical platforms and infrastructures (Burton-Jones et al., 2020; Mangan & Kelly, 2009) and organising principles for operating small informal businesses (Slavova & Karanasios, 2018; Sutter et al., 2019). At each of these levels, different institutional orders offer actors templates for practice. Actors at each level can legitimise and rationalise their actions by rejecting, acquiescing in, or extending each institutional order and referencing the logics derived from them as ways to rationalise their actions (Maguire, Hardy, & Lawrence, 2004). Institutions and the patterns of action they create are historically contingent and are dynamic, persistent, and often contradictory (Friedland & Alford, 1991), as are regulatory, technology and business institutions and logics (Currie, Gozman, & Seddon, 2018; Gozman & Currie, 2014).

IS scholars view institutional logics and technology as entangled: technology can introduce new logics which may conflict with historically contingent logics as actors respond in different ways to maintain or alter the status quo (Karanasios et al., 2019; Klecun et al., 2019). As well as being a carrier of change, technology may also reinforce logics (Scott, 2013) or be enacted in ways that create entirely different ways of solving problems, working, and interacting (Mola & Carugati, 2012; Slavova & Karanasios, 2018). Prior work has used the institutional logics perspective to theorise the consequences of new financial technologies (Mangan & Kelly, 2009) and IS more broadly to understand how technology may influence positive societal change (e.g., Faik et al., 2020; Slavova & Karanasios, 2018).

In this study, we focus on how institutional logics manifest, form, and shape regulatory policy, technological infrastructures, and informal markets through mobile money (and vice versa) and how the collective effects of these logics influence economic empowerment.

3. Methodology

This study adopts a qualitative research design (Klein & Myers, 1999) to explain how FinTech, particularly mobile money, spurred changes to macro and meso logics and led to a shift in micro level practices and economic empowerment for informal businesses. This approach is well suited to *how and why* research questions to explore the complexities underlying a multifaceted and intrinsically complicated phenomenon and allows us to examine the multi-level effects of old and new logics (e.g., Hansen & Baroody, 2020; Sandeep & Ravishankar, 2014). While there is significant research on FinTech and its opportunities for the unbanked, most research focuses on individuals or particular firms such as FinTech firms or incumbent banks, rather than multiple levels of actors and new and old institutional logics. Prior research has not considered the impacts for informal businesses. Thus, our study required an approach to enable us to obtain a richer understanding of multiple stakeholders' practices beyond descriptive accounts to reflect real-world practices (Eisenhardt, 1989). Our qualitative approach allows us to understand the shared perspectives of individuals who design, regulate, and commercialise these technologies and those who use them entrepreneurially to create new business practices (Klein & Myers, 1999) and achieve economic empowerment. The qualitative approach allows contextualisation of our findings in global south countries (Davison & Martinsons, 2016), which may differ from other parts of the world.

3.1 Case background

We selected Ghana for our case for two main reasons. First, the country is one of the faster-growing FinTech hubs in Africa, with over 38 million mobile money accounts in 2020 (Bank of Ghana, 2020). Ghana is a revelatory case to understand if the growth in FinTech has some impact on empowering informal businesses. Informal businesses are often neglected by digital transformation initiatives and not typically researched in IS research. Second, the country has a large informal sector, which may represent about 88% of jobs (Ghana Statistical Service, 2014). This means that institutional changes that foster FinTech could have subsequent implications for informal businesses.

In 2009, mobile money was introduced in Ghana by MNOs who created mobile money wallets using a mobile number as a pseudo bank account to serve as an alternate banking channel. The BoG introduced regulatory policies to legitimise and promote mobile money to align with

their objective of promoting financial inclusion. Initially, mobile money was primarily used for money transfer via agents (Asamoah et al., 2020) to replace the historical practice of individuals sending cash to others via bus drivers who drove between different towns. Banks were not widely available in many parts of the country and most people could not meet the requirements for opening bank accounts. As a result, people could quickly transfer funds to others in under a minute; a transaction which previously took hours and days to complete.

Figure 1 shows mobile money in Ghana operates in a FinTech ecosystem comprising actors such as the central bank, MNOs, FinTech firms, commercial banks, mobile money agents, merchants, and end users (Senyo et al., 2022). The BoG regulates the mobile money ecosystem by licensing organisations and establishing laws and policies on the operations, institutional arrangements, and behaviour of actors (Senyo & Osabutey, 2020). MNOs provide mobile money services by leveraging their mobile network infrastructure to reach people who may have no access to the internet or banks but have mobile phones. FinTech firms develop and offer software-based financial services and products, such as mobile payment, micro-loans, utility payments and insurance services (Senyo et al., 2021), which are delivered through MNOs' mobile money platforms and accessed using smart or feature phones. Commercial banks serve as custodians of deposits and monies transacted on mobile money platforms.

Mobile money agents, sometimes referred to as “shadow bank branches”, act as intermediaries between MNOs and end users by providing supporting financial services, such as mobile money registration, mobile transfers, cash deposits and withdrawals (Martin, 2019). Merchants are businesses that accept mobile money payment for goods and services. Large merchants have tailor made solutions which are not suitable for informal businesses. Finally, end users are individuals who use mobile money for financial transactions such as bills payment, money transfer, purchase of call time, internet data bundles, electricity, and micro-loans (Senyo & Karanasios, 2020).

At the end of 2020, Ghana, with a population of 32 million, had over 38 million registered mobile accounts since people have multiple accounts (Bank of Ghana, 2020). Uses include transferring mobile money directly into bank accounts or vice versa, peer-to-peer money transfer from mobile to mobile, foreign remittance, payment for utilities, and micro-loans (Senyo & Osabutey, 2020). Despite these developments, mobile money has largely only improved financial inclusion for individuals (Amoah et al., 2020; World Bank, 2018). Large organisations, such as

utility providers, insurance companies, micro-credit institutions and universities, also benefit because they have been able to integrate their payment systems with mobile money platforms. However, informal businesses are left out without a dedicated solution to receive payment for goods and services. Thus, informal businesses, the dominant type of businesses in Ghana (Ghana Statistical Service, 2014), improvise by appropriating mobile money services created for individuals and in doing so construct and embed new logics.

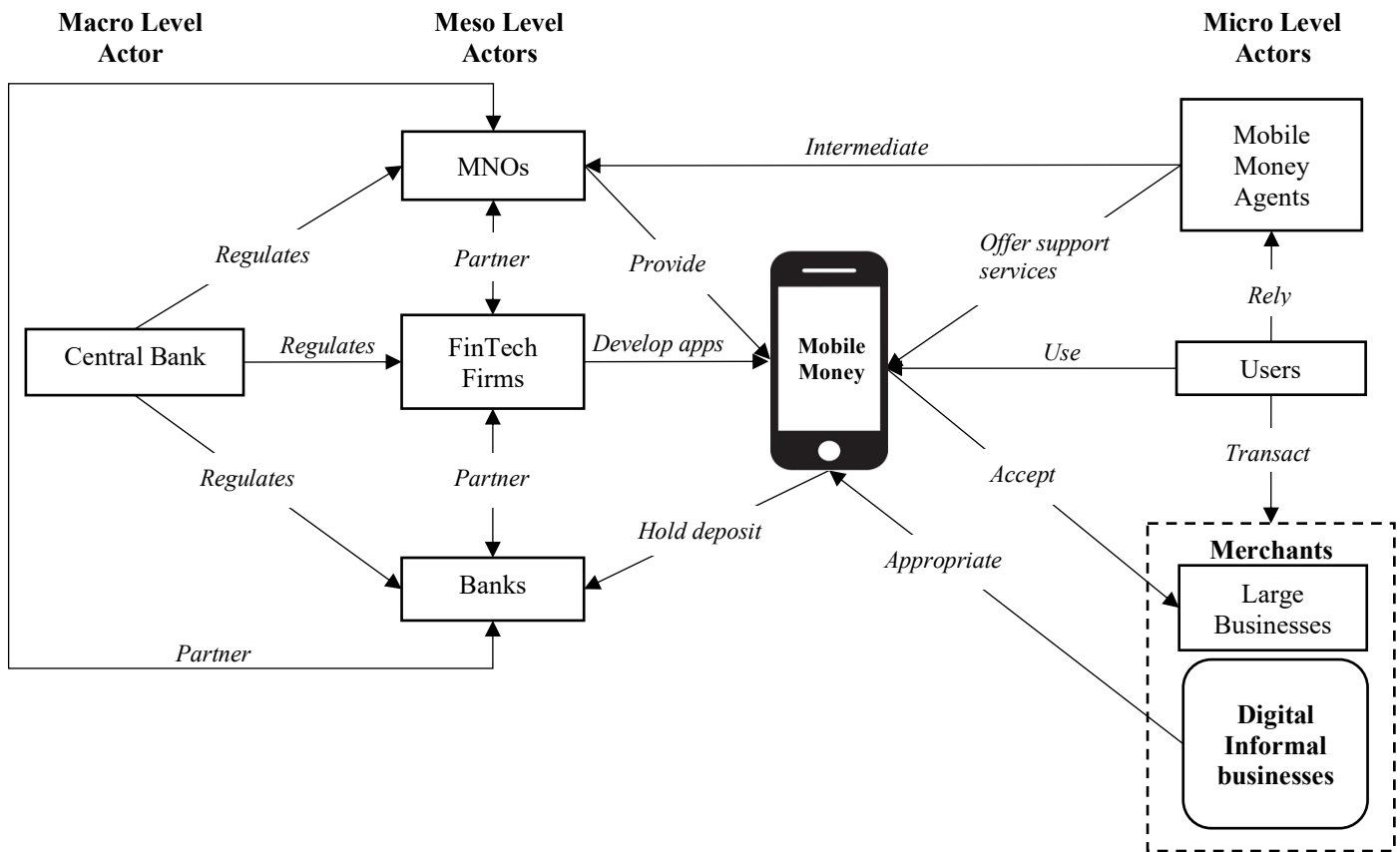


Figure 1: The Ghanaian FinTech ecosystem

3.2 Data collection

We conducted in-depth semi-structured interviews with four main groups of FinTech actors in Ghana: the Bank of Ghana (BoG), which regulates FinTech activities; MNOs, who are the primary providers of mobile money services; FinTech firms, who develop and offer auxiliary mobile money applications; and informal businesses, who use mobile money to run digital businesses. We

adopted a purposeful sampling technique, complemented by the snowballing technique to identify knowledgeable informants (Lincoln & Guba, 1985). The snowballing technique provided the introductions needed to deal with the BoG, FinTech firms, and large MNOs. It also helped build rapport with informal businesses who are not listed in any formal registers. Most interviews were conducted face-to-face, although some were by phone because of COVID-19 social distancing requirements.

Given the diversity of participants, our semi-structured interview guide had different sections to cover each group of participants. Where relevant, we tailored the guide to each group and asked follow-up questions during the interview. The interviews lasted on average 45 minutes each. During data collection, the research team met frequently for debriefings to review the main themes emerging from the data to ensure rigour and trustworthiness and to develop a contextually specific understanding (Davison & Martinsons, 2016).

Table 2 summarises the interview participants. At the BoG, we interviewed four roles: Head, Financial Inclusion Desk; Head, Research and Statistics; Manager for Research and Statistics; and the Head of Projects. For MNOs our focus was on their entry and services and thus we interviewed four roles: commercial manager; head of products development; head of business innovation; and mobile money operations engineer. For FinTech firms, we interviewed the chief executive officer, commercial manager, developer, product manager, and chief operations officer. For the informal businesses, we interviewed 15 owners who are responsible for managing the business and conducted multiple interviews with some owners to clarify responses and reach theoretical saturation. In total we conducted 65 interviews across 26 organisations between 2019 and 2021. Interviews were recorded with participants' permission, but where the interview was not recorded it was reconstructed from notes immediately after the interview.

We complemented the interview data with secondary data from reports, laws, and policies to corroborate critical historical events and activities and better understand the evolution of FinTech in Ghana. For instance, to confirm why there were initial conflicts between traditional banks and MNOs, we reviewed the BoG's 'guideline for branchless banking' introduced in 2008.

Table 2 Summary of interview participants

Organisations	Description	Interviewees & number of interviews
Regulator (BoG)		
Central Bank of Ghana	Regulates the Ghanaian FinTech ecosystem	Head, Financial Inclusion Desk (4), Head, Research and Statistics (5), Manager, Research and Statistics (5), Head of Projects (2)
Mobile Network Operators (MNOs)		
MNO1	Provides mobile money services	Commercial Manager (1)
MNO2	Provides mobile money services	Head of Product Team (1), Head of Business Innovation (2), Mobile Money Operations Engineer (1)
FinTech Firms (FTF)		
FTF1	Provides mobile money service aggregation	Chief Operations Officer (2)
FTF2	Develops utilities payment solutions	Chief Executive Officer (2)
FTF3	Offers utilities and online payment solutions	Commercial Manager (2)
FTF4	Develops utilities and online payment solutions	Developer (2)
FTF5	Provides integrated payment solutions	Chief Operations Officer (3)
FTF6	Offers mobile financial services	Commercial Management (2)
FTF7	Provides integrated payment solutions	CEO and Co-founder (1)
FTF8	Offers a financial marketplace platform	Product Manager (1)
Informal Businesses (ISB)		
ISB1	Sells baby products such as maternity bags, diapers, baby, clothing, etc.	Business Owner (4)
ISB2	Sells “lace” fabrics and clothes	Business Owner (3)
ISB3	Sells clothes, bags, shoes, and hair weaves	Business Owner (2)
ISB4	Sells made in Ghana shoes online	Business Owner (3)
ISB5	Trades in dresses, shoes, and bags	Business Owner (4)
ISB6	Sells consumables such as cereals, juices, biscuits, wines, and shower gels	Business Owner (4)
ISB7	Sells baby nappies, wipes, and detergents	Business Owner (1)

ISB8	Sells locally manufactured beads and African accessories	Business Owner (1)
ISB9	Sells fast moving consumer goods	Business Owner (1)
ISB10	Sells groceries online	Business Owner (1)
ISB11	Sells fast moving consumer goods	Business Owner (1)
ISB12	Sells African fabric and accessories	Business Owner (1)
ISB13	Sells fast moving consumer goods online	Business Owner (1)
ISB14	Sells fast moving consumer goods online	Business Owner (1)
ISB15	Sells natural and artificial ladies' hair online	Business Owner (1)

3.3 Data analysis

To ensure rigour in our analysis, we followed established grounded theorising guidelines (Corbin & Strauss, 1990; Gioia et al., 2013) by deriving first-order, second-order, and aggregate dimensions from our qualitative data (see Figure 2). Guided by our research question and theoretical lens, we developed theoretical concepts (Glaser & Strauss, 1967) on how new logics emerged and empower informal businesses. We followed the established process of discovering new knowledge by generating thematically underpinning concepts related to our research question (Gioia et al., 2013). Like the data collection, the data was analysed by two Ghanaian academic researchers and one international researcher. We asked a colleague to analyse some of the data to identify concepts that may have been missed, offer an alternative perspective, and detect possible bias in data analysis. Although the colleague was experienced in the ICT4D, FinTech and logics, they were not involved in the fieldwork. Our coding and analysis therefore adopted an insider/outsider approach to help reduce bias and ensure rigour.

We began the analysis by reviewing interview transcripts and developing common themes through open coding (Corbin & Strauss, 1990) to identify first-order codes. Through this first step, we were able to identify themes on changes at the macro, meso and micro levels. To ensure the validity of our findings derived from the data analysis and data triangulation purposes (Eisenhardt, 1989), we drew on evidence from at least two sources, such as either interview data from two different participants (e.g., an MNO and BoG, or two informal businesses) or secondary data sources. We also cross-checked and looked for contradictions rather than only seek conformity

and coherent interpretation (Sandberg, 2005). This was important given the participating organisations. During this process we met frequently to discuss the codes, and question and develop each other's ideas and underlying assumptions (Gioia et al., 2010; Volkoff et al., 2007), rather than use inter-coder reliability. The debriefings allowed us to build a shared understanding and settle on a consolidated list of codes (Williams & Shepherd, 2021).

Following the first step, we conducted axial coding (Corbin & Strauss, 1990) by iteratively analysing the first-order categories by mapping, integrating and refining concepts to organise the codes into empirically grounded and theoretically interesting categories. This analysis gave us the insights to derive second-order concepts (Gioia et al., 2013). Through this analysis, we were able to identify macro, meso and micro level practices underpinning the new logics and subsequent economic empowerment outcomes. Drawing from the narration of events and processes, we were able to trace how previously unemployed individuals appropriated FinTech innovations to run informal businesses to achieve economic empowerment.

Lastly, we performed selective coding (Corbin & Strauss, 1990) by aggregating the second-order themes into overarching theoretical constructs. This enabled us to identify three main logics – *open market logic*, *interconnected logic*, and *digital informal business logic*, as well as *economic empowerment outcomes* as theoretical aggregate dimensions. We continued the analysis by iterating between the data, findings, and theoretical lens until we reached a point of theoretical saturation. Figure 2 summarises the analysis process and the resulting data structure.



Figure 2: Illustrative coding process and data structure

4. Findings

Our data shows how three elements contributed to economic empowerment: shifts in logics at the regulatory level (from ‘closed market logic’ to ‘open market logic’), shifts in how payment infrastructures work (from ‘silo logic’ to ‘interconnected logic’), and shifts in how some informal businesses are structured (from ‘small/local business logic’ to ‘digital informal business logic’). Table 3 summarises the old and new logics, their characteristics, dominant actors, and practices. We acknowledge that a social phenomenon is inherently messy and, correspondingly, logics and their implications do not exist in a vacuum, rather they are transient and mutually constituted (Dunn & Jones, 2010; Thornton, Ocasio, & Lounsbury, 2012). Thus, we have searched for analytical distinction which emphasises the primacy of the logics we identify against distinct yet common elements in the data while acknowledging that all the logics we identify inevitably overlap. The outcomes for economic empowerment (i.e., greater access to start-up capital, increased employment opportunities, and improved financial management) we observe are the result of this overlap between the new and old ways of arranging financial services. Consequently, we have structured our findings to first outline the changes in institutional logics occurring at three levels (macro, meso and micro), and how these shifts contributed to three economic empowerment outcomes.

Table 3: Multi-level logics

Levels	Logics	Definition	Characteristics	Dominant actors	Practices
Regulatory Institutions	Traditional financial services logic	Old logic demarcating authorised roles in the financial services value chain exclusively to licensed banks	Banks were the main organisations licensed by the BoG to accept deposits and cash was the dominant mode of transactions	BoG, Banks	Financial transactions occurred at physical bank branches, resulting in exclusion due to limited branches and strict documentation requirement
	<i>Open market logic</i>	New logic of extending regulatory perimeters and authorisations to allow new entrants to participate in the payments value chain	The financial sector was opened through new legislation to allow non-banking institutions to offer digital financial services (e.g., mobile money)	BoG, Banks, MNOs, FinTech firms	New entrants like MNOs are now permitted to offer mobile money and transact eFunds on mobile networks while banks become custodians of the eFunds
Payments Institutions	Siloed transactions and cash-based logic	Old logic of protecting bank's payments' business to ensure customer lock-in and maximise related revenues	Banks maintained silo information systems without interoperability with others	Banks	Disjointed financial systems previously restricted inter-bank digital financial transactions
	<i>Interconnected logic</i>	New logic of expanding the pervasiveness and interoperability of payment infrastructures to improve financial inclusion	All payment systems including banking platforms, mobile money and card payments were integrated to enable cross-platform payment	BoG, FinTech firms, Banks, MNOs	A national payment interoperability platform was developed by BoG, which enables seamless payment across banks and mobile money accounts
Informal Economy Institutions	Local/small businesses logic	Logic for arranging business around limitations of cash	Business activities are physical and conducted in shops, along major streets and in marketplaces	Local/small informal businesses	Business transactions are cash-based and require physical meetings between transacting parties
	<i>Digital informal business logic</i>	Logic of digitally reorganising informal businesses to allow access to fintech enabled markets and financial services	Business activities are digitised to enable online purchases and payment for goods and services	Digital informal businesses	Digital informal businesses appropriate mobile money services like peer-to-peer payment, micro-loans, and savings to run their businesses

4.1 Moving towards an open market logic for the financial sector

The BoG is responsible for establishing regulatory rules which legitimise governance practices and the operations of organisations in the financial sector (see Figure 2), including who can legitimately hold funds and how payments should be enabled. The BoG is also responsible for fostering financial development in terms of inclusion and a “cash lite” society agenda. Although the BoG believed that digitalisation of retail payments was key to achieving Ghana’s financial development agenda, its focus has largely been on well-established organisations, financial sector players and citizens, with initially little emphasis on the informal economy.

The entry of MNOs such as MTN Ghana required the BoG to revisit long embedded assumptions on which organisational actors were permitted to operate in the financial sector. At the same time, the BoG also recognised the potential of these new actors and mobile money to address financial inclusion as the majority of citizens did not have access to financial services but did have mobile phones. This is emphasised in the following quote from a BoG officer in 2019:

“We expect mobile money to deepen financial inclusion and afford Ghanaians the opportunity to access financial products and enhance their coping mechanisms for better economic wellbeing.” (BoG)

Consequently, the BoG implemented large scale changes to regulatory rules to open the operational jurisdictions and traditional boundaries of organisations authorised to operate in the financial sector. For instance, previously banks and microfinance institutions were the only organisations licensed to accept deposits and so cash was the dominant means for transacting. The new rules permitted new entrants like MNOs to offer mobile money and transact eFunds on mobile networks. The dominant logic of the financial sector characterised by bank-driven and branch-based transactions began to shift as the institutional work of the BoG opened the sector. The Chief Operations Officer of a FinTech firm explained:

“Technological evolution in Ghana began with the rolling out of ATMs by banks, which were managed as proprietary channels. The coming of MNOs really became a massive game-changer [opened the financial ecosystem].” (FTF5)

Historically, commercial banks dominated Ghana's financial sector but did not focus on informal businesses and unbanked individuals but rather on large organisations and people living in cities. However, when MNOs launched mobile money, targeting existing banked and unbanked people, commercial banks saw MNOs as a threat. Complaints were made to the BoG about unfair competition since MNOs did not have to comply with banking regulations and requirements such as having reserves with the BoG. At the time, the absence of regulation of mobile money compounded tensions among actors. In response, the BoG decided to redraw the boundaries to regulate mobile money under the 'branchless banking guideline'⁴ so that MNOs and other agents could operate as agents of banks. The guideline states that "Branchless banking is only allowed to be undertaken by licensed deposit-taking financial institutions (bank and non-bank) or their agents." These rules codified a shift in logics:

"...a significantly cheaper alternative to conventional branch-based banking that allows financial institutions and other commercial actors to offer financial services outside traditional bank premises by using delivery channels like retail agents, mobile phones etc. BB [Branchless Banking] can be used to substantially increase the financial services outreach to the un-banked communities." (BoG Guidelines for Branchless banking, 2008)

Yet, these changes created new tensions as they conflicted with established assumptions on free competition and the prevention of monopolisation. MNOs criticised the branchless guideline as embedding the banks' monopolistic position and thus creating a barrier to independent competition and the growth of mobile money. Banks also resisted this arrangement, viewing it as a forced marriage between competitors that constrained their ability to selectively partner and innovate in the most competitive way. As a response to these tensions and related complaints the BoG further reconstituted its regulatory rules and jurisdictional arrangements for banks and MNOs.

⁴ Bank of Ghana (2008) Guidelines for Branchless banking. Available at <https://dfsobservatory.com/sites/default/files/Bank%20of%20Ghana%20-%20Notice%20No.%20BG-GOV-SEC-2008-21%20-%20Regulatory%20Framework%20for%20Branchless%20Banking.pdf>

In 2015, the BoG introduced the ‘e-money issuers’ policy⁵ (see Figure 3). Further shifts in regulatory institutions were rationalised by the BoG as necessary to drive adoption of digital payments and were outlined in rules in the e-money issuers policy:

“These Guidelines are being issued as part of Bank of Ghana’s broader strategy to create an enabling regulatory environment for convenient, efficient, and safe retail payment and funds transfer mechanisms. They promote the availability and acceptance of electronic money as a retail payment medium with the potential to increase financial inclusion and specify necessary safeguards and controls to mitigate the risks associated with e-money business and ensure consumer protection safeguards.” (BoG E-money issuers policy, 2015)

It reduced tensions between the incumbent banks, MNOs and FinTech firms by protecting each organisation’s role in the FinTech ecosystem. For instance, the rules recognised MNOs as ‘semi-autonomous’ financial institutions while legitimising banks as custodians of eFunds transacted over telecommunication networks and, in so doing, protected their position in the FinTech ecosystem. MNOs now require a partner bank with whom eFunds are deposited. This new “open market” logic, derived by reconstituting regulatory jurisdictions and accompanying rules, eased tensions and enabled significant growth of mobile money. After the launch of the e-money issuers policy, the registered number of mobile money accounts doubled from about 7 million in 2014 to 13 million in 2015 (Bank of Ghana, 2019). Similarly, the number of active mobile money accounts also doubled from about 2.5 million in 2014 to 4.8 million in 2015. Despite the BoG’s desire to promote availability and acceptance of electronic payment in retail, it was targeted at large to medium-sized organisations and to individuals. Unsurprisingly, little consideration was given to informal businesses, since these organisations are not legally registered, despite being the bulk of enterprises in Ghana (Ghana Statistical Service, 2014). However, the specific objectives stated in the policy further legitimised mobile money by extending “financial services beyond

⁵ E-money issuers policy see: <https://dfsobservatory.com/sites/default/files/Bank%20of%20Ghana%20-%20Guidelines%20for%20E-Money%20Issuers%20in%20Ghana.pdf>

traditional branch-based channels to the domain of everyday transactions” (BoG E-money issuers policy, 2015).

4.2 Moving from payment silos and cash towards an interconnected logic

In line with the open market logic, payment systems were also restructured to allow MNOs and FinTech firms to provide financial services. In Ghana, incumbent banks have historically been the exclusive owners and operators of payment infrastructures and systems. Historically, each bank separately developed their own siloed payment systems, with little consideration for interoperable payment architectures, underpinned by long-held assumptions on the dominance of cash-based transactions. When the primacy of cash-based transactions was questioned, the BoG advocated for bank-led interoperability to address the long delays with inter-bank cheque clearance and move towards a cashless economy, but this initiative failed. In 2007, to fill this void, the BoG incorporated the Ghana Interbank Payment and Settlement Systems Limited (GhIPSS) as a wholly owned subsidiary: *“The central bank [BoG] had the vision to evolve the country into a society that pays electronically to reduce the amount of cash transactions”* (BoG). GhIPSS introduced a new and interoperable national payment architecture to enable electronic transactions and a move away from cash. A BoG officer explained:

“People wanted money faster. So, we decided to implement an instant payment service... We worked with our technical partners to develop our GhIPSS instant pay launched in 2016. What that meant was that if I needed to transfer money or pay someone, I could do that in seconds. Money moves from an account in one bank to another bank and the recipient can have access to the money immediately. Initially, banks did not want the service because they did not want money leaving their banks, but they wanted to be receiving only. Some were sceptical but eventually, they all started to connect to the systems.” (BoG)

The interoperability of payment systems represented a shift in established beliefs and assumptions for organising payments and created opportunities for firms and individuals to move away from cash-based activities, while informal businesses were unintentionally ignored. The head of product innovation of an MNO explained the benefits to individuals:

“Customers who previously did not have access to savings can now do so on the mobile money wallets and earn some interest on it. People in areas without access to bank halls can now save on their wallets. Clients can now send money to their relatives at the furthest corners of Ghana because there are agents there who can take the money where the banks would not be able to go. It means insurance products, etc., which were only sold in the cities, can now be sold at the click of a button. Accessibility has really supported financial inclusion.” (MNO2)

The new electronic payment architecture ‘back-bone’ was not initially supported by the incumbent banks who were driven by quick returns and profits. Rather, the new fast electronic payments and automated clearing conflicted with the incumbent banks’ entrenched beliefs and assumptions on how they maintained profitability and created shareholder value. The quote below shows that the development agenda of the BoG was not initially aligned with banks:

“As it turned out, that vision [interoperable payment systems] was brilliant though it was not something that the banks were into... there was a disconnect between the developmental agenda of the central bank and the fact that the banks wanted to make money. And the banks were asked to put a lot of money into infrastructure to drive this system. You needed to put in a lot of money to change people’s minds and banks did not have time for all that.” (BoG)

Over time, the banks’ perceptions towards prior siloed systems evolved and they reconsidered their stance on the interoperable payment system. This was not only driven by the behaviours of banks and individuals, but it was also embodied in the logic of “open market” and subsequent changes in regulatory institutions. With these changes, the number of active users grew to 17 million in 2020 (Bank of Ghana, 2020). Expansion of payment architectures occurred as

FinTech firms began developing applications to enable faster payment of bills, purchase of call time (on mobile phones), and payment of education fees⁶. A CEO of a FinTech explained:

“We started with utilities like water, electricity, cable TV, etc. While these services are available on our website, we also built an app to facilitate the transfer of money. At the time mobile money was growing but the transactions were all on-net (within networks) and additionally there was no way of moving funds between bank accounts and mobile money wallets.” (FTF2)

In 2018, a further reframing and redesign of the Ghanaian payment systems occurred as the national interoperability platform was implemented, which integrated all MNO telecommunication infrastructures (see Figure 3). This meant that users were then able to transfer money across different telcos more cheaply. This redesign also enabled money transfer between mobile money wallets, cards, and bank accounts, referred to as the ‘financial inclusion triangle’: *“We have now interconnected three independently interoperable systems, this has been christened the financial inclusion triangle”* (BoG). Although the financial inclusion triangle has far-reaching implications, it did not adequately capture the needs of informal businesses that are responsible for everyday transactions.

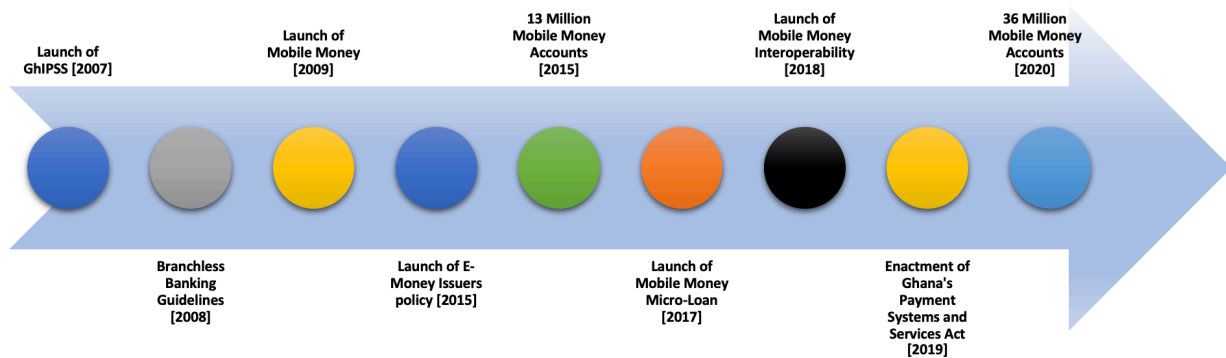


Figure 3: Timeline of major milestones in Ghana’s FinTech ecosystem

⁶ Payment of education fees has historically been associated with long queues at banks because of short deadlines. Making payment using mobile money without the need to visit bank branches offered reprieve to many university students and parents.

4.3 The emergence of a digital informal business logic

Ghana's informal economy, by nature, is characterised by informal and in-person interactions, cash transactions, local markets, and business as a way of life. The cash-based nature of informal businesses was a significant limiting factor for conducting business online. This traditional logic had high-cost implications for overheads such as rent and leasing responsibilities, initial setup capital, and staffing. It made running a business unattractive for many would-be entrepreneurs, particularly those at the bottom of the economic pyramid, often women and young people. An informal business owner remarked:

“I started with a shop, but I realised it was not helping as I had to pay rent and employ a shop attendant, but I was not getting sales.” (ISB6)

New organising principles and related templates for conducting business digitally inspired by mobile money allowed the creation of digital informal businesses and new practices that embodied a ‘digital informal business logic’. Such businesses started to reconsider the invisible restrictive chains of cash-based transactions and the markets in which they operated. Entry barriers were significantly reduced by introducing mobile money which serves as an essential payment channel (*“When a customer makes a request for my products, I make sure they pay via MoMo [mobile money] before I deliver”*) (ISB12), and source of start-up capital, thereby extending the reach of the business into new markets and correspondingly making the business activity more attractive to participate in. An owner explained how the process of moving from bricks and mortar to a digital informal business unfolded:

“I used to have a physical shop but I closed it to start the online shop because I am now able to collect payments digitally [...] with the physical shop the area was very quiet and thus I was not getting clients [slow sales] so I closed the shop but with mobile money, I transitioned online [...] through the online shop I could sell 6 to 10 dresses within a week but with the physical shop I couldn't sell 20 dresses the entire month. My business has grown with the online presence.” (ISB5)

This demonstrates a new logic emerging in parallel with the old logic. Table 4 summarises the characteristics of the old and new logics. Column 2 (pre-digitalisation) shows the mode of interaction, payment challenges, capital sources and financial management of informal businesses before using mobile money, whereas column 3 (post-digitalisation) shows how mobile money changed those characteristics. We show how mobile money allows informal business owners to receive and send digital payments and create an online presence to either complement or replace a physical presence. This process was not limited to mobile money. Many informal businesses combined their use of mobile money with a social media presence (e.g., Facebook, Instagram, and WhatsApp) to reach new markets. In this way, mobile money replaced cash which allowed social media to replace shopfronts and markets:

“... a client who contacted me from the UK found me on my Instagram page where I also have my number [mobile money account] so I was able to receive payment for the item wanted electronically.” (ISB3)

Table 4: Pre- and post-digitalisation of informal business operations

Characteristics	Pre-digitalisation	Post-digitalisation
Mode of interaction	Physical shops, markets, and streets	Social media (WhatsApp, Facebook, Instagram)
Payment channels	Cash, Lorry drivers	Mobile money and cash
Start-up capital sources	Friends, family, and personal savings	Mobile money micro-loans
Finance management	Pen and paper to record financial transactions Saving profits and working capital at home or hiding the money in shops without earning any interest	Mobile money account statements Saving profits and working capital in mobile money wallet and earning monthly interest

By leveraging social media platforms to advertise their products and interact with consumers and using mobile money tools initially designed for individuals (not businesses) to facilitate transactions and networks of informal couriers for delivering products, informal businesses uncovered an alternative business model. The below quote demonstrates how an informal business improvised a new digital business and moved beyond their local market

orientation to a broader, sometimes even international, market because they can receive international payments directly to their mobile money wallets.

“I don’t have a shop, so I work from home. I store my items at home. I get a driver to courier the items from Nigeria to Ghana. I advertise on my WhatsApp status, Instagram, and Facebook, when the order is placed, I collect payment by mobile money.” (ISB2)

Overall, by appropriating mobile money and leveraging social media platforms new organising principles for running informal businesses emerged and the informal business owners in our sample realised certain outcomes. In the next section, we identify economic empowering outcomes that emerged for informal businesses because of the relationships between new open market, interconnected, and digital business logics.

4.4 Economic empowerment outcomes

Our data revealed how policymakers rationalised and legitimised the introduction of mobile money (open market logic) and how changes in the regulations and the functional utility of payment infrastructures (interconnected logic) led to greater financial inclusion not only for formal businesses and for individuals, but for marginalised informal businesses. An unforeseen result was that informal business owners appropriated mobile money for their businesses. This led to unanticipated opportunities for informal business owners and a reimagination of their markets (digital informal business logic) traditionally operated through physical locations and largely dependent on the physical movement of cash. Our data points to three empowerment outcomes for informal businesses (summarised in Table 5) made possible from the effects of the open market and interconnected logics.

Table 5: Empowerment outcomes, definitions, and exemplary quotes

Outcome	Definition	Example quotes
Greater access to start-up capital	Accessing micro-loans through mobile money as start-up capital for informal business venture	<i>“I know the mobile money Qwikloan is for individuals but since I can’t get a loan from banks, I have to use it for my business.” (ISB6)</i>

		<i>“Sometimes, when I need money quickly to buy more goods, I borrow from MoMo and pay back once I make sales.” (ISB3)</i>
Increased employment opportunity	Using mobile money to start-up digital informal business, as an alternative source of employment	<i>“This is a full-time employment for me now. I am not going back to work for anyone.” (ISB1)</i> <i>“...without this job, I would still be job hunting.” (ISB7)</i>
Improved financial management	Appropriating mobile money to administer financial operations of informal businesses (e.g., savings, record keeping, cost cutting, etc)	<i>“Because my beads are pre-order, payment confirms your order. And mobile money is the easiest and fastest means of receiving it.” (ISB8)</i> <i>“My customers don’t have an excuse for not paying for their products before ordering. Because mobile money is everywhere. This helps me save a lot because I do it all on my phone.” (ISB14)</i>

Greater access to start-up capital

Mobile money offers opportunities for the unemployed to obtain credit through micro-loans to start informal businesses. Previously, banking and microfinance institutions were the only institutions with the legal mandate to offer savings and loans. Since 2017, MNOs have been authorised to offer micro-loans to individuals (by virtue of the open market logic). Participants, particularly those who were young and unemployed, felt that it was very difficult, if not impossible, to get a bank loan to start a business, and informal businesses often turned to family and friends: *“Starting this business [selling made in Ghana shoes online] was difficult so I had to borrow through mobile money and a friend” (ISB4)*. The micro-loan functionality of mobile money (purposely offered to individuals and not businesses) offers an alternative method for new informal businesses to secure capital to start and maintain a business, as shown in this quote from an informal business owner:

“I was unemployed and didn’t have any money to start my business, so I had to borrow through my personal mobile money account. As I paid back, I was able to borrow more and that is what I use to grow my business. At the time I wanted to start the business, banks declined to lend me money because I didn’t have collateral or regular income since I was unemployed.” (ISB6)

An important dynamic relevant to our study is that MNOs only offer micro-loans to individuals and not businesses. As such, informal business owners improvised and appropriated this individual level functionality as the easiest source of start-up capital, which was only possible due to the open market logic. Individuals can request a micro-loan of between 50 and 1000 Ghana Cedis (£6.25 and £125) using mobile money and receive the money within a few minutes. The amount approved depends on the creditworthiness of the individual, which is established by tracking their mobile money wallet activity plus history of previous loan repayments. For informal businesses, this process of accessing mobile money loans is more manageable, as there is less strict document or collateral requirements. By periodically requesting and appropriately paying for loans, an individual can obtain a higher loan value and subsequently reinvest in their business or new endeavours.

Increased employment opportunity

By overcoming traditional obstacles to operating a business through mobile money and social media (through the digital informal business logic), individuals explained they were able to move to a more stable source of income. The majority of informal business owners in our study did not have formal jobs prior to starting their business and thus no stable stream of income. After leveraging mobile money to start their businesses, these individuals have a source of income and may even employ others as their businesses grow. In describing how her business had brought her greater income, one owner commented:

“I started in 2017. I completed school four years before then, but I was not getting a job. Being at home I decided to start doing something. My in-law brings fabrics from Nigeria, so I gave her money to buy a few items for me. When she [her relative] brought them, I put the pictures on Facebook and then I started getting contacts, people were asking for more and thus I saw the interest. So, my husband and I decided to invest more money, we brought in more goods and the business began to grow from there. I realised I was earning more from the business compared to my husband who was formally employed.” (ISB3)

Another participant explained that by starting slow and developing their business through social media and transacting with mobile money they were able to incrementally develop their income. Building a business in such a way at a market stall (i.e., the local/small business logic) would have been restrictive and not allowed scaling up as the local market is limited:

“It’s been amazing. Initially, when I started, I was doing [selling] about 2 to 3 [hand]bags in a month but now I do about 3 to 4 bags weekly (i.e., 9 to 12 bags in a month) [...] I pay myself [salary], and this has become my source of income.”
(ISB5)

Some informal business owners employed other people to support their business. A unique employment opportunity directly related to the digital business logic is the need for quick and efficient delivery (courier) services. Previously, informal businesses primarily operated from physical shops, with no need for delivery services. However, the growth of digital informal businesses means there is now a need to deliver items and some informal businesses have employed others as dispatch riders who use motorbikes for delivery: *“I have employed two dispatch riders”* (ISB5). Another informal business owner added:

“I use dispatch riders a lot, so I only use mobile money as means of payment. This is convenient because I get my money once the bead is delivered.” (ISB12)

Other informal business owners use third party motorbike courier services, who themselves are also informal businesses. Although motorbike delivery services are not new in Ghana, the growth of digital informal businesses has led to their proliferation. An informal business owner explained:

“I advertise on my WhatsApp, Facebook and Instagram. When the order is placed, I collect payment by mobile money ... I use a motorbike rider to do the deliveries.”
(ISB8)

The success of mobile money means FinTech firms are now trying to develop tailored solutions for new emergent auxiliary businesses such as motorbike delivery services. A FinTech indicated:

“Technology naturally brings in new use cases as people take advantage of the convenience being offered. We have identified this use case and thus are looking to roll out our PoS devices to courier [motorbike delivery] services who would then be enabled to collect payments across different MNOs. We are looking to develop more solutions that would facilitate quick plug-ins for receiving payments.” (FTF7)

Improved financial management

Traditionally, informal businesses manage their finances by keeping money at home and in shops, as common with the local/small business logic. They typically use paper notebooks to keep records of sales, debtors, and creditors. Mobile money allows improved financial management in two unique ways: first, to receive payments for goods and pay suppliers digitally; and second, to save money and build up working capital securely. The ability to be paid promptly for goods and services allows informal businesses to better understand and plan the liquidity and financial health of their businesses. This practice was significantly improved with the interconnected logic that addresses issues associated with the siloed transactions and cash-based logic. Through mobile money’s peer-to-peer money transfer functionality, informal businesses receive payment promptly. This enables them to plan and manage their business finances in ways that make their business more viable and sustainable. For instance, customers previously bought from informal businesses on credit as they were able to negotiate physically with informal business owners. However, with mobile money, customers must pay before the delivery of items so there is limited opportunity to buy on credit. This change has empowered digital informal businesses to guarantee their sale as money is collected electronically first before delivery. An informal business owner explained:

“Without mobile money, my business would not have survived, and I would not have been getting as much value from the business. I am able to collect payments [through mobile money] before I deliver, guaranteeing my sale. For clients who do

not trust that I would deliver, I get them to pay through MoMo [mobile money] once the dispatch rider delivers.” (ISB7)

Informal businesses are also using mobile money for upstream business payments. Before mobile money, informal business owners would often have to travel long distances to pay suppliers who would then often have to wait a long time to get paid. However, informal businesses are now using mobile money to pay suppliers located in remote parts of the country more quickly and with less cost. An informal business owner explained:

“The people who make my shoes are in Kumasi [another city in Ghana], so when I get an order, I send the details to the shoemakers and the deposit through mobile money, so I don’t need to go to Kumasi myself to place the order [...] when the shoes are ready and I deliver them, I still use mobile money to send the rest [balance] to the shoemakers. It has really made things easy for me.” (ISB4)

Mobile money also allows secure savings. Digital informal businesses can store their working capital using mobile money accounts. This is a great advantage as it is traditionally very expensive to operate a business bank account because of high monthly charges. Storing funds digitally through mobile money also allows individuals to earn interest, while the traditional business bank account did not, making mobile money savings a better alternative for informal businesses to save and build up working capital. Mobile transactions can also be digitally tracked for easy auditing. Informal businesses use mobile money statements to prove the growth of their business in the same way as having a traditional bank statement. These financial management capabilities empower informal business owners to grow their businesses. The appropriation of mobile money also enables flexible working patterns as payment can be accepted at any time and on any day, and goods then dispatched.

5. Discussion

We set out to examine how FinTech and changes in logics help shape economic empowerment amongst informal businesses. We traced the co-existence and influence of the logics and revealed the unexpected yet beneficial outcomes for informal businesses initially unanticipated by

policymakers, banks, MNOs, and even FinTech firms. The novelty of our findings is in showing how shifts in institutional logics for arranging regulation and payments created unforeseen opportunities for informal businesses. Informal businesses used these opportunities and appropriated mobile money solutions created for individuals (not businesses) use to reimagine their business and drive their economic empowerment.

Based on our findings we develop a model (Figure 4) that explains the trajectory of the logics, practices and emerging opportunities that shape potential for economic empowerment. The relationships between old and new logics are emphasised in Figure 4, between the shaded and unshaded chevrons. For instance, the *open market logic* paves the way for the *interconnected logic*. As noted in our findings, as an old logic's influence is eroded there is often resistance and conflict as rules, beliefs, assumptions, identities and organising principles are challenged and refined (Friedland & Alford, 1991; Thornton et al., 2012). Direct observations of the logics' effects are denoted by the thick black arrow, emerging from the *digital informal business logic*. Amongst our sample our findings show evidence of outcomes such as access to start-up capital, employment opportunities, and improved financial management (actualisation). Our study also reveals the indirect, but necessary, effects of the *open market logic* and *interconnected logic* denoted by a dotted arrow. We discuss these processes below.

Initially, major changes to the Ghanaian FinTech ecosystem began with the introduction of the branchless banking guidelines in 2008, embodied in the *open market logic*. This allowed the entry of new actors such as FinTech firms and MNOs and broke with the entrenched and protected ways of structuring the financial services value chain embodied by the *traditional financial services logic*. Historically, payments had been arranged through the *siloed transactions and cash-based logic*. This logic stipulated the boundaries of payment systems as being exclusively managed by banks and so limited the extension of related payment architectures to achieve interconnectivity. Furthermore, the *siloed transactions and cash-based logic* had traditionally been disconnected from the needs of informal businesses and prevented them from scaling up beyond their immediate physical locality. Such limitations naturally influenced and how informal business owners organised their businesses and livelihoods (*local/small business logic*).

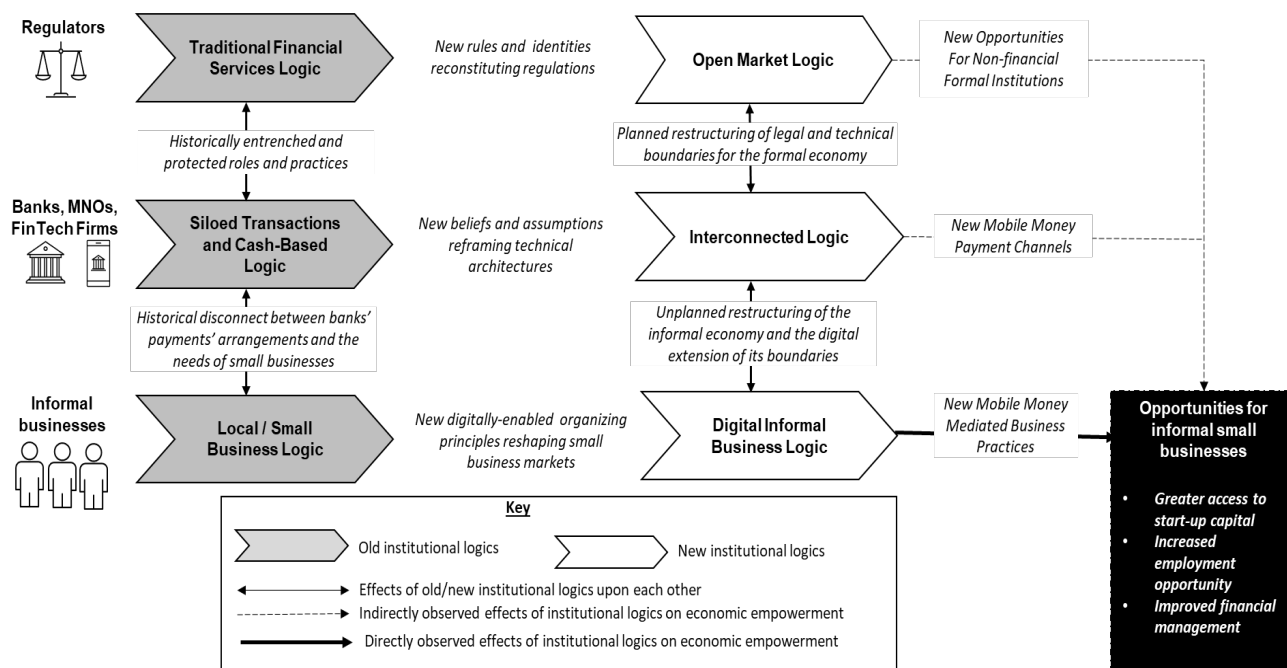


Figure 4: Model of mobile money driven economic empowerment

Regulatory changes introduced and legitimised new approaches for arranging transactions (Friedland & Alford, 1991; Thornton et al., 2012). This was rationalised and framed as necessary to create more seamless payments and so a new *interconnected logic* emerged. These institutional shifts allowed previously held assumptions and beliefs for organising payments to be further revisited (Riikkinen, Lähtenmäki, & Nätti, 2018; Shekhar et al., 2018). Multiple amendments to practices for payments occurred and existing architectures were reframed to include electronic payments and automated clearing houses (GhIPSS), MNOs and FinTech applications.

Changes in the logics for regulatory rules and arranging interconnected payments triggered an unexpected revision of established organising principles (Campbell, 2007; Scott, 2013), for informal small businesses. As the utility (Zhao & Lounsbury, 2016) of mobile money became established and its use legitimised, informal business owners began reconsidering how they operated. The *local/small business logic*, which still dominates, limits the markets in which many informal businesses can participate and the processes they adopt (Mola & Carugati, 2012). This logic is culturally and historically embedded in assumptions on the primacy of cash as the only available payment for businesses and their customers. Yet, the adoption of mobile money with interoperability payments allowed some informal businesses to fundamentally reconsider such beliefs leading to a new *digital informal business logic*. Hence, this logic both challenges and co-

exists with the *local/small business logic* (i.e., traditional market sellers still dominate the informal sector).

We build evidence of the impacts of mobile money for informal businesses (Arslan et al., 2021). While our sample of informal businesses is based on businesses that use mobile money, we demonstrated how these dynamics collectively facilitated mobile money-enabled economic empowerment for informal businesses through enhanced access to *start-up capital*, *increased employment opportunities*, and *improved financial management*, improving the viability and longevity of their businesses. For instance, some previously unemployed people were able to borrow through mobile money to start digital informal businesses. Because informal businesses are typically one-person ventures, the business benefits of start-up capital and improved financial management and personal benefits of increased employment are inseparable from economic empowerment of the individual. Through our findings, we can trace and attribute these economic empowerment outcomes as effects occurring directly through the interplay of logics at the micro level and indirectly through the relationship between of logics at the macro and meso levels (Campbell, 2007; Thornton et al., 2012). To put it differently, the changes in regulatory rules and technological architectures for payments lowered costs and the wider availability of mobile money triggered questioning of long-standing assumptions and beliefs for conducting business and organising around localised markets and cash transactions (Slavova & Karanasios, 2018). While the use of mobile money and the emerging *digital informal business logic* was not planned, at the same time it was not possible without the shift in logics at the regulatory level. Therefore, while on the one hand this shows bottom-up agency from the informal business owners, it also shows that formal institutional arrangements can hold back or encourage opportunities for those at the bottom of the pyramid. Thus, this study shows that fundamental shifts at the institutional level (Rao & Kelleher, 2005) shaped *opportunities for informal small businesses* who interpreted and took advantage of opportunities. By doing so, we add new insights to the ICT4D literature on the formal–informal and macro–micro dynamics that underpin technology mediated change (Coleman, 1990; Ramadani et al., 2022; Rao & Kelleher, 2005). We also show that, as for formal small businesses (Koomson et al., 2022; Wirdiyanti et al., 2022), mobile money can lead to benefits for informal businesses. Thus in addressing our research question (and reflected in Figure 4) we show the influence of the logics at three levels: (1) at the macro level through regulatory changes which have allowed *new opportunities for non-financial organisations* (MNOs and FinTech firms)

to participate in the financial industry; (2) at the meso level through redesigning institutions for operationalising payments resulting in the introduction of *new mobile money payment channels*; and, (3) at the micro level through shifts in institutionalised assumptions for operating informal businesses creating *new mobile money mediated business practices*.

5.1 Theoretical implications

Drawing from our primary contribution and findings, this study offers three main theoretical implications. First, our multi-level study allowed us to show how complementarities between logics created opportunities for economic empowerment. Like recent studies we show that new and historically embedded institutional logics may have positive consequences and step-change even though there may be tension and conflict making it difficult to reconcile interests between them (e.g., Berente et al., 2019; Hansen & Baroody, 2020; Slavova & Karanasios, 2018). These conflicts and misaligned interests explain the outcome of the shifts from one logic to another (the open market logic to interconnected logic) and the unexpected benefits for informal businesses as well as the ways they were neglected. Previous research (e.g., Amoah et al., 2020; Finau et al., 2016; Koomson et al., 2022; Senyo & Osabutey, 2020) has conceptualised the outcomes of mobile money at a single level without considering the interdependencies between levels. By doing so, we contribute to literature on the relationships between macro level processes and micro level actions in technology driven development (Ramadani et al., 2022) which may be difficult to theoretically grasp without considering how broad social conditions affect individual social environments. While other studies have been able to trace government ICT strategies to micro level actions, which in turn can be observed as macro level outcomes (Ramadani et al., 2022), our data only lends itself to understanding the micro level actions spurred by the changes in macro–meso logics rather than greater societal outcomes.

Second, this study contributes to the scholarly conversation on ICT4D by considering possible pathways for economic empowerment in the informal economy. Often, research on mobile money or FinTech innovation is geared towards FinTech start-ups and individuals. Informal businesses, while economically important, are unintentionally neglected in innovation and academic discussion because they tend to be undocumented and thus less visible. While we acknowledge there are caveats to the positive impacts of mobile money (Kanungo & Gupta, 2021), research tends to support that mobile money enables economic empowerment (e.g., Adaba et al.,

2019; Kikulwe et al., 2014; Koomson et al., 2020). Likewise, studies on how FinTech and technology start-ups (Leong et al., 2022; Ng et al., 2022) leverage FinTech are clearly different from the conditions of informal businesses. This study is the first to show the potential of informal businesses to achieve economic empowerment through mobile money. At the same time, just like research on individuals (Arslan et al., 2021; Kanungo & Gupta, 2021), our study provides insights into outcomes for informal businesses that were able to recognise and act on digital opportunities. Given the diversity of the informal economy, this may vary across informal businesses.

Lastly, the study has implications for the FinTech and mobile money literature. This study suggests the potential of the informal economy as a market for FinTech, similar to arguments made about the bottom of the pyramid (Gupta & Kanungo, 2022; Prahalad, 2012). In our study government or technology firms showed little recognition of the possible benefits to the informal economy. Rather, the enactment of FinTech is a by-product of macro-level conditions and the entrepreneurial spirit of the informal business owners. This is captured in our model in its one-way direction. This is in line with theory that shows that neglected groups may improvise and tailor existing technologies to their needs (Zorina & Karanasios, 2021). On the one hand, this speaks to the entrepreneurial character of the study participants and the role of agency. On the other hand, it shows the actions of government are not directly informed by the actions of the informal economy. This latter point suggests that, by integrating the needs of informal businesses with financial inclusion strategies, governments could improve outcomes and extend the reach of those who benefit. FinTech firms could also tap into a large informal economy market by tailoring solutions specifically to the needs and activities of informal businesses.

5.2 Practical implications

Our study offers several practical implications. It provides insights into how FinTech, and particularly mobile money, can be leveraged to address development issues related to United Nations Sustainable Development Goals 1, 8 and 9. The study also furthers our understanding and reaffirms the transformational role of technological innovations for the betterment of society even when the technology is appropriated beyond its originally designed domain. We highlight an emergent form of digital informal businesses that are able to leverage mobile money with other digital technologies, particularly social media, to overcome traditional barriers to running a business. We show that mobile money can offer greater access to capital, increased employment

opportunity and improved financial management. Importantly, this was achieved with a mobile money solution that was designed for and targeted at citizen use, not business use. This raises a question: what kind of economic opportunities can be generated by mobile money solutions purposely designed for informal businesses? We argue that policymakers, FinTech firms, and MNOs should place this at the top of their development agendas. The findings also provide insights on how to support digital transformation of informal businesses. COVID-19 has demonstrated the fragility of digitally immature organisations as they struggled to adapt (Karanasios, 2022). Therefore, in addition to studying digital informal businesses there is a need for practice and policy to consider how to support businesses that are unable to move from the *local/small business logic*.

5.3 Limitations and future research

Like all research, this study has some limitations. First, the study is limited by the sole focus on Ghana. Given differences in idiosyncrasies and technological development in different countries, our findings might not be wholly generalisable to other contexts. Thus, future comparative studies can be conducted in different global south countries to strengthen the generalisation of our findings. While we interviewed the central bank, MNOs, FinTech firms and informal businesses, perspectives could be captured from other organisations. An important direction is focusing on informal businesses that remain financially excluded. In addition, there is a critical need to examine the potential downsides (Mann, 2017; Taylor & Broeders, 2015). While others have identified limitations of the mobile money approach to financial inclusion, informal businesses are likely to face more difficulties in establishing more formal relationships with traditional financial institutions than formal small businesses do (Fasano & Cappa, 2022).

This study did not consider the extent that informal businesses are co-existing or hybridising (Slavova & Karanasios, 2019) the local/small business logic with the digital informal business logic, for instance, where market sellers have a dual business selling at markets and through social media with mobile money. Our study provides insights from the perspective of informal businesses that were able to take advantage of a digital opportunity. Future research could consider a wider range of informal businesses and activities across the informal economy. The impacts of mobile money on economic empowerment are still emerging and evolving. Future research could focus on the longevity of the practices and organising principles outlined and how

related institutional logics have been further embedded amongst informal businesses more broadly or amended or rejected.

6. Conclusion

This study set out to better understand the logics implicated in shaping the practices and opportunities for informal businesses. We developed a theoretical model to demonstrate how these logics influence mobile money mediated practices and in turn offer informal businesses new opportunity for economic empowerment. Our model and findings show how regulatory change has allowed non-financial organisations (e.g., MNOs and FinTech firms) to participate in the financial sector. This has influenced the redesign of technologies for operationalising payments resulting in the introduction of new mobile money payment channels. For informal businesses, change occurs through related shifts in assumptions for operating informal businesses creating new mobile money mediated business practices as a potential pathway to economic empowerment. In summary, this study demonstrates how the co-existence and translation from old to new logics enable FinTech to a possible pathway to economic empowerment for informal businesses.

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